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Organisations' and Employees' acceptance of Activity Based Working (ABW) Offices: An Examination on the Throughput and Outputs.

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Abstract

This thesis revealed the role of organisations' acceptance and employees' acceptance of Activity Based Working offices (ABW) in employees' take up of opportunities for action within the ABW. These opportunities are better known as "affordances" and those taken up by employees within the ABW offices includes activities that employees conduct at the worksettings provided. ABW is a form of innovative Third Generation workplace that consists of a large variety of unassigned worksettings occupied exclusively by a single organisation. ABW is purported to achieve several Corporate Real Estate (CRE) strategies due to worksetting sharing and worksettings that better support the affordances that employees take up.

The existing literature has identified that there is inconsistent achievement of certain CRE strategies due to the inconsistent take up of affordances, a form of behavioural acceptance. Several drivers causing inconsistent acceptance of the ABW were influenced by the ABW Implementation Process that has been under-researched. There has also been limited in-depth studies on ABW Outputs based on employees' affective, behavioural and cognitive acceptance of the ABW as existing studies are largely quantitative evaluations of organisations' achievement of their CRE strategies. Many of the inconsistencies found in the literature were fragmented as they were gathered from several studies with a lack of in-depth holistic studies to identify the links between the inconsistencies found.

This thesis argued that inconsistent achievement of ABW CRE strategies is traceable to limitations in organisations' acceptance of, employees' acceptance of, and employees' take up of these innovative workplace affordances. Organisations' acceptance is the ABW Throughput that includes the ABW Implementation Process and the implementation strategies pursued. Employees' acceptance, a form of ABW Output, was redefined in the Employee Acceptance Model in terms of their affective, cognitive and behavioural acceptance towards the various worksettings and the workplace guidelines. Both forms of ABW acceptance were studied in-depth through a multiple case study research methodology using three cases of financial institutions from Australia and New Zealand.

The results support that employees' take up of affordances within the ABW were attributable to the organisation's and employees' acceptance of the ABW. Business-driven implementation strategies were superior to Process-Solution-oriented strategies as the implementation steps were conducted more extensively. The Implementation Process impacted employees'

acceptance of the ABW through the extent of employee engagement or involvement that educated them about the ABW; and it determined the organisation's success in translating employees' needs into the affordances designed within the ABW. Organisations' acceptance resulted in different interpretations of ABW with low visual resemblance across those ABWs but they are still identifiable through their defining principles.

With employees' acceptance of the various worksettings, employees formed affective responses towards the worksetting features designed. More positive affective responses led to positive behavioural responses, that is higher take up of affordances that resulted in higher utilisation. This increased space pressure for highly demanded worksettings. Affective responses were also subject to change over time indicating the importance of Phase 3 of the Implementation Process to maintain the affective responses towards the workplace. From studying the intended and emergent affordances offered by the worksetting variety, it was found that employees took up affordances that scored positively, moderately and negatively in terms of their cognitive responses; whilst some intended affordances were not taken up. Overall, space pressure was a common contributor in employees' affective and cognitive responses. Whilst highly positive affective and cognitive responses led to high take up of affordances, it led to high space pressure that contributed to unavailable worksettings for employees to take up their desired affordances that led employees to take up affordances at worksettings that received negative affective responses and emergent affordances that poorly supported their activities. This reinforced the importance of Phase 3 of the Implementation Process to monitor and actively manage space pressure within the workplace. Lastly, employees' acceptance of the workplace guidelines affected their take up of affordances because workplace guidelines promote and restrict employees' affordance take up. Several drivers that affected acceptance of the workplace guidelines were found.

The research made several contributions to knowledge. The primary contribution was the defragmentation of explanators driving employees' take up of affordances through identifying the role of the physical and functional ABW features, organisations' ABW acceptance and employees' ABW acceptance in that take up. Inconsistencies in take up of affordances found in the literature was also found in this study but previous findings have been fragmented across several studies as there has been no previous study that studied the physical and functional ABW features, organisational and employees' acceptance in such detail within the same study. Therefore, this was the first holistic in-depth study of its kind that provided explanations

towards a better understanding of employees' inconsistent take up of affordances, confirmation and extension to the existing theories. This contribution was supported by testing the Employee Acceptance Model designed and the application of the Theory of Affordance as the theoretical lens. These contributions fall under the domain of innovative workplace change management under CRE Management, Facilities Management and Workplace Change. The implications of COVID-19 on workplaces and the applicability of the learnings from this research that was conducted pre-COVID-19 were addressed at the end of the thesis.

Declaration

This is to certify that:

- (i) the thesis comprises only my original work towards the PhD,
- (ii) due acknowledgement has been made in the text to all other materials used, and
- (iii) the thesis is less than 100,000 words in length, exclusive of tables, figures, footnotes, bibliographies and appendices.

.....

Eileen Sim

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They say it takes a village to raise a child. This thesis has felt like my first child for the past five years as it followed me wherever I went. Undoubtedly, it did take a village to raise this child, to which acknowledgements are due. I am incredibly grateful for every one of you.

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Most importantly, to my precious loving husband and daughter, James and Rachel, I am beyond blessed to have you in my life. Thank you for loving me as I am, for cheering me on, praying with me and bringing so much joy into my life even on my darkest days. You motivate me to put one step forward even when it feels like that foot might get bitten off immediately. I doubt the journey ahead will be smooth, but I would have none other to journey with me.

To God be all the glory

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Part 1: Introduction and Context

1 Introduction

To set up the context of the research problem, the Introduction of this thesis begins with a landscape of office workplaces to provide a backdrop on how Activity Based Working (ABW) offices are placed in relation to other workplaces.

1.1 Office workplace

Prior to the 20th century, the term 'office' did not represent a physical workplace but rather referred to a position or role of authority or service (Aronoff & Kaplan, 1995; Haigh, 2012). 'Office' has since evolved and it currently refers to the corporate real estate housing non-manufacturing or 'office work' for an organisation (Neufert, Neufert, & Kister, 2012). The latter definition of 'office' is adopted for this thesis. Traditionally, office work was predominantly administrative involving processing data but this is increasingly moving towards evaluation and processing creative information (Neufert et al., 2012).

From the 6S description of an office building (Site, Structure, Skin, Services, Space Plan and Stuff) by Brand (1994), the primary focus of this thesis is on the innovation of Space Plan and Stuff, such as the workplace layout, the worksettings and technological equipment, supporting employees' work. This is referred to in this thesis as the 'workplace'. Innovation in this thesis is defined as the implementation of any new ideas, practice or objects by its adopter (Rogers, 2003; Zaltman, Duncan, & Holbeck, 1973). It is the concept of 'newness' perceived by the adopter that differentiates an innovation from change (Aronson, 2008; Johannessen, Olsen, & Lumpkin, 2001; Slappendel, 1996). Therefore, the implementation of an innovative workplace in this thesis refers to the implementation of a new workplace in terms of the physical worksetting variety and guidelines that is perceived as 'new' by the end-users. For this thesis, 'worksetting' is defined as the collation of furniture and technology that forms a workstation (s) for an individual or group of employees to work or gather at. This definition draws on the existing usage of the term 'worksetting' and 'work setting' that is commonly used in the current literature (for example, Block & Stokes, 1989; Bradley & Osborne, 1999; Koetsveld & Kamperman, 2011; and Rothe & Heywood, 2015), but is often undefined. For instance, Meeting Room is one common variety of worksetting for groups that often includes several pieces of furniture, such as Desk (s), chairs and technological devices such as projector, display screen, panel, booking system.

Much of architectural history of offices was limited to the innovation of the building Shell and Skin as opposed to the workplace because the workplace was typically left to others resulting in limited information on the workplace, as noted in the American real estate model (Gatter, 1982). However, the design of office workplaces has undergone innovation since their inception. Innovation in workplaces can be segregated into three generations of workplaces, as illustrated in Figure 1.1:

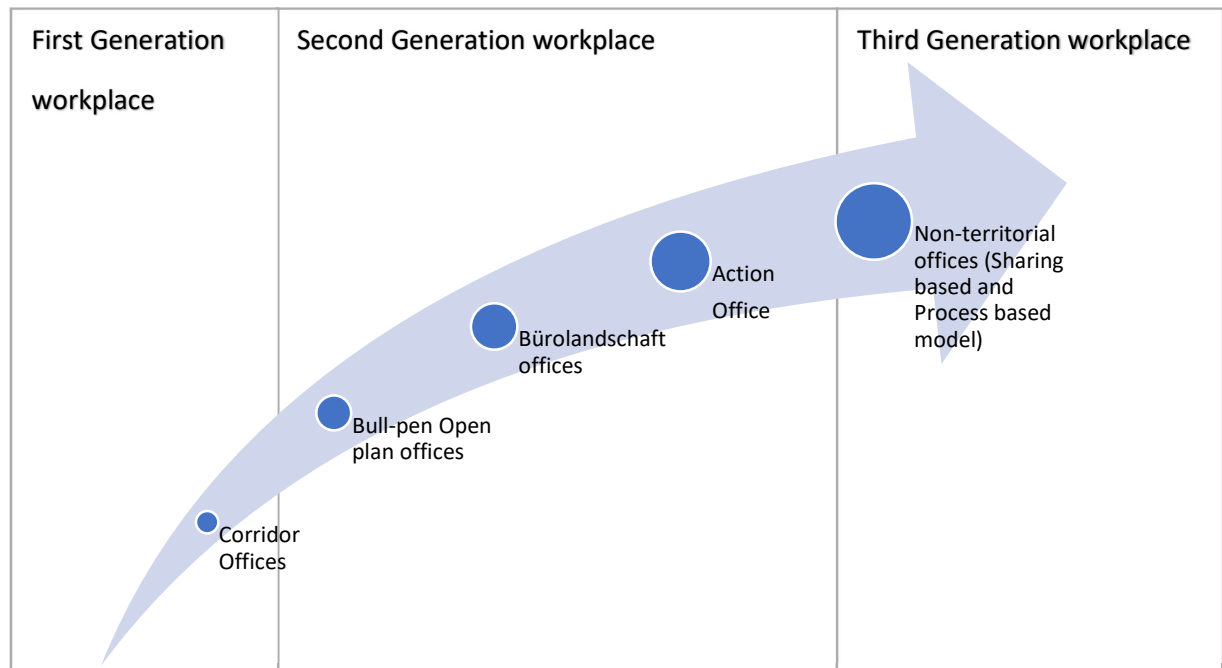
1) First Generation workplace: Corridor offices: "... series of adjoining enclosed rooms ..." (p.65) supporting small groups or solo work functions "... reflecting either their elevated position in society or their more humble role as a loyal assistant." (p.65) (Bedford & Tong, 1997);

2) Second Generation workplace: There are three types of Second Generation workplace – Open plan offices, Bürolandschaft and Action Offices. Open plan offices features Open Desks with no enclosure for efficient workflow (Bedford & Tong, 1997), whereas, Bürolandschaft and Action Offices features enclosure around the Open Desks using panels. However, Bürolandschaft offices feature a flow of communications by creating an long flow of communications network (Duffy, 1992; Sundstrom & Sundstrom, 1986), whereas, Action Office features a modular design promoting autonomy and open access to deal with the privacy and communication issues from Bürolandschaft (Budd, 2001).;

3) Third Generation workplace: Non-territorial offices featuring "Sharing-based models ... supporting variable occupancy by challenging ownership ... (and) ... Process-based models ... supporting diverse work processes and planning for groups not individuals." (p.66) (Bedford & Tong, 1997). The Third Generation of workplace aims "... to support the work process in more precise ways." (p.65) (Bedford & Tong, 1997). Since ABW offices is the subject of this research that fall under the Third Generation workplace, only the Third Generation of offices is discussed here.

Despite this workplace innovation, there were proponents that the pace of workplace change lagged the pace of change in technologies. These proponents put forward the existing changes as cosmetic and superficial and presented the need for workplace change to account for the new ways of working suited to the knowledge economy (Laing, 1997; van Meel & Vos, 2001).

Figure 1.1: Illustration of three Generations of workplaces



Source: Adapted from Bedford and Tong (1997)

1.1.1 The Three Generations of workplace

The various workplaces identified in the literature have been differentiated based on a variety of worksettings and whether the worksettings are assigned or not (Table 1.1). Offices with a basic variety of worksettings that are more conventional or traditional typically include work-desks, a few Meeting Rooms and a Kitchen (Becker, 2004a; Rothe, Sarasoja, & Heywood, 2015), whereas, offices with a large variety of worksettings are designed to meet the various activities that employees conduct. The large variety of worksettings within offices typically included various meeting spaces with different sizes and formality, a variety of work desks to suit ergonomic, technology (single or dual monitors) and activity needs (different levels of enclosure). This is further illustrated in the later discussion on ABW offices. It is not evident in the literature when Combi-offices, that are workplaces with a large variety of assigned worksettings, were first introduced but this has been identified in Bodin Danielsson & Bodin (2008) and van der Voordt (2004).

Table 1.1: A typology of workplace layouts

	Assigned worksettings	Unassigned (non-territorial) individual worksettings
Basic variety of worksettings	Cell-office, Shared-room office, Open plan offices, Bürolandschaft, Herman Miller Action Office. (First and Second Generation offices)	Hot-desking
Large variety of worksettings	Combi-office	ABW, Self-owned desk, Co-location office

Adapted from Bodin Danielsson, Chungkham, Wulff, & Westerlund (2014) and Woods et al. (2015)

1.1.2 Differentiating ABW from other Third Generation Workplaces

The concept of a 'Non-territorial workplace' first emerged in the early 1970s when IBM experimented with a variety of unassigned worksettings except for a 'central communicator' who had an assigned station to direct and redirect mail, visitors and calls (Allen & Gerstberger, 1973). Although this was a successful innovation where communication increased significantly and employees preferred the new non-territorial office over their traditional one- and two-person offices, IBM decided to remain with their previous territorial Second Generation office layouts and the adoption of non-territorial offices was not widespread (Allen & Gerstberger, 1973). There are speculations that the non-territorial office was too innovative for its time when the capability and affordability of technology lagged behind and was unable to support mobility (Stone & Luchetti, 1985). The innovation in superior technology supporting mobility, such as wireless networks and laptops, has resurrected the non-territorial office in recent years.

Becker et al. (1994) defined a Non-territorial workplace as "... as a space allocation policy in which individual employees had no personally assigned desk, office, or worksetting over an indefinite time period. Employees used whatever space they preferred when they came into the office, and no one person was associated with any particular workspace (pg 28-29)".

Becker et al. (1994) elaborates that non-territorial offices can include a variation of worksettings. Therefore, Becker et al.'s (1994) definition of non-territorial offices is adopted for the purpose of this thesis. There are several types of non-territorial offices that have emerged over the years as summarised in Table 1.2. As non-territorial workplaces are

unassigned, there are more workplace guidelines or policies in place to make it function, as exemplified in ABW offices (discussed in Section 2.2).

Table 1.2: Differentiating Third Generation workplaces

	Co-location spaces	ABW	Self-owned desk	Hot-desking
Organisation's exclusive use of office space	No	Yes	Yes	Yes
Individual's exclusive use of worksetting	No	No (only lockers)	Yes (mobile worksetting per employee)	No
Large variety of worksettings	Yes	Yes	Yes	No

For this thesis, ABW offices (also known as ABWs) are defined as a workplace that an organisation exclusively occupies that features: 1) Unassigned (non-territorial) individual worksettings; and 2) A variety of worksettings for employees to switch to the worksetting that best supports their activity (switching behaviour) (Hoendervanger, De Been, Van Yperen, Mobach, & Albers, 2016; Parker, 2014; Rothe et al., 2015; Veldhoen + Company, 2016).

Comparing ABW with Co-location spaces, ABW offices are different because they are for a single organisation's exclusive use unlike Co-location office spaces that are generally shared by employees from several organisations (Kojo & Nenonen, 2014; Nenonen, 2016). Co-location spaces are also called co-working, telecentres and satellite offices which are typically in a convenient location (Davis, Leach, & Clegg, 2011; Sykes, 2014). ABW and Self-owned desks are similar in the sense that the office space is exclusively occupied by a single organisation.

However, self-owned desk provided employees desk 'ownership' where employees are assigned a pedestal desk that they could store in a locker at the end of the day alongside with their belongings but the office space area is unassigned (Becker et al., 1994; Qu, Zhang, Izato, Munemoto, & Matsushita, 2010).

Hot-desking is often confused with ABW offices as they are both exclusively used by the same organisation, however, hot-desking offices do not have a large variety of worksettings to suit different activities and are similar to Open plan offices (CBRE Asia Pacific Research Team, 2016; Veldhoen + Company, n.d.). Whilst the differences between ABW and hot-desking lacked documentation in the academic journals, it is widely agreed upon by industry practitioners and there is much effort put into differentiating the two due to the negative connotations that have emerged around hot-desking (Adonis, 2011; Collins, 2013; Ditchburn, 2014; Foster &

Studley, 2013; Minnett & Ferguson, n.d.; Resilium, 2014; Warner, 2013; Wyllie, Greene, Nagrath, & Town, 2012). From Bodin Danielsson's (2013) definition of Lean offices and workplace strategies that can be pursued (Becker et al., 1994), Hot-desking is more like the Neo-Tayloristic Lean office designs and resembles a Cost-driven strategy, whereas, ABWs are more like a team-based Lean office design and resembles a Business-driven strategy. A Neo-Tayloristic approach uses a scientific management approach to remove personal attributes, clear marking by management to decide on how office are designed and used and standardisation of office design; whereas, team-based lean offices are more focused on the team and how it can be used to encourage problem solving and learning with more power and responsibility on the individual and team level with the office creating physical environment for meetings and interactions to happen (Christina Bodin Danielsson, 2013). Cost-driven strategies are geared towards maximising real estate cost-savings without reducing effectiveness, whereas, Business-driven strategies are geared towards maximising profitability through the most effective environment (Becker et al., 1994). Special care was advised against Neo-Tayloristic lean offices and Cost-driven strategies (Becker et al., 1994; Bodin Danielsson, 2013).

1.2 Increasing ABW adoption

The increasing ABW adoption indicated the importance of this research as more organisations are choosing ABW as their Real Estate Intervention. A preliminary study was conducted in 2016 by the researcher to identify the historical adoption of ABW to forecast its increase domestically and to identify potential case study organisations, as presented in Table 1.3. This was not a comprehensive study to identify all the ABWs within Australia.

Table 1.3: Empirical Survey results of ABW offices in Australia

Year	Accumulated sqm of ABW offices in Australia	No of organisation adopting ABW
2004	58000	1
2009	145670	3
2010	233770	1
2011	310670	5
2012	467134	6
2013	607149	6
2014	703813	7
2015	802930	5
2016	837930	1
	Total	35

Within Australia, the concept was still relatively new in 2013 but was increasingly being adopted as an innovative workplace concept (Warner, 2013). The Property Council Australia (PCA) and Jones Lang LaSalle (JLL) jointly published a report in 2013 on ABWs in just the Sydney market and found that approximately 2% of the total Sydney CBD office stock was ABWs but there was more adoption of ABW underway at that time (Warner, 2013). Additionally, their survey identified that some industries, such as banking and finance, IT, media and accounting, were much more likely to adopt ABW relative to the legal industry. Larger organisations were much more likely to adopt ABWs relative to smaller organisations (less than 3000sqm) (Foster & Studley, 2013; Warner, 2013) of which Foster & Studley (2013) suggested that it came down to the scale of the organisation as a larger organisation was more likely to warrant the effort required to convert to an ABW office.

However, the ABW adoption was forecast to continue increasing since approximately one third of participants were considering to move or have moved into an ABW in two 2012 surveys conducted by JLL and Colliers, and many ABW offices were under development in Australia at that time (Warner, 2013). Many of these statistics indicated that the adoption of ABW was forecast to continue increasing and showed no signs of stopping in the near future as many ABW offices were still under development (Warner, 2013). The JLL and the PCA report, which conducted a scenario analysis, predicted that the take-up rate of ABW in Sydney from 2012-2022 should range from 10% to 40% of total office space (Warner, 2013). Based on the results of 424 online surveys of Australian organisations, Telsyte forecast that ABW would grow to 66% adoption by Australian organisations in 2020 (Telsyte, 2015).

Globally, ABWs were still relatively new as only 8% of 12,480 office workers in 17 countries (Ipsos for Steelcase, 2016) and 4% of the 598 organisations (Leesman, 2016) surveyed work this way. It is also anticipated that COVID-19 will further increase the adoption of Third Generation workplaces, such as ABW offices, as organisations are likely to introduce partial working from home post-COVID19 when restrictions are lifted, as employees are able to better conduct certain activities from home, such as Focused Work (Henry, Hunt, & Marasco, 2020; Lang, Smith, Wightman, & Gardner, 2020; Savills, 2020). This indicates that a majority of Second Generation workplaces may adapt to the change in work practices – partial work from home and prioritise conducting certain activities in the workplace. This led to a forecasted increase in adoption of innovative Third Generation workplaces, such as ABW, as they offer Unassigned seating to support worksetting sharing that utilises space more efficiently and

have a variety of worksettings designed to support the activities that employees take up in the office. These are further discussed in Section 8.8.

1.3 ABW Input – Value-adding ABW Strategic Drivers

Part of the ABW Input is the ABW Strategic drivers that organizations intended to achieve through adopting ABW offices. These included increasing employee productivity, reducing and controlling occupancy costs, increasing customer and employee satisfaction, increasing flexibility, supporting image and culture, increasing sustainability and risk control (for example, Becker & Steele, 1995; Brill, Weidemann, Allard, Olson, & Keable, 2001; Brunia et al., 2016; Fawcett & Rigby, 2009; Kim, Candido, Thomas, & de Dear, 2016; Thomson, 2006). These strategies aligned with several Value-adding Corporate Real Estate Strategies, that are discussed in further detail in Section 2.3. They are purported to be achieved through employees sharing a variety of unassigned worksettings and the superior work environment provided by the ABW. If the organizational strategies were designed to align with these drivers to adopt ABW, failure to achieve these ABW drivers will affect the achievement of the organizational strategies.

1.4 ABW Outputs – Research Gaps

The existing outputs in the ABW literature indicated that common issues with territorial workplaces were still present in ABW offices. Comparing the ABW strategies that organisations intended to achieve with the ABW Outputs, the ABW Outputs provide support for some CRE strategies and inconsistent results for others. The literature provided support for the achievement of these strategies: Support image and culture, Increase flexibility and Sustainability. Inconsistent results have been found for these CRE strategies: Increase productivity and Increase employees' satisfaction. However, there was insufficient results for the following strategies: Reduce and control occupancy costs, Real estate flexibility, Risk control and Customer satisfaction.

In organisations' attempts to Reduce and control occupancy costs, overcrowding was found in the more popular worksettings whilst other worksettings have low occupancy. Results indicated that some opportunities for action (which this thesis calls 'Affordances' and which are discussed and defined in detail in Section 3.5), in the ABW are taken up more frequently than others; a potential mismatch of the number of worksettings with employees' activity needs; and found employees' reluctance to work outside of their allocated team areas,

Neighbourhood zones (Tagliaro & Ciaramella, 2016b). The consequence of overcrowding affected organisations' attempt to achieve increased productivity, employee satisfaction and health and wellbeing due to the lack of suitable worksettings and time wasted looking for a suitable worksetting (Candido et al., 2016; Rolfö, Eliasson, Eklund, 2017; Tagliaro & Ciaramella, 2016b). Additionally, the concept of increased productivity within ABWs is contingent on employees' ability to take up affordances at worksettings suited to their needs but inconsistent results are found for employees' switching behaviour with several studies pointing towards low switching behaviour (Babapour, 2019a). Decreased employee job satisfaction as a result of the implementation or future implementation of ABW was found to push employees to resign and change jobs. Many of the inconsistent take up of affordances within the ABW and their drivers found in the literature were fragmented as the drivers are gathered from several studies with a lack of in-depth holistic studies to identify their links.

When the ABW outcomes assessed by the Value-adding parameters were compared to the First and Second Generation offices, existing results have demonstrated that ABW offices have the potential to outperform First and Second Generation offices (For example, Rolfö et al., 2018). However, there were inconsistent results on employees' acceptance of the workplace (affective, cognitive and behavioural) that affects the achievement of the strategies due to these factors: workplace guidelines, space pressure, ability to find suitable worksettings, communication, management behaviours, cultural alignment, privacy afforded, activity profile, social ties, physical design and technology. These affected employees' take up of affordances within the workplace and their compliance with the ABW guidelines. The ABW Implementation Process has the potential to influence all these factors through the workplace design process, to design the physical and functional workplace features that matches the needs of the employees, and the workplace change management process, that influences how employees feel (affective), think (cognitive) and use (behavioural) the workplace. However, there is a lack of research in the ABW Implementation Process as it is one of the most challenging research areas (Rasila, Jylhä, & Sundqvist, 2014). There were also limited in-depth studies on ABW outcomes based on employees' affective, behavioural and cognitive acceptance of the ABW as several studies relied on large scale quantitative survey evaluations assessing the extent organisations achieve their CRE strategies. Hence, there is a need to study the ABW Throughputs and the ABW Outputs. In this research, ABW Throughputs refers to the process to deliver the ABW. There were two types of ABW Outputs studied in this research – i. the Provisions from the ABW in terms of its physical (worksetting features and variety) and

functional (workplace guidelines) features; and ii. The outcomes through evaluating employees' acceptance of the physical and functional ABW features.

These inconsistencies in employees' take up of affordances are summarised in the main research gap and three subsidiary research gaps:

Main Research Gap: Inconsistent achievement of ABW Outputs are a result of the inconsistent take up of intended affordances within the ABW and non-compliance with the workplace guidelines that are attributable to the ABW Implementation Process and employees' acceptance of the ABW.

Research Gap 1: There are limited in-depth studies on the ABW Throughput, the ABW Implementation Processes, that affect the intended affordances designed into the ABW (variety of worksettings and workplace guidelines) and employees' acceptance of them.

Research Gap 2: There are no in-depth investigations of the suitability between the intended affordances designed into the variety of ABW worksettings and its employees' activity needs that affects employees' acceptance of the ABW and take up of affordances.

Research Gap 3: There are limited in-depth studies on ABW guidelines (that define ABW) and employees' acceptance of them as reflected in their compliance and awareness of them.

These research gaps limit the theoretical understanding on employees' affordance take up, employees' acceptance of organisational ABW acceptance and practical guidelines on how to leverage the benefits of ABWs, whilst minimising or managing the potential risks and downsides.

1.5 Research Aim and Questions

This research's primary aim investigates the role of organisations' acceptance of the ABW (ABW Throughput), through the Implementation Process and Implementation strategies pursued, and employees' acceptance of the ABW in employees' take up of affordances within the ABW. As the current literature proposes that the Implementation Process plays a role in employees' acceptance of the ABW, this research aims to uncover its role. A more holistic approach to understanding employees' acceptance of the ABW is designed and tested to understand whether employees' affective and cognitive response towards the ABW influence their behavioural acceptance of the ABW in their take up of affordances and compliance with the workplace guidelines. Identification of the role of the physical and functional ABW

features, the organisational and employees' acceptance in ABW Outcomes assisted in defragmenting how they drive ABW Outcomes. In addition to addressing a theoretical knowledge gap, this research has an overall, practical aim of providing CRE managers and Architects more insight into how to implement ABW or innovative workplace solutions and to better understand how to assess employees' acceptance of the ABW. The term 'Architects' is used broadly in this thesis to include any entities that were employed by the organisation to design the ABW. This may consist of workplace designers, interior designers and consultants involved in gathering the necessary information to input into the workplace design.

To provide an insight into the Research Gaps and achieve the research aims, the following Research Questions guides this thesis and its research design.

Main Research Question: What is the role of employees' and organisations' acceptance of ABW offices on employees' take up of affordances within the ABW?

Research Question 1: What role does organisations' acceptance through the ABW Implementation Process play in employees' acceptance of the ABW?

Research Question 2: How does the worksetting variety and worksetting features affect employees' take up of affordances within the workplace?

Research Question 3: What are the key drivers behind employees' acceptance of the ABW workplace guidelines?

The Main Research Gap and Research Question is answered by addressing the Main Theoretical Proposition:

Main Theoretical Proposition: Organisations' acceptance and employees' acceptance of the ABW office plays a role in employees' take up of affordances within the ABW and compliance with the guidelines.

Research Question 1 and Research Gap 1 is answered by addressing Theoretical Proposition 1:

Theoretical Proposition 1: Business-driven implementation strategy is the superior implementation strategy that will result in more positive cognitive responses towards the ABW Implementation Process as it focuses more on employees' needs and the affordances that should be designed into the ABW.

Research Question 2 and Research Gap 2 is answered by addressing Theoretical Propositions 2, 3, 4 and 5:

Theoretical Proposition 2: Worksettings and features that generate positive affective responses translates into employees' behavioural take up of affordances resulting in higher demand and higher utilisation, and vice versa.

Theoretical Proposition 3: Post-moving into the ABW, ongoing maintenance and workplace management are often overlooked but are critical to sustain employees' affective responses and behavioural take up of affordances within the workplace.

Theoretical Proposition 4: The intended affordances designed for by the Architects should have more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for.

Theoretical Proposition 5: The emergent affordances that have positive cognitive and behavioural responses are affordances that require few supporting worksetting features, and vice versa.

Research Question 3 and Research Gap 3 is answered by addressing Theoretical Proposition 6 and 7.

Theoretical Proposition 6: Employees' primary learning of the Workplace Guidelines is through their involvement in Phases 1 and 2 of the ABW Implementation Process.

Theoretical Proposition 7: Common issues generating negative acceptance of the ABW workplace guidelines are attributable to the lack of process informing new employees of the guidelines, ambiguity of guidelines and guidelines that are conflicting with the workplace design.

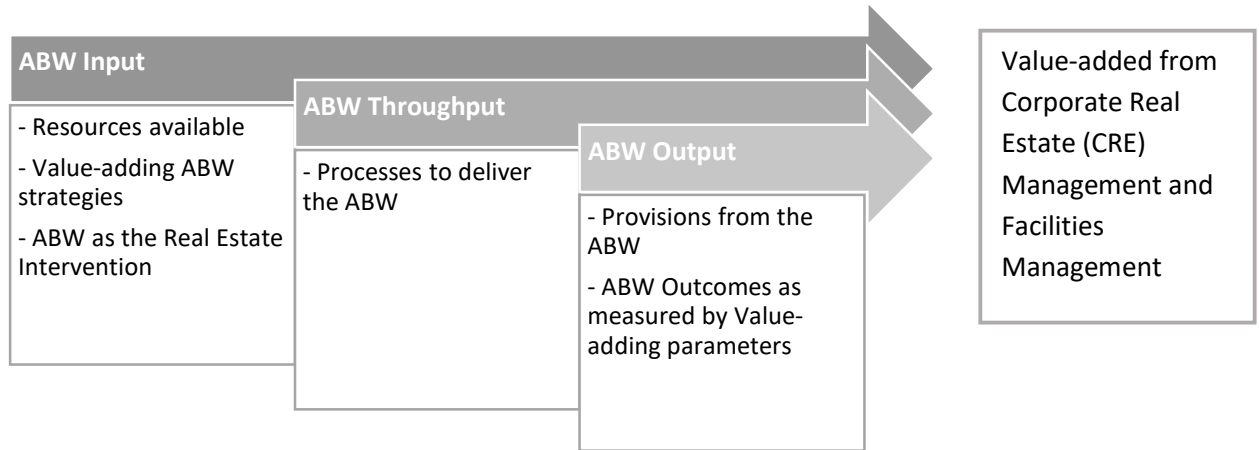
1.6 Research Theoretical Positioning

The Value-added Model (Figure 1.2) from the fields of Corporate Real Estate (CRE) and Facilities Management (FM) is used to position the research gaps uncovered from the ABW literature and the research questions to be addressed by this research.

The existing literature is clear on the ABW Input that organisations have the available resources to adopt ABW as their chosen Real Estate Intervention in attempting to accomplish the Value-adding ABW strategies that they set out to achieve. However, the existing literature

has identified inconsistent achievement of the Value-adding ABW Strategies as reflected in the ABW Outcomes measured by the Value-added parameters as part of the ABW Outputs.

Figure 1.2: Corporate Real Estate Management and Facilities Management Value-added Model



Source: Adapted from Gerritse, Bergsma, & Groen (2014); Jensen & Katchamart (2012); Jensen, van der Voordt, Coenen, von Felten, et al.(2012); Jensen & Voordt (2016); Lindholm, Gibler, & Levänen (2006); and Vries, Jonge, & Voordt (2008).

The majority of evidence attributes the inconsistent ABW Outcomes, measured by the Value-adding parameters, towards:

- Employees' acceptance that are affected by the Implementation Process, also known as the ABW Throughput (Research Gap 1);
- The Provisions from the ABW in terms of the physical (worksetting features and variety) and functional features (workplace guidelines) (Research Gap 2 and 3); and
- The suitability between the Provision from the ABW with employees' activity needs (Research Gap 2) influencing employees' take up of affordances within the ABW.

However, there are limited studies on these. The predominant method used to evaluate ABW Outcomes in the literature is surveys using employees' satisfaction as a proxy for ABW acceptance, but they lack in-depth information and insight on how the ABW can be further improved to better support employees' activity needs and increase employees' acceptance. Employees' acceptance of the ABW is critical because they are the end-users that the ABW is designed for and their acceptance of the workplace affects the achievement of both CRE and organisational strategies. Aligning these research gaps with the Value-added Framework, the research gaps are focused on the ABW 'Throughput' and 'Output'.

Prior to proceeding with the research design, a theoretical basis and theoretical framework to address these research gaps are required.

To study the ABW Implementation Process, the literature on ABW implementation is gathered in Section 3.3 that outlines the Implementation Strategy and the recommended steps. This study gathered data on the ABW Implementation Process of three case studies and employees' responses towards them and are compared to the ABW Implementation Process identified in the literature. To supplement the limited literature on the ABW Implementation Process, literature from the fields of Corporate Real Estate, Property Management, Change Management and Innovation adoption was reviewed.

To address employees' acceptance, an Employee Acceptance Model was designed to capture employees' affective, behavioural and cognitive ABW acceptance, in Section 3.4. This model is employed in this study to identify employees' acceptance of the Provisions from the ABWs in terms of its physical and functional features.

To study the suitability of the worksettings designed with employees' activity needs, the Theory of Affordances is discussed in Section 3.5. The Theory of Affordances explores the opportunities for action (Affordances) that the ABW provides or supplies its employees (Gibson, 2015). The concept of ABW relies on employees taking up various affordances at the worksettings they deem most suitable, however, employees and Architects may have differing ideas about which affordances are most appropriate for the worksettings. Since Architects influence the affordances through the Implementation Process, this study employs the theory by studying the Architects' intended affordances for each type of worksetting and compares this to the affordances that employees take up. Employees' acceptance of the worksettings are then used to understand why employees take up or do not take up certain affordances.

1.7 Research Methods

A multiple case study was the principal research method in which three financial institutions within Australia and New Zealand were studied. The same research design was replicated across the three case study organisations to enable cross-case comparisons.

Various data gathering methods were employed within the case studies. These included:

- Document analysis of Internal Project Documents relevant to the ABW and its Implementation Process;

- Individual interviews with key personnel involved in the ABW Implementation Process;
- Focus Group Interviews with employees with different mobility profiles; and
- Non-participant observations of the whole ABW or area occupied by the employees in the Focus Group Interview.

Semi-grounded thematic analysis was employed to code the qualitative data collected and a simple quantitative analysis was conducted on the quantitative data collected. The various data sources aided in triangulation to ensure the validity of the results gathered. All of the qualitative data was analysed using a thematic Content Analysis process with NVivo guided by the steps outlined in Attride-Stirling's (2001) article.

1.8 Empirical Study Introduction

Since Australia is a leader in the ABW adoption globally, only domestic case studies were initially considered. From the empirical survey the researcher conducted, a list of 47 potential ABW case studies in Australia were identified of which approximately 30% of the potential ABW case studies are financial institutions. Financial institutions were selected as there were more potential organisations to approach. The weakness of choosing financial institutions is that they are generally very large; therefore, it will not be possible to study all the departments within the organisation using focus groups. However, due to the size of financial institutions, there is a large selection of diverse departments with different mobility profiles for the Focus Group Interviews.

The research was limited to financial institutions' headquarters and regional offices as these are the most strategic level of change projects as "Level 1: Strategic FM projects (major organisational and business change)" and "Level 2: Major Building and Business Unit level projects" (Kaya, Heywood, Arge, Brawn, & Alexander, 2004, p. 77) were considered. Two financial institution case studies were headquarters in Australia, B2 and B3, and one financial institution was a regional office project in New Zealand, B1 as shown in Table 1.4. Even though B1 was in New Zealand, the workplace concept for it was designed at its Australian headquarter as they deployed predesigned worksettings and a standardised Implementation Process. These are further discussed in Section 4.7.

Table 1.4: Comparison of case studies context

	B1	B2	B3
Headquartered in Australia	Yes	Yes	Yes
Located in Australia	No, New Zealand	Yes	Yes
Headquarter building/site	No	Yes	Yes
ABW concept and worksetting developed in Australia	Yes	Yes	Yes
Project strategic level	Level 2: Major building and business unit level project; Regional office	Level 1: Strategic FM project; Headquarter office	Level 1: Strategic FM project; Headquarter office
Scale (number of employees)	Approx. 200	Approx. 1000	Approx. 350
Completion date	2017	2013	2017
Year studied	2017-2018	2017	2018

The collection of data was divided into two stages- Stage 1 and 2. The first stage was to collect data on the ABW Implementation Process and the designers' affordances intent, whereas, the second stage was to collect data on the employees' acceptance of the Implementation Process and the ABW concept. The fieldwork was conducted prior to COVID-19 emerging as the data was collected in 2017 to 2018. The sequence of the results discussion and the research themes examined are summarised in Table 1.5.

Reporting of the empirical study results began with a cross-case comparison analysis of the link between the ABW Implementation Process and employees' acceptance of the ABW Implementation Process as attributed to the different implementation strategies pursued. This is then followed with a detailed examination on employees' acceptance of the various ABW worksettings and the ABW guidelines.

Table 1.5: Chapters and research themes

Chapter	Research themes examined
Chapter 5: The link between ABW Throughput (ABW Implementation Process) and ABW Outputs (Employees' acceptance of them)	• ABW Implementation strategies pursued • Difference in ABW Implementation Processes due to the ABW Implementation strategies • Difference in employees' cognitive acceptance towards the ABW Implementation Process • ABW Implementation issues unrelated to the ABW Implementation strategies
Chapter 6: ABW Outputs – Employees' acceptance of the Various ABW worksettings	• Employees' Affective and Behavioural Acceptance of the various worksettings • Employees' Cognitive and Behavioural acceptance of the affordances within the ABW worksettings
Chapter 7: ABW Outputs- Employees' acceptance of the ABW Guidelines	• Identification of Workplace guidelines • Impact of the ABW Implementation Process on employees' cognitive learning of the ABW guidelines • Employees' acceptance of the ABW guidelines • Issues with employees' ABW guidelines acceptance

The Thesis's Argument

This thesis argues that the inconsistent take up of affordances offered by the ABW (ABW Outputs) can be explained by studying the ABW Implementation Process and Implementation Strategies (ABW Throughput) and an in-depth assessment of employees' affective, cognitive and behavioural acceptance towards the physical and functional Provisions from the ABW (ABW Output). This thesis argues that ABW is a workplace concept that may have very different Provisions dependent on the ABW Implementation Process resulting in differing acceptance amongst employees, thus, warranting an in-depth study on each ABW and its implementation. To evaluate the extent that organisations are accomplishing the strategies that they set out to achieve, employees' acceptance of the ABW is fundamental as they influence the affordances that employees take up and their compliance with the ABW guidelines. Employees' acceptance of the ABW captures their affective and cognitive acceptance to understand employees' behavioural acceptance that is often overlooked in theory and practice to date.

1.9 The thesis's structure

Overall, there are six parts in the thesis's structure.

Part 1 includes this chapter that introduces the thesis followed by Chapter 2 that introduced the Provisions from the ABW Outputs that define an ABW based on its physical and functional features. This is then followed by the Value-adding ABW Strategic drivers that organisations adopting ABWs intended to achieve and the ABW Outputs as captured by the existing literature. These enabled the identification of the research gaps to be addressed by this research.

Part 2 (Chapter 3) dealt with previous work and provides the foundation for the research's theoretical approach. To position the research theoretically, theories examined included the ABW implementation literature, the Theory of Affordances and theories contributing to designing the Employee Acceptance Model.

Part 3 puts forward the research design for this research (Chapter 4) and the methods employed.

The results of the empirical research were set out in Part 4 (as per outlined in Table 1.5) in three chapters (Chapter 5 to Chapter 7).

The conclusions and contribution to knowledge is then set out in Part 5 (Chapter 8). This also included a discussion on the implications of COVID19 on workplaces and contributions for future workplaces that can be drawn from this research conducted pre-COVID19.

Part 6 contains the Appendices and Part 7 the Bibliography to supplement the thesis. The appendices included papers that have been produced from this research in Appendix A: Paper produced from the research outputs.

2 The Inputs and Outputs of ABW offices

2.1 Introduction

This chapter begins with the definition of ABW offices, a discussion of the Value-adding ABW Strategic drivers that organisations aspire to achieve and a consolidation of existing research on ABW Outputs. Collectively, these feed into the identification of the research gaps to be addressed in this research.

2.2 ABW Outputs – Provisions from Activity Based Working (ABW)

Veldhoen + Company are known as the founder of the Activity-Based Working (ABW) concept in Netherlands in 1991 (Veldhoen + Company, 2016) but existing studies trace this back to 1985 when Stone and Luchetti (1985) explored an ‘activity-settings office’ because “... an all-purpose workstation per person- no longer suffices” (Stone & Luchetti, 1985, p. 106). Parker (2014) identified the similarities between ABW offices and Activity Based Management due to the analysis of all activities, restructuring and streamlining the office for cost advantage and for value-adding cost-efficiency.

Despite the lack of clarity in defining an ABW office, the two core ABW features consistent in the literature are: 1) Unassigned (non-territorial) individual worksettings; and 2) A variety of worksettings for employees to switch to the worksetting that best supports their activity (switching behaviour) (for example, Hoendervanger et al., 2016; Parker, 2014; Rothe et al., 2015; Veldhoen + Company, 2016; Wohlers & Hertel, 2017). The first feature is a workplace guideline representing a functional feature on how an ABW office is intended to be used and the second feature represents the Architectural features or physical designed features (Bodin Danielsson, Wulff, & Westerlund, 2013). Employees in an ABW office have less ‘ownership’ over individual space but more shared spaces are co-owned (Candido et al., 2019). The worksetting to employee ratio is reduced dependent on the organisation’s Flexible Working guidelines dictating how an organisation’s work-from-home policy and the frequency of employees’ attendance at the organisation’s office affects occupancy of the office (Becker & Steele, 1995; De Bruyne & Beijer, 2015). The ABW’s functional features below further discusses Flexible Working guidelines. Some other key support requirements for ABW are Information and Communication Technology, Human Resources and Workspace Management to support flexibility and mobility (Khamkanya & Sloan, 2008; Parker, 2014).

Unlike previous office layouts, the name and definition of ABW offices is somewhat disjointed to date. The term 'Activity Based Working (ABW)' is not as common in the academic literature and is adopted here due to its clarity and self-explanatory nature, whereas, 'Flexible office', 'Lean Offices', 'New ways of working', 'Task-facilitating Environment' and 'Activity-based Flexible Offices' are more common in the academic literature but they refer to the same type of office layout (Appel-Meulenbroek, Kemperman, Kleijn, & Hendriks, 2015; Babapour, 2019a; Blok, Korte, Groenesteijn, Formanoy, & Vink, 2009; Bodin Danielsson, 2013; Brunia et al., 2016; De Bruyne & Beijer, 2015; Rolfö, 2018; van Diermen & Beltman, 2016). These other terms are not adopted due to the potential for confusion. For example, 'New Ways of Working' refers to new work patterns of service and knowledge workers (Aronoff & Kaplan, 1995; The B Team, 2015); the philosophy of knowledge workers' demands (Appel-Meulenbroek, Groenen, & Janssen, 2011); the workplaces accommodating these new work patterns (De Bruyne & Beijer, 2015; van Meel & Vos, 2001); and implementing new systems or programmes in companies (Assarlind, Eriksson, & Gremyr, 2013); and organisational management to develop more flexible organisational principles (Volderba, Jasen, Tempelaar, & Heij, (2011) (in Dutch) in De Bruyne & Beijer (2015)). It is also common practice for organisations to name their ABWs differently (CBRE Asia Pacific Research Team, 2016) and there is anecdotal evidence that organisations prefer not to associate their workplaces with ABW to avoid any negative stigma that may be associated with it and to reflect organisational innovativeness. Therefore, the literature reviewed for this thesis includes the work of authors that did not explicitly call the workplace an ABW one but fundamentally referred to the same type of workplace.

Compared to Assigned workplace offices in which visibility of employees are high, the ABW concept requires a higher level of trust amongst both managers and employees as the physical distance increases and visibility of their employees is reduced and other non-face-to-face communication modes are more fundamental. A lack of trust will adversely impact on employees' well-being, job satisfaction, motivation and job performance in ABW offices (Wohlers & Hertel, 2017), though that is arguably true of any workplace.

ABW's Architectural features

The variety of worksettings is designed such that a limited range of activities are supported at each worksetting (Stone & Luchetti, 1985, p. 106) with some studies reporting up to twelve different types of worksettings that may be colour coded to communicate the activity facilitated by each area (Skogland, 2017). Other common ABW features are assigned lockers

for storage (Babapour, 2019a), informal relaxation areas, such as “... café-style coffee machine, drinks bar, or leisure activities (pool table, table tennis) ...” (Wyllie et al., 2012, p. 4), and circulation areas, such as internal staircases (Bajaj, 2016; Sailer, 2014), that increase unplanned interaction and ‘chance encounters’ highly valued by organisations (Andrew, Ip, & Worthington, 2014; Elsbach & Bechky, 2007; Waber, Magnolfi, & Lindsay, 2014). ABWs can be designed and interpreted very differently by the adopting organisations depending on the ABW Implementation Process resulting in various usage levels (Haapakangas, Hallman, Mathiassen, & Jahncke, 2019; Rolfö, 2018).

Workplace Guidelines/ Functional Features

From the functional features defining ABW offices, workplace guidelines such as Unassigned seating facilitate the ABW functioning by sharing worksettings and providing employees with worksetting choices that best support their activities (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017; Wohlers & Hertel, 2017). Other guidelines also help to support the intended activities at the worksettings (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017). However, guidelines within an ABW office also differ between organisations (Babapour & Rolfö, 2019; Haapakangas et al., 2019; Rolfö & Babapour, 2017).

This section explores the various guidelines in the literature. The existing literature currently has various names for the workplace guidelines, such as policies or rules, but the term guidelines is adopted here due to their lack of enforcement mechanisms as discussed in Section 2.4.4.

Overall, four categories of workplace guidelines were found:

- 1) Unassigned seating (Hoendervanger et al., 2016; Parker, 2014; Rothe et al., 2015; Veldhoen + Company, 2016) or Desk-sharing Guidelines (Babapour, 2019a; Babapour & Rolfö, 2019; Rolfö & Babapour, 2017): Unassigned seating limits individual ownership and territoriality over worksettings and removes personalisation so that worksettings are interchangeable between employees (Elsbach, 2003; Wells, 2000; Wohlers & Hertel, 2017). Using Organisational Psychology theories, Wohlers and Hertel (2017) propose that this will have adverse effects on well-being, job satisfaction and motivation for employees that were previously working in territorial offices. However, the ability to adjust features of the work environment may provide them with a sense of personal control that may counteract the adverse effects (Lee & Brand, 2010; Wohlers & Hertel, 2017). There is no guarantee that employees can sit wherever they

want (as their preference might be occupied) and employees sitting anywhere may affect the time it takes to find colleagues (Wohlers & Hertel, 2017). Unassigned seating is more specifically broken down into these three supporting guidelines:

- I. Removal of belongings or Clean-Desk – at the end of the day and during the day (duration in which Desks are permitted to be occupied but unattended) (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017; Wohlers & Hertel, 2017). Other studies have also identified different time frames for employees to remove their belongings if away for an extended period during the day to enable others to use the worksetting, ranging from one hour to two days (Babapour, 2019b; Babapour & Rolfö, 2019; Mosselman, Gosselink, & Beijer, 2009; Rolfö & Babapour, 2017).
- II. Restrictions on using Desks consecutively (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017) - Whilst it is expected that ‘nesting’ or using the same Desks on consecutive days is discouraged, most organisations were found not to have any guidelines restricting nesting. The lack of such a guideline preventing nesting resulted in less criticism of the lack of territoriality as employees were not breaking the rules or guidelines by nesting (Rolfö, 2018). Contrary to this guideline, some organisations allocate a minority of employees to assigned worksettings (Ekstrand, 2016; Tagliaro & Ciaramella, 2016b), also known as ‘Anchors’. ‘Anchors’ are allocated desks based on their physical limitations, psychological limitations, hierarchy within the organisation, such as top management, or type of work conducted, such as paper-based work processes, confidentiality and concentration requirements (Ekstrand, 2016; Gerdenitsch, Korunka, & Hertel, 2018; Skogland, 2017).
- III. Restrictions on using scarce or highly in-demand worksettings consecutively (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017) - Studies did not find any explicit guidelines that prevented employees from using scarce worksettings on consecutive days (Babapour & Rolfö, 2019; Rolfö, 2018).

2) Speech guidelines (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017): These are to control the types of activities intended at each worksetting by managing the noise levels through two guidelines. Some organisations also separate their work areas into ‘Quiet zones’, ‘Semi-quiet zones’ and ‘Active zones’ in which employees are supposed to autonomously control the amount of noise they generate at the various worksettings (Babapour, 2019a). Other organisations are more specific about the noise sources, as illustrated in these guidelines (Babapour & Rolfö, 2019):

- I. Restriction on verbal interaction or interruption in different zones (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017); and
- II. Restriction on Phone Conversations in different zones (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017).

3) Neighbourhood Zone guideline: Some ABW variants allocate areas to departments and these are often known as ‘home-zone’ (Millward, Haslam, & Postmes, 2007; Tagliaro & Ciaramella, 2016a, 2016b), Neighbourhoods, or work-zones (De Paoli, Arge, & Blakstad, 2013). ABW offices with no Neighbourhoods require employees to share all worksettings.

4) Flexible Working guideline: This is more of a human resources guideline to support flexible working hours and location but this influences how the workplace is used when employees work at the office (Nijp, Beckers, van de Voorde, Geurts, & Kompier, 2016).

2.3 ABW Inputs – Value-adding ABW Strategic drivers

The strategic drivers are ABW Inputs which organisations intend to achieve from adopting ABW. These are compared to the Value-adding Corporate Real Estate (CRE) strategies in Table 2.1. Overall, the ABW Strategic drivers are geared to achieve most of the Value-adding CRE strategies that were expected to add value to the organisation’s core business (Rasila et al., 2014) which explains the increasing adoption of ABW.

Table 2.1: Comparison of Value-adding Corporate Real Estate strategies and ABW Strategic Drivers typically found in the literature

Value-adding Corporate Real Estate Strategies	ABW Strategic Drivers
1) Increase productivity	Yes
2) Reduce and control occupancy costs	Yes
3) Increase customer and employee satisfaction	Yes
4) Increase asset value	Not specified (as not all real estate is owned)
5) Increase flexibility	Yes
6) Increase innovation	Not specified (implied through collaboration)
7) Support image and culture	Yes
8) Increase sustainability	Yes
9) Risk control	Yes

Source: Adapted from Gerritse, Bergsma, & Groen (2014); Jensen, van der Voordt, Coenen, & Sarasoja (2012); Jensen & van der Voordt (2016); Lindholm, Gibler, & Leväinen (2006); Lindholm & Leväinen (2006); and Vries, Jonge, & Voordt (2008).

The few CRE strategies not discussed directly in the ABW literature are: ‘Increase asset value’ and ‘Increase innovation’. Depending on how organisations define their assets or manage their assets, Increase asset value in relation to real estate may be irrelevant because it is common

for organisations to take on long-term leases for their office workplaces as opposed to owning them (asset), and the fit-outs installed are often fully depreciated by the time their long-term leases ends. Increasing innovation within an organisation is not specified in the literature but implied from the increased collaboration amongst employees to innovate more in an ABW or to provide employees with an environment that stimulates more creativity to innovate. Additionally, an ABW have a variety of worksettings to accommodate their activities required to innovate. With CRE strategies designed to align with organisational strategies, underachieving CRE strategies also negatively affects the achievement of organisational strategies (Jensen, Nielsen, & Nielsen, 2008; Jensen, Sarasoja, van der Voordt, & Coenen, 2013; Jensen, van der Voordt, Coenen, & Sarasoja, 2012; Nourse & Roulac, 1993; Roulac, 2001).

The following sub-sections detail the ABW Strategic drivers that organisation adopters of ABW intend to achieve.

2.3.1 Reduce and control occupancy costs

The cost-savings anticipated from ABW offices are from a lower employee to worksetting ratio of approximately 0.7-0.8: 1 compared to traditional offices with a 1:1 employee to worksetting ratio (Becker & Steele, 1995; Been, Beijer, & den Hollander, 2015; Brunia et al., 2016; Rasila et al., 2014; van der Voordt, 2004; Wohlers & Hertel, 2017). The employee-worksetting ratio was even pushed down to 0.6 as part of some design intentions (Nijp et al., 2016) or due to the increase in employees post-design (Babapour, 2019a). This potentially reduces real estate occupancy costs by up to 40%. By decreasing the employee to worksetting ratio, a higher space efficiency from a higher utilisation rate is also achieved (Vos & Dewulf, 1999). Studies have long shown that territorial offices have a low daily Occupancy rate (Becker & Steele, 1995; Koetsveld & Kamperman, 2011; Tagliaro & Ciaramella, 2016a) with up to 50% of office spaces unused on any given day (Koetsveld & Kamperman, 2011); thus, the push towards a higher utilisation rate of offices. However, the average occupancy of 47% in Rolfö, Eklund and Jahncke's (2018) study included a range from 25% to 75% worksetting occupancy. Thus, an employee to worksetting ratio that is lower than 75% or the maximum worksetting occupancy may result in high space pressure and employees unable to find suitable worksettings (Rolfö et al., 2018). This focus on cost-reduction and efficiency by adopting ABW offices has resulted in some similarities identified between ABW offices and Taylorism's scientific management that drove Open plan offices (Forty, 1986; Drucker, 1999). However, ABW differs from the

Tayloristic Open plan offices in its management style that is less top-down, less controlling, less supervised and has no resemblance to a factory (Parker, 2014).

Organisations anticipate spaceless growth through increasing their workforce by up to 30-40% without making any changes in the current ABW office environment resulting in avoidance of space and disruption costs (Becker & Steele, 1995; Gerdenitsch et al., 2018; Warner, 2013).

The initial capital costs for an ABW are generally large investments attributable to Information Technology investments, and designing and installing the workplace (Becker et al., 1994; Warner, 2013), however, ABW may see returns on investment in the first year (Warner, 2013).

Since collaborations between employees from different departments fluctuate and organisations may restructure, ABW offices are able to cope with changes, such as relocations, without incurring significant costs because worksettings are unassigned and employees' storage are limited to lockers (Warner, 2013). Since less space is required for the same number of employees, space consolidation across the entire occupied portfolio may be possible to decrease the sprawl and number of offices occupied (Babapour, 2019a).

2.3.2 Increase real-estate flexibility and risk control

ABW also provides organisations with more flexibility than second generation offices to accommodate changing business functions, business activities, demands of knowledge-based workers (Khamkanya & Sloan, 2008; van Diermen & Beltman, 2016; Wohlers & Hertel, 2017) and organisational changes, such as future spaceless growth and reconfigurations of departments (Khamkanya & Sloan, 2008), as discussed in Section 2.3.1. Future spaceless growth is possible as the organisation can further decrease their employee to worksetting ratio by accommodating more new recruits within the same space (Becker & Steele, 1995; Rolfö et al., 2018; Warner, 2013). These control for the risks associated with changes in business activities, their related space demands and workforce expansions. Typically, organisations would only consider increasing their occupancy area when the employee to worksetting ratio in the ABW gets too high and begins adversely affecting employees' productivity, or when the risk of congestion exceeds the risk of real estate inefficiency (Fawcett & Rigby, 2009).

Organisations are also able to carve out areas to accommodate cross-collaboration projects quickly due to the real estate flexibility afforded (for example, Becker & Steele, 1995; Brill, Weidemann, Allard, Olson, & Keable, 2001; Brunia et al., 2016; Fawcett & Rigby, 2009; Kim, Candido, Thomas, & de Dear, 2016; Thomson, 2006).

2.3.3 Support image and culture

Some organisations implement ABW as part of their corporate image strategy as a showcase project to increase their visibility and attract potential new clients (Gerdenitsch et al., 2018). This aligns with Goffman's Impression Management theory interpreted by Parker (2014) that offices may be used as a 'front stage performance area' to convey desired messages about the organisation. Similarly, Architects designing the offices may also use stereotypical or idealised design that represents certain messages to be conveyed, such as mobility, flexibility, adaptability and efficiency. Thus, Parker (2014) argues that ABWs on the surface are a staged and elaborate play and claimed as a significant change in offices, but are not significantly different in terms of organisational form or focus.

In terms of culture, most organisations adopting ABW often aspire to change their organisational culture to a more open, collaborative, interactive, people-oriented, informal, flexible, less hierarchical culture in which employees are evaluated based on trust and results instead of time spent with the manager (De Paoli et al., 2013; Rolfö, 2018; Skogland, 2017; van Diermen & Beltman, 2016; Weerdenburg & Brunia, 2016; Wohlers & Hertel, 2017). This is purported to be achieved by decreasing the physical and visual barriers between departments and encouraging employees to move between departments and floors (Skogland, 2017). Organisations adopting ABW offices aspire to create business value when it aligns with both standardised organisational management style and informal participative leadership culture (De Paoli et al., 2013). Shifting the organisational culture such that it aligns with the ABW is critical as it affects how the ABW is perceived and used but this is dependent on the workplace change management process (Skogland, 2017; van Diermen & Beltman, 2016).

2.3.4 Increase productivity

One employee-related reason for adopting ABW is that the variety of workplaces can enable higher employees' productivity by providing them with a variety of worksettings and environments designed to best support their activity needs (Been et al., 2015; Brunia et al., 2016; Gerdenitsch et al., 2018; Haynes, 2008; Koetsveld & Kamperman, 2011; van der Voordt, 2004; Veldhoen + Company, 2016; Warner, 2013). The ABW has a variety of interaction worksettings which support collaboration, interaction and communication better than second generation workplaces (Been et al., 2015; Brunia et al., 2016; Rolfö, 2018; van Diermen & Beltman, 2016; Waber et al., 2014; Warner, 2013).

An ABW is purported to increase metaphorical ‘accidental collisions’ amongst employees that facilitate knowledge-sharing and potentially increase cross-collaborations (Been et al., 2015; Brill et al., 2001; Brunia et al., 2016; Ekstrand, 2016; Kim et al., 2016; Koetsveld & Kamperman, 2011; van der Voordt, 2004; Waber et al., 2014). ABWs also better align with organisational equality values since all employees are treated the same way with no assigned desks and status markers (Ekstrand, 2016; Elsbach, 2003). Employees that are offered flexibility in location also report superior Internal Environmental Quality conditions than those that are fixed to one location (Haynes, Suckley, & Nunnington, 2019).

2.3.5 Increase flexibility for employees and increase employees’ satisfaction

Since ABW is generally merged with the idea of flexibility in allowing employees to work from home, ABW is generally branded as the workplace that provides the current generation of employees what they want - more autonomy, flexibility and enjoyable workplaces (Koetsveld & Kamperman, 2011; van der Voordt, 2004; van Diermen & Beltman, 2016; Vos & Dewulf, 1999). Organisations have adopted ABW in an attempt to increase employee satisfaction that transfers to attracting and retaining more talented employees (Been et al., 2015; Brunia et al., 2016; Gerdenitsch et al., 2018; van der Voordt, 2004) because the cost of replacing and retraining another employee is costly.

2.3.6 Increase customer satisfaction

Increase in employee satisfaction is generally linked to increasing customer satisfaction (Koetsveld & Kamperman, 2011) and is attributable to happier employees and lower absenteeism from the happier workforce (Warner, 2013).

2.3.7 Environmental sustainability drivers

The aim of flexible working was to increase sustainability as a reduced space requirement from sharing worksettings implies less energy consumed in creating and operating the workplace and less energy consumption in commuting through working from home that reduces road congestion, journey times for other commuters and the number of traffic jams (Fawcett & Rigby, 2009; Koetsveld & Kamperman, 2011; van der Voordt, 2004). A more environmentally sustainable workplace is also positive for the corporate image.

2.4 ABW Outputs – Outcomes captured by the literature

After investing large sums of money in the ABW, organisations anticipate positive outcomes or a reduction in negative outcomes from the ABW compared to their previous workplace to

achieve the strategic drivers outlined in Table 2.1. This section consolidates the existing literature on ABW outcomes based on the Value-adding ABW strategic drivers that organisations intend to achieve, the performance of ABW against First and Second Generation workplaces, the effect of ABW Throughput on the Output, employees' workplace guidelines acceptance, Technology provisions within ABW on ABW Output, Individual person-related moderator on ABW Output, and Health and Wellbeing as an ABW Output.

2.4.1 ABW Outputs as per the Value-adding ABW strategic drivers

This subsection presents the results from the literature on the achievement of the Value-adding ABW strategic drivers. Some ABW strategic drivers have insufficient evidence or ABW Outputs indicating inconsistent or positive achievement of the ABW strategic drivers, as summarised in Table 2.2.

Table 2.2 Summary of ABW Outputs as per the Value-adding ABW strategic drivers

Insufficient evidence	Inconsistent achievement	Positive achievement
• Increase Real Estate Flexibility and Risk Control • Increase Customer Satisfaction • Reduce and control occupancy costs	• Increase productivity • Increase employees' satisfaction	• Support image and culture • Increase flexibility • Increase sustainability

The two strategies that are lacking in research and will not be discussed in the following subsections are: Increase real estate flexibility and Risk control; and Increase customer satisfaction. The ABW Outputs for all other ABW Strategic drivers are presented below.

2.4.1.1 Reduce and control occupancy costs

There is insufficient evidence to support organisations' achievement of the strategy to reduce and control occupancy costs. However, the lower employee-worksetting ratio due to the cost agenda (Parker, 2014) results in higher space pressure within ABW offices compared to territorial offices (Rolfö et al., 2018) and space pressure may increase over time as an organisation expands resulting in overcrowding due to spaceless growth (Skogland, 2017). Overcrowding is attributable to a decrease in employee-worksetting ratio as the workforce increases, lack of guidelines on how to use the workplace, and lack of compliance with the guidelines that is attributable to the Implementation Process (Appel-Meulenbroek et al., 2011; Rolfö et al., 2018).

The Occupancy rates in ABW offices appear higher than for territorial offices as the average Occupancy rate is 76% and the maximum Occupancy rate is 97%. The popular worksettings had the highest Occupancy rates (Cabins - 83% and Open plan Desks - 88%) but also a high temporary unoccupied rates (40%) (Mosselman et al., 2009). Space pressure varies across the various worksettings as Tagliaro and Ciaramella (2016b) found that there were still large amounts of unused spaces despite employees reporting under-provision of popular worksettings (Brunia et al., 2016; Kim et al., 2016; Tagliaro & Ciaramella, 2016a, 2016b). However, the unused spaces may not be employees' preferred suitable worksettings and employees resist using suitable worksettings located in other Neighbourhoods as they did not want to intrude or thought the areas were too noisy (Tagliaro & Ciaramella, 2016b). These indicate that some opportunities for action, or affordances, within an ABW are taken up more frequently than others, a potential mismatch of the number of worksettings with employees' demand for them and reluctance to work outside of their Neighbourhoods. The Theory of Affordance is further discussed in Section 3.5.

There were also some periods, such as mornings (Mosselman et al., 2009), and some days (Kim et al., 2016), such as Mondays (Rolfö, 2018), that are more popular than others indicating that analysing the peaks may be more insightful than the average Occupancy rates.

The impacts on overcrowding result in less than suitable worksettings for employees (in terms of technology and furniture) (Kim et al., 2016; Mosselman et al., 2009; Rolfö et al., 2018; van der Voordt, 2004), additional mental and physical demands affecting their productivity, satisfaction and health and wellbeing (Been et al., 2015; Candido et al., 2016; Mosselman et al., 2009; Rolfö, Eliasson, Eklund, 2017; Tagliaro & Ciaramella, 2016b; Wohlers & Hertel, 2017), and more time wasted looking for a suitable worksetting (Kim et al., 2016; Rolfö et al., 2018; van der Voordt, 2004). Some employees report that if they arrived at work after 8:30am, they would not be able to find a Desk and would have to work at the Kitchen (that is non-ergonomically set up) all day resulting in adverse health and wellbeing effects (Kim et al., 2016). The percentage of employees reporting that they could find an appropriate worksetting decreased by approximately 20-30% as crowding increased (Mosselman et al., 2009). These indicate that organisations' attempts to achieve one ABW strategy may compromise the extent they achieve other ABW strategies.

The primary worksettings and associated activities that employees report experiencing inferior or insufficient support for are:

- Formal and Informal meetings at Meeting Rooms (Mosselman et al., 2009);
- Focused Work that could be conducted in Concentration worksettings or Quiet zones. Concentration worksettings are typically worksettings designed with the intent to support activities that required concentration. The Concentration worksettings are often occupied the whole day by the same person (s) (Kim et al., 2016) and booked out in advance when bookable (Brunia et al., 2016). The Quiet zones have been reported to be quiet initially when users complied with the guidelines to be quiet but employees stopped complying over time resulting in an increase in noise levels as employees working were irritated by others taking phone calls or interruptions from other colleagues (Babapour, 2019a). Focused work was a downside of ABW in 16 out of 20 case studies conducted by Been et al.(2015); and
- The majority of activities conducted at Open plan worksettings were reported to be noisy, distracting, lacking privacy and uncomfortable due to its climate (Tagliaro & Ciaramella, 2016b).

Additionally, employees that are highly mobile pre-relocation and have less belongings (only requiring a briefcase and laptop) incur less relocation costs going into ABW (Khamkanya & Sloan, 2008). Thus, transitioning employees to a laptop and reducing their storage and belongings pre-moving into an ABW simplifies the Move-in Day.

2.4.1.2 Support image and culture

Organisational work culture on how they have been working historically and the workforce demographics may influence acceptance (Brunia & Hartjes-Gosselink, 2009; van Diermen & Beltman, 2016) and sense of belonging to the firm as a result of the space reduction (Mesthrige & Chiang, 2019). Organisations seem to achieve part of their strategy to improve their corporate image and branding since employees are prouder to bring visitors to an ABW compared to employees in assigned offices (Appel-Meulenbroek, Oldman, & Susante, 2016). This can be attributed to the superior interior and exterior Architecture projected by a newer outward image, superior Indoor Environmental Quality and the worksetting variety equipped with new fit-outs and technology to support mobility and work efficiency (Been et al., 2015; Candido et al., 2016; Tagliaro & Ciaramella, 2016b; Warner, 2013). The misalignment of the

ABW and the organisational culture may result in partial employment of the ABW (Khamkanya & Sloan, 2008).

2.4.1.3 Increase productivity

The concept of productivity being enhanced by switching behaviour relies on employees switching worksettings to a worksetting that best supports the employee's activity.

Worksettings that better support employees' activities increases employees' workplace satisfaction (Gerdenitsch et al., 2018; Hoendervanger, Van Yperen, Mobach, & Albers, 2019) and task performance (Hoendervanger et al., 2019) indicating that the benefits of ABW is contingent upon employees' ability to find worksettings that are suited to their needs. One study proposed that the suitability of a worksetting perceived by employees a function of the activity conducted, worksetting and personal need for privacy (Hoendervanger et al., 2019), however, the need for the worksetting to match employees' activity differs based on task complexity. There is a stronger need for the worksetting to suit the employees' activities in high complexity tasks as it correlates with superior performance unlike low-complexity tasks that have inconsistent results with the suitability of worksetting perceived (Hoendervanger et al., 2019).

Existing studies on productivity levels are inconsistent and vary post-relocation into an ABW office with some finding no significant changes (Blok, Groenesteijn, Schelvis, & Vink, 2012; Haapakangas et al., 2019; Rolfö et al., 2018; Rolfö, 2018), a variation within the organisation (Kim et al., 2016), a decrease (Arundell et al., 2018; Rolfö, 2018; van der Voordt, 2004), and an increase (Mosselman et al., 2009; Rolfö, 2018; van der Voordt, 2004). Higher productivity levels in ABWs compared to employees in assigned seating were found in cross-sectional studies (Appel-Meulenbroek et al., 2016; Candido et al., 2019, 2016). In terms of team productivity, one study found an improvement (Rolfö, 2018), whilst another found no significant change (Rolfö et al., 2018).

Three dimensions of productivity have been identified in the literature ranging from: individual productivity (Maartje Maarleveld & de Breen, 2011; Rolfö et al., 2018), team productivity and organisational productivity (Maartje Maarleveld & de Breen, 2011; Rolfö et al., 2018). The simplest and easiest method to assess these three dimensions of productivity are through surveys (Maartje Maarleveld & de Breen, 2011; Rolfö et al., 2018) in which assessing individual productivity is the most common, for example, Arundell et al. (2018).

The following section discusses these leading predictor variables affecting individual, team and organisational productivity:

- Opportunities to concentrate;
- Interaction and impact on collaboration;
- Social Interaction for a sense of community and belonging;
- Satisfaction with the physical environment; and
- Employees' activity profile and switching behaviour.

2.4.1.3.1 Opportunities to concentrate

Employees' concentration ability is most affected by their satisfaction with auditory privacy, background noise and visual privacy (Haapakangas, Hallman, Mathiassen, & Jahncke, 2018; Rolfö et al., 2018). The feedback regarding the opportunities to concentrate in ABW offices is inconsistent. Some positive results are an increase in productivity (compared to their previous office type) through fewer distractions (Blok et al., 2009; Gerdenitsch et al., 2018; Rolfö et al., 2018; Rolfö, 2018; Seddigh, Berntson, Platts, & Westerlund, 2016), an increase in satisfaction with audio and visual privacy (Rolfö, 2018), their support for solitary work (Babapour, 2019a), and concentrated work (Candido et al., 2019). Even though the affordance for employees to withdraw to quiet spaces was identified as a positive in ABWs, the difficulties in concentrating (Arundell et al., 2018; Rolfö, 2018; Rolfö, 2018), noise levels, visual distraction (Rolfö et al., 2018; Rolfö, 2018) and lack of privacy (Mesthrige & Chiang, 2019; Rolfö & Eklund, 2015) are the downsides. These are attributable to space pressure (Rolfö, 2018), poor acoustics causing noise transmission from interaction areas into the semi-quiet areas (Rolfö, 2018), and non-compliance with the Speech guidelines (Rolfö et al., 2018). The noise in the Quiet rooms result in frustration amongst employees trying to concentrate (Rolfö et al., 2018). Thus, some studies found that employees were conducting focused work as far away as possible from the ABW (Keeling, Clements-Croome, & Roesch, 2015; Mosselman et al., 2009). Interestingly, even though participants in one study were not found to switch worksettings to other worksettings that better supported concentration, privacy and concentration levels still increased indicating that users generating noise may be more conscious in the new environment and potentially remove themselves from the open work area (Blok et al., 2009).

Privacy can be considered in terms of retreat from people, control of information flow, control of interactions in the ABW (Keeling et al., 2015) and employees' mobility profile was found to play a role in employees' need for privacy. Employees with higher mobility profiles are found

to have a higher need to control for interaction, need to retreat and experience crowding more negatively than employees with lower mobility profiles (Keeling et al., 2015).

2.4.1.3.2 Interaction and impact on collaboration

Employees' need for communications was found to be more important than their need for personalization (Haapakangas et al., 2018) with the take up of social affordances found to positively influence employees' ABW acceptance (Babapour, 2019a). The results on the effect of ABW offices on collaboration and interaction are currently inconsistent. Some studies found an improvement that increased productivity (Appel-Meulenbroek et al., 2016; Been et al., 2015; Candido et al., 2019, 2016; De Croon, Sluiter, Kuijer, & Frings-Dresen, 2005; Haapakangas et al., 2018; Mesthrige & Chiang, 2019; Rolfö, 2018); some no significant change post-relocation into ABW (Rolfö et al., 2018); and others a decrease in knowledge sharing (Blok et al., 2012), a decrease in ease of interaction (due to difficulty in locating colleagues in an ABW without zones and teams being split up) (Rolfö et al., 2018), and a decrease in direct communications with colleagues (Been et al., 2015). The results also suggest that it might be dependent on the type of interaction taken up, with whom and whether they are planned. For instance, results are in support that unplanned interactions and informal conversations improved (Appel-Meulenbroek et al., 2016; Candido et al., 2016; Goodman, 2015; Rolfö, 2018) but inconsistent for private conversations and phone calls (Been et al., 2015; Candido et al., 2019; Mosselman et al., 2009).

Whilst the worksettings may facilitate collaboration, the challenge in locating team members and the challenge in sitting with those that they have to collaborate with (that worsens with space pressure) has a counteracting effect (Kim et al., 2016). Since employees are scattered in the ABW, employees are forced to rely on non-face-to-face communication channels that were described as inferior collaboration tools in one study (Kim et al., 2016) but perceived as superior in another study in which employees described that there was an increase in continuous connectivity as employees could be reached more easily and phone calls and emails were responded to more promptly (Brummelhuis, Bakke, Hetland, & Keulemans, 2012).

An increase in productive interactions is also critical as one study of a Contact Centre found that even though interactions level increased (17%) through random interactions, energy levels and team communications fell by 14% and 45% respectively. This was attributed to the stationary activity profile of the call centre employees resulting in employees merely reshuffling every day without switching to other types of worksettings. Despite the real estate

cost savings, the revenue and productivity of employees plummeted (Waber et al., 2014). Additionally, unproductive interactions that do not contribute towards the employee's work may be distracting for those directly and indirectly involved (Haynes et al., 2019; Haynes & Price, 2004) as "... one person's interaction is another person's distraction" (Haynes et al., 2019, p. 1086) and were found to adversely affect productivity (Mesthrige & Chiang, 2019).

ABW offices are found to create more opportunities for collaboration and interaction with all management levels indicating a more accessible and flatter hierarchical culture (Arundell et al., 2018; Ekstrand, 2016). However, this is experienced differently by employees of different hierarchical levels. Some managers and partners that had allocated Desks said that collaboration and interaction increased because they are sitting amongst the employees (Ekstrand, 2016). However, most employees in Unassigned seating said that there was no difference (Blok et al., 2012; Ekstrand, 2016) or collaboration decreased (Ekstrand, 2016). Due to the lack of physical signifiers or indicators such as an 'opened' or 'closed' door, employees found it difficult to interact with managers or partners as they are uncertain as to whether managers or partners are free to talk (Ekstrand, 2016).

2.4.1.3.3 Social interaction for a sense of community and belonging

Workplaces are not just the physical but also the social attachments that come with them (Wilhoit et al., 2016). Therefore, workplace changes can result in unintended social consequences. Inconsistent results were found in which there was a decrease in social community and social support (Berthelsen, Muhonen, & Toivanen, 2018; Haapakangas et al., 2019) in comparison to an increase in satisfaction through improved relationships with colleagues (Arundell et al., 2018) and daily engagement (Brummelhuis et al., 2012). The continuous virtual communications in an ABW prevented employees from feeling isolated and fulfilled humans' basic need for relatedness (Brummelhuis et al., 2012). However, in the transition to an ABW in an academic workplace, it was found that the take up of social affordances such as coffee breaks became rarer and group cohesion deteriorated resulting in a decline in the social community, and social support from colleagues and supervisors post-relocation (Berthelsen et al., 2018).

Inconsistent results were also found for a sense of community, intra- and inter-team. Arundell *et al.* (2018) found superior intra-team connections and an increase in eating lunch with colleagues creating a stronger sense of community and belonging but inferior inter-team connections, whereas, Ekstrand (2016) found the opposite (inferior intra-team connections

and superior inter-team connections). Ekstrand (2016) attributed this to the narrower building resulting in fewer collisions with some identifying a loss of 'homey' culture and fearing that the sense of organisational belonging would be affected in the long-run.

2.4.1.3.4 Satisfaction with the physical environment

Satisfaction with the physical environment was found to be strongly associated with employee productivity (Haapakangas et al., 2018) but inconsistent results were found. Some studies found an increase (Arundell et al., 2018; Rolfö et al., 2018; Rolfö, 2018), and others a decrease of up to 40% (Hoendervanger et al., 2016) and no change in an Academic ABW (Berthelsen et al., 2018). The physical environmental features influence employees' affective responses as dissatisfaction with the physical features result in employees reporting 'feelings of resignation' (Babapour, 2019a).

Several physical-design related features contribute towards higher satisfaction levels within ABW offices but only some of these are directly attributable to the ABW, such as a cleaner and tidier environment (Becker & Steele, 1995; Been et al., 2015), functionality of worksetting (Arundell et al., 2018; Rolfö, 2018), proximity to colleagues (Rolfö, 2018) and variability of worksettings (Arundell et al., 2018; Rolfö, 2018). Other worksetting features that affected employees' productivity were space pressure (Section 2.4.1.1), territorial behaviour (Mosselman et al., 2009) (Section 2.4.4), proximity of suitable worksettings to employees (Tagliaro & Ciaramella, 2016a), and storage (Haapakangas et al., 2018; Kim et al., 2016; Mesthrige & Chiang, 2019).

2.4.1.3.5 Non-switching behaviour

The organisations' intent for employees to practice switching behaviour was to provide employees in ABW offices with more autonomy over choosing worksettings suitable for their activities. Whilst employees are recommended to switch worksettings during the day to facilitate the functioning and concept of ABW offices, it is not a workplace guideline unlike those in Section 2.2.

The concept that switching behaviour increases employees productivity is dependent on the employee activity profiles within the business units (Roskams & Haynes, 2019), autonomy levels, interaction levels (Duffy & Powell, 1997), mobility (Greene & Myerson, 2011), and work dependency (Been et al., 2015; Ekstrand, 2016; Warner, 2013). Some organisations address the issue that 'ABW is not a one-size-fits-all' by providing some business units assigned Desks (Ekstrand, 2016; Millward et al., 2007; Tagliaro & Ciaramella, 2016a, 2016b) because of the

high employees' resistance, confidentiality requirements and other practical needs (Ekstrand, 2016). However, this caused dissatisfaction as employees that were not assigned Desks questioned the other team's need for assigned Desks and felt that it was unjust (Tagliaro & Ciaramella, 2016b).

There are inconsistent results on whether employees switch worksettings more often post-relocation with one case indicating that switching behaviour increased post-relocation whilst another case indicating no changes (Blok et al., 2009). Several studies found that employees do not switch workplaces often on a regular day and week (Appel-Meulenbroek et al., 2011; Babapour, 2019a; Hoendervanger et al., 2016; Tagliaro & Ciaramella, 2016b, 2016a). Only 12% of employees use more than three types of worksettings during the week (Appel-Meulenbroek et al., 2011) and 70% of employees do not switch worksettings more than twice a week (Hoendervanger et al., 2016). Most employees report only working in the Open Desks, Meeting Rooms and Phone Booths (Blok et al., 2012; Tagliaro & Ciaramella, 2016b). Non-switching behaviour at the Open Desks was reported (Babapour, 2019a; Berthelsen et al., 2018; Rolfö et al., 2018) of up to 86% (Berthelsen et al., 2018). The popularity of Desks and Meeting Rooms indicate that employees may be struggling to take up affordances at other worksettings. The high proportion of employees not switching worksettings result in increased space pressure, competition for available worksettings, and employees using ill-suited worksettings due to the lack of suitable worksettings available (Babapour, 2019a).

Contrary to the contention of ABW that switching behaviour increases productivity, one study indicated that the optimal number of switches is one to three times as any less or more decreases productivity and wellbeing from more time spent looking for a worksetting (Haapakangas et al., 2018). This suggests a threshold in the benefits of switching and more switches have more disbenefits than benefits potentially due to the time and effort spent on practical arrangements (Haapakangas et al., 2018).

Several studies discuss some of the reasons why switching behaviour is low in ABWs:

- Collaboration needs (Kim et al., 2016; Rolfö et al., 2018);
- Difficulty in moving files and personal belongings (Babapour, 2019a; Been et al., 2015), such as old age inhibits carrying heavy items (Gorgievski, van der Voordt, van Herpen, & van Akkeren, 2010);
- Guidelines ambiguity in which employees are unsure how long they're allowed to occupy worksettings (Rolfö et al., 2018);

- Lack of variety in acoustics across worksettings (Rolfö et al., 2018);
- Loss of productivity from time-consuming tasks like packing, unpacking, searching for a worksetting and adjusting it (Babapour, 2019a; Haapakangas et al., 2018; Kim et al., 2016; Rolfö et al., 2018) that was exacerbated for employees that had to install ergonomic aids (Rolfö et al., 2018);
- Mismatch between their activities and worksettings (Gorgievski et al., 2010);
- Non-compliance with Speech guidelines at preferred worksettings (Babapour, 2019a);
- Paper and book dependency (Gorgievski et al., 2010);
- Requirement to have materials close by (Babapour, 2019a); and
- Social ties, norms and place attachments (Hoendervanger et al., 2016; Rolfö et al., 2018) and not wanting to feel 'homeless' and socially isolated (Becker & Steele, 1995).

The mismatch of worksettings with employees' activities is attributable to: lack of suitable worksettings (Berthelsen et al., 2018; Gorgievski et al., 2010); employees' activity profiles; overly open office; lack of security for belongings; lack of storage; and less functional worksettings (Gorgievski et al., 2010). The activities lacking support were coordinating tasks, phone calls, filing material and information, teamwork and small team meetings (Gorgievski et al., 2010). Up to 40% of employees felt that there was a lack of suitable worksetting for each activity, some of which was attributable to impractical props, such as beach chairs in meeting spaces, that lacked functionality (Appel-Meulenbroek et al., 2011). This suggests a need to study an ABW in more depth to investigate the affordances designed for by the Architects at each worksetting and those taken up by the employees.

Mismatch of worksetting designed to employees' activity needs and activity profiles provides employees with little incentive to switch workplaces. ABW may be a stressor for employees with a lower mobility activity profile as they have to look for a suitable worksetting in the same area everyday (Greene & Myerson, 2011; Wohlers & Hertel, 2017) resulting in a decrease in perceived productivity due to noise and interruptions (Haynes et al., 2019) and restricted autonomy (Rolfö, 2018) when compared to employees with a more varied activity profile. Over time, these location-bound employees developed territorial behaviour (Roskams & Haynes, 2019; Skogland, 2017). Employees with higher autonomy and interaction levels also found that an ABW was better suited to them as they did not feel the need to 'own' a Desk (Roskams & Haynes, 2019; Skogland, 2017). This indicates that ABW may be more suited to employees with a more varied activity profile, higher mobility and location-flexibility.

2.4.1.4 Increase flexibility (location and hours) for employees

Although not all employees took on the affordance to work at other locations (Blok et al., 2012), studies evaluating flexibility in location and work hours was unanimous in the increase in flexibility experienced by the employees (Arundell et al., 2018; Blok et al., 2012).

Some organisations further supported employees to work from home by providing them with a budget (of up to 600 Euros) to set up their home office ergonomically (Nijp et al., 2016). Employees that worked from home reported a reduction in commuting time (Nijp et al., 2016; Weerdenburg & Brunia, 2016) potentially resulting in higher efficiency as they had superior work-life balance and were less interrupted by their colleagues throughout the day since the barrier to call is higher than for face-to-face interruptions (Weerdenburg & Brunia, 2016).

With regard to flexible hours, one study found that employees are working similar hours (Nijp et al., 2016) whilst another study found that employees are working after hours that adversely affected their work-life balance (Weerdenburg & Brunia, 2016).

2.4.1.5 Increase employees' satisfaction

Since employees can express their satisfaction level for almost anything, employees' satisfaction is too broad. Two aspects on employees' satisfaction are focused on in the existing literature: Satisfaction levels over time, and Job satisfaction.

Satisfaction levels over time

Inconsistent results are found on whether satisfaction levels changed over time. One study found consistent levels of satisfaction over time (Nijp et al., 2016), whereas, some longitudinal studies found that satisfaction levels may experience an initial increase from the novelty followed by a decrease approximately after six months as the 'Novelty effect' of the ABW office wore off and dissatisfaction set in and non-compliance with guidelines increased (Babapour, 2019b; Gerdenitsch et al., 2018; Gorgievski et al., 2010). The Novelty effect is explained as a confusion between satisfaction with the workplace concept and their overall satisfaction as employees normally only realise their dissatisfaction with the ABW later on (Gorgievski et al., 2010). The Novelty effect wearing off may be cushioned by improvements made to an ABW over time as Mosselman, Gosselink and Beijer (2009) found that satisfaction stayed high and increased in some aspects (physical accessibility, accessibility by phone or others) up to six 6 years post-moving in.

Job Satisfaction

There are inconsistencies on whether ABW offices result in higher job satisfaction to attract and retain talent. Some studies found that aligning ABW with the right organisation, management, leadership, participative work modes and smart communication technology gave the organisation a competitive edge to attract young educated experts globally (De Paoli et al., 2013) and a superior level of job satisfaction (Arundell et al., 2018). However, a few other studies found that employees' dissatisfaction towards the ABW affected their job satisfaction post-relocation such that employees expressed considering changing jobs for a calmer work environment (Babapour, 2019a). Similarly, two studies on ABW for academia resulted in academics indicating that the implementation or future implementation of ABW would push them to resign and move to another University in which they can have their own office, indicating high resistance (Berthelsen et al., 2018; Wilhoit et al., 2016). The unacceptable features of ABW identified by academics were: sharing worksettings, unconventional worksettings, lack of space, lack of privacy, environmental aspects, and lack of proximity to colleagues (Wilhoit et al., 2016). Instead of attempting to increase employees' satisfaction with the ABW, the human resources strategy in one organisation was for existing employees that disliked the ABW to quit or work from home and top management was conscious to only employ new employees that are accepting of the ABW (De Paoli et al., 2013). The lack of buy-in and top-down implementation of the ABW may result in the opposite of the organisation's strategy to attract and retain talent.

2.4.1.6 Increase sustainability

The existing literature identified increased sustainability through the reduction of paper consumption (Becker & Steele, 1995; Goodman, 2015; Koetsveld & Kamperman, 2011; Warner, 2013) and reduction in commuting from flexible location options (Nijp et al., 2016; Weerdenburg & Brunia, 2016).

2.4.2 ABW performance against First and Second Generation workplaces

ABW offices have been compared against other First Generation workplaces, such as Cellular offices that are individual enclosed rooms, and Second Generation workplaces, such as Open plan and Shared room offices for various aspects.

When ABW offices were compared against Cellular and Open plan offices for distraction levels, one study found that they performed similarly (Keeling et al., 2015) but another reported that

Open plan offices had the highest level of distraction followed by ABW offices and then Cellular offices (Seddigh, Berntson, Bodin Danielson, & Westerlund, 2014). Employees in high need for concentration experience this differently as they reported that only Cellular offices had lower levels of distraction and Cellular and ABW offices had lower cognitive stress levels compared to Open plan offices (Seddigh et al., 2014). With the exception of ABW offices, the higher the number of employees working in an office, the higher the reported level of distraction and cognitive stress (Seddigh et al., 2014).

When ABW offices are compared against Open plan offices, they are found to be similar in that they afford awareness of colleagues but ABW offices afford signalling to control unplanned interactions by providing employees with options of worksettings and location subject to worksetting availability (Keeling et al., 2015). Comparing ABW offices to shared room-offices, the perceived suitability of the office with employees' needs and perceived interactions was higher in ABW offices (Gerdenitsch et al., 2018). A few other studies found that 47% (Rolfö et al., 2018) to 82% (Rolfö, 2018) of employees reported a preference for ABW offices post-relocation due to the choice of worksettings, aesthetics, ease in communications and superior lighting. Employees also reported to be in better health in an ABW compared to combi-offices as they walked more and sedentary time reduced (Candido et al., 2019). Additionally, one study found that leadership was inferior in ABW offices compared to Cellular offices and medium-sized open plan offices but was superior to shared room offices (Bodin Danielsson et al., 2013) although there was a lack of explanation and fewer respondents from ABW offices.

ABW offices are also found to be superior to Territorial offices in the following aspects: Space for breaks, Interaction with colleagues, Personalisation of work area (ability to adjust worksetting to meet preferences), Space to collaborate, Comfort of furnishing, Indoor Environmental Quality, Unwanted interruption, Noise, Degree of freedom to adapt, Building overall, Productivity and Health (Kim et al., 2016). Another study also found no significant results for depersonalisation within an ABW (Seddigh et al., 2014). On the contrary, some employees expressed a feeling of resignation towards the ABW office as they felt that it was not adjusted to suit them and they lacked options to adjust the work environments to make improvements (Babapour, 2019a). Even though ABW offices have a lower employee-worksetting ratio resulting in a lower amount of work area per employee compared to territorial offices, the amount of workspace received the same rating in ABW offices and

territorial offices. However, ABW office are inferior compared to Fixed desk offices in Storage space (Kim et al., 2016).

Overall, these indicate that an ABW office has the potential to outperform Territorial offices in several aspects (Kim et al., 2016).

2.4.3 Effect of ABW Throughput on Output

The ABW Implementation Process was quoted as the top 5 positive and negative aspects of an ABW by interviewees (Been et al., 2015). Several studies attribute undesirable outcomes to the Implementation Process. These include:

- Lack of business objectives improvement (Blok et al., 2012);
- Lack of behavioural changes (Blok et al., 2012; van Diermen & Beltman, 2016);
- Lack of guidelines (Appel-Meulenbroek et al., 2011; Rolfö et al., 2018);
- Lack of compliance with guidelines (Appel-Meulenbroek et al., 2011; Rolfö et al., 2018); and
- Mismatch of ABW to activities employees conduct (Gorgievski et al., 2010).

Insufficient support and communications, such as employees having to proactively ask, resulted in a lack of knowledge and inadequate ABW introduction that negatively affected their affective responses and cognitive responses (Weerdenburg & Brunia, 2016).

However, employees' involvement and the communications from the Implementation Process could also positively impact employees' workplace acceptance (Brunia & Hartjes-Gosselink, 2009), psychological ownership (Brunia & Hartjes-Gosselink, 2009), and guidelines acceptance (Babapour & Rolfö, 2019). Good communication or employees' involvement does not guarantee positive outcomes and these may be limited if employees' feedback is not incorporated or addressed (Berthelsen et al., 2018; Gorgievski et al., 2010). For example, one study involved employees by gathering feedback revealing that the preference for ABW amongst the academics was only 25% but the University still proceeded with implementing the ABW office (Berthelsen et al., 2018) implying a lack of attentiveness towards employees' demands. On the contrary, when all employees are involved in both the decision-making process of adopting the ABW and the Implementation Process, very positive outcomes are achievable, such as increased perceived performance, satisfaction with the workplace environment, decreased distraction levels, and positive affective responses (inspiring, pleasant, calm) (Rolfö, Eliasson, & Eklund, 2017). However, not all studies involved all

employees in the decision-making process (Skogland, 2017) as this may be dependent on the organization's size.

Two groups of employees that has to be focused on pre- and post-Implementation Process are newly employed managers (Brunia & Hartjes-Gosselink, 2009) and employees moving from a private office (Haapakangas et al., 2019). Newly employed managers post-moving in struggled to accept the ABW as they sought a position for themselves in terms of place within the organisation and the new way of working. Their non-acceptance resulted in a less than suitable management style and they did not lead by example (Brunia & Hartjes-Gosselink, 2009). Additionally, to mitigate the short term negative effects private office employees experience on social support, quantitative demand and emotional demands, more focus on their Implementation Process may be required (Haapakangas et al., 2019).

These studies indicate that ABW Implementation Processes has the potential to influence employees' acceptance of the ABW and take up of affordances within the workplace. Except for a few studies, most of the results on ABW Implementation Process are not from an in-depth study on the ABW Implementation Process and are fragmented across various studies.

2.4.4 Workplace guidelines acceptance

The existing research indicates that employees are struggling to accept the guidelines and comply with them. However, there is limited in-depth research on the workplace guidelines in an ABW office except for Babapour & Rolfö (2019) and Rolfö & Babapour (2017) who investigated the ABW workplace guidelines in a total of four Swedish organisations. Their study found that employees' lack of compliance with the intended workplace guidelines led to the ABW malfunctioning (Babapour, 2019a) and non-compliance introduced weakness into the ABW as they are designed based on guidelines supporting employees' mobility and autonomy (Babapour, 2019a). The guidelines were found to affect five working conditions: autonomy, physical resources, mental resources, intra-team resources and inter-team resources (Babapour, 2019a). This section begins with a discussion on employees' acceptance of the individual workplace guidelines followed by issues affecting employees' acceptance.

2.4.4.1 Employees' acceptance of Individual Workplace Guidelines

This section discusses employees' acceptance of the workplace guidelines identified within the ABW in Section 2.2: Unassigned seating, Speech Guidelines in different zones, Neighbourhood zones and Flexible Working guideline.

Unassigned seating

As identified in Section 2.2, Unassigned seating can be broken down into three sub-guidelines: Removal of belongings, Restrictions on using Desks consecutively, and Restrictions on using scarce worksettings consecutively. Collectively, these guidelines are intended to promote sharing worksettings, limit nesting behaviour and prevent territorial behaviour that decreases the tendency for implicit worksetting assignment. Implicit worksetting assignment limits autonomy in worksetting choices for individuals and teams to take up suitable affordances (Babapour, 2019a). These three sub-guidelines and territorial behaviour are discussed below.

Positive and negative consequences of the Desk-sharing guidelines were found by Babapour (2019a) in all four cases studied. In terms of autonomy, employees are provided more opportunities to choose different worksetting at the cost of foregoing personalisation. In terms of intra-team resources, more accessibility is afforded since all employees sat in the open area and more activities involving interaction are facilitated but employees found it challenging to locate one another and feared social isolation. Less silos and hierarchies were reported in inter-team resources. However, the need to find a worksetting, set it up and limited printing access was more physically and mentally demanding. High space pressure also further limited autonomy due to the challenges in finding appropriate worksettings in some organisations. This implies that the positives in ABW offices may come with negative trade-offs that may have to be managed post-moving in.

1. Removal of belongings or Clean-desk policy

Two differing timeframes on Removal of belongings were identified – end of the day or during the day. Removal of belongings at the end of the day prevents individual territoriality and personalisation (Brunia & Hartjes-Gosselink, 2009), whereas, Removal of belongings during the day limits the duration in which Desks are permitted to be occupied with belongings but unattended to free up worksettings and increase worksetting choices. Employees report that this guideline increases set up time that negatively impacts on their productivity levels (Kim et al., 2016).

Removal of belongings at the end of the day

Across four cases, Removal of belongings at the end of the day was the only guideline that was unambiguous and common in all four cases (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017). A number of studies have reported non-compliance with this guideline as employees defended

their individual territory through territorial behaviours, such as worksetting personalisation and marking (Brunia & Hartjes-Gosselink, 2009; Kim et al., 2016; Rolfö et al., 2018; Tagliaro & Ciaramella, 2016b). This guideline also applied to Anchors in some organisations (Skogland, 2017) but non-compliance and heavy personalisation, where there were several signs of personalisation, was found. Despite their non-compliance and having assigned Desks, these employees were still found to have the lowest satisfaction rates due to impaired concentration (Skogland, 2017).

Management played a fundamental role here in enforcing this guideline. When management took charge to enforce compliance to the guidelines, employees complied strictly such as the case when management took a photo of personalisation and sent it to the whole department (Skogland, 2017).

Removal of belongings during the day

Removal of belongings during the day requires employees to remove their belongings when they are not present at the worksetting for two hours in some studies (Babapour & Rolfö, 2019; Mosselman et al., 2009) or ambiguously 30-120 minutes in other cases (Babapour & Rolfö, 2019). There was a lack of compliance as employees found it too time consuming and adversely impacting their productivity to clear their belongings, log out of their laptop and set up again (Kim et al., 2016; Mosselman et al., 2009). This has resulted in employees occupying approximately 40% of worksettings (Mosselman et al., 2009) even when not present to use them (Kim et al., 2016; Tagliaro & Ciaramella, 2016a, 2016b) and claimed spaces (Babapour, 2019a). In a high space pressure environment, non-compliance with this guideline results in ineffective space use and displacing others in need of those worksettings (Kim et al., 2016). This guideline is necessary to offer worksetting variability and choices, especially in a high space pressure environment (Babapour, 2019a).

II. Restrictions on consecutive use of Open Desks

The restrictions on consecutive use of Open Desks are to restrict nesting behaviour at Desks. Nesting behaviour is when employees occupy the same exact worksetting regularly and on consecutive days whilst complying with the Clean-desk policy. If the organisation has a guideline restricting consecutive use of Desks, nesting will imply non-compliance with the guideline. Nesting could fall under territorial behaviour (discussed further below) if an employee nests with the intent to establish personal territory. Employees nest because of their

desire to work in a quiet area, have a special view, be close to colleagues or have a protected backing wall (Vos & Voordt, 2001). Nesting is also attributed to the 'ownership culture' within their country (aligned with high home ownership) and the habits that have formed, making it hard to eradicate the habit of ownership (Tagliaro & Ciaramella, 2016a). Anchors that are assigned Desks are exempted from this guideline as they are permitted to use the same desk consecutively, however, the requirement to remove belongings differ between organisations (Skogland, 2017).

There are limited studies identifying this as an ABW guideline. In a study of four cases, this was the least defined guideline and was ambiguous in three cases and implicitly allowed in one case (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017). Several studies report nesting at Desks (Babapour, 2019b; Brunia & Hartjes-Gosselink, 2009; Kim et al., 2016; Rolfö et al., 2018; Tagliaro & Ciaramella, 2016b) that caused dissatisfaction amongst employees as they thought it was unjust (Rolfö et al., 2018). Managerial non-compliance with this guideline goes against the intended social aspect of ABW to remove status from worksettings and promote a sense of equality (Skogland, 2017; Tagliaro & Ciaramella, 2016a). Over time, a hierarchy emerged from managers nesting together in the same area (Tagliaro & Ciaramella, 2016a) or had a hierarchical level within the seating area (Skogland, 2017). Their non-compliance overflowed to employees who reacted negatively by not complying (Skogland, 2017; Tagliaro & Ciaramella, 2016a) and created sub-groups with their own rules (Tagliaro & Ciaramella, 2016a). The contrary also applied when managers that typically had a stationary work process chose not to nest and moved around to embrace the variety of worksettings, employees imitated their managers' behaviour (Skogland, 2017). This is an indicator that managers' behaviour may be more influential than mobility profile (Skogland, 2017). Thus, committed managers can go a long way in influencing employees' take up of affordances and compliance with the guidelines, whereas, a few uncommitted managers can be detrimental (Ekstrand, 2016).

III. Restrictions on using scarce worksettings consecutively

There was a lack of studies investigating the Restrictions on using scarce worksettings consecutively. One study found that this guideline was ambiguous in three cases and implicitly allowed in one case (Babapour & Rolfö, 2019).

IV. Territorial behaviour

Although Territorial behaviour is not a guideline, it is discussed here as it predominantly went against the intent of the Unassigned seating guideline. Territorial behaviour is defined as any behaviour that is associated with the intent to establish employees' personal territory or psychological ownership, such as through marking of a place (such as worksettings) or object (such as whiteboards) (Altman, 1975). Territorial behaviour may include not breaking the guidelines (such as arriving early to Nest), and non-compliance with the guidelines (such as personalisation and leaving belongings overnight). Territoriality conflicts with the autonomy to choose appropriate worksettings intended by the ABW that organisations attempt to deal with through guidelines (Babapour, 2019a).

The predominant territorial behaviour observed within the ABW is arriving early (Babapour, 2019b; Brunia & Hartjes-Gosselink, 2009; Foley, Engelen, Gale, Bauman, & MacKey, 2016; Kim et al., 2016; Rolfö et al., 2018; Tagliaro & Ciaramella, 2016b); reserving desks for their colleagues (Kim et al., 2016) and personalisation (Brunia & Hartjes-Gosselink, 2009; Rolfö et al., 2018; Tagliaro & Ciaramella, 2016b). It was perceived that those who arrived early obtained the 'best spots' and others thought that it was wrong to nest as they were supposed to move around (Rolfö et al., 2018). The range of objects used to personalise the worksettings includes personal belongings, less personal objects and work-related objects (Brunia & Hartjes-Gosselink, 2009; Kim et al., 2016; Tagliaro & Ciaramella, 2016a).

Despite the higher rating found for personalisation in ABW offices compared to fixed offices (Kim et al., 2016), 44% of respondents in one study expressed a preference to personalise their Desk (Tagliaro & Ciaramella, 2016a). The reasons why employees personalised ranged from:

1. Comfort (Brunia & Hartjes-Gosselink, 2009; Tagliaro & Ciaramella, 2016a);
2. Concentration – increased ability to focus (Tagliaro & Ciaramella, 2016a);
3. Wellbeing (Haapakangas et al., 2018; Tagliaro & Ciaramella, 2016a);
4. Productivity (Tagliaro & Ciaramella, 2016a);
5. Large Desk availability (Tagliaro & Ciaramella, 2016a);
6. Status and achievements (Brunia & Hartjes-Gosselink, 2009);
7. Control (Brunia & Hartjes-Gosselink, 2009);
8. Recognition, clarity, certainty and rest (Brunia & Hartjes-Gosselink, 2009);
9. Identity - decrease in anonymity (Brunia & Hartjes-Gosselink, 2009); and

10. Dehumanisation - decrease in dehumanisation in the organisation (Brunia & Hartjes-Gosselink, 2009).

Even though employees' need for personalisation had often been strongly associated with their psychological needs as part of their wellbeing, Haapakangas et al. (2018) found that it was more important for their productivity. Employees acceptance of the ABW were also related with their tendency to personalise as those who liked and were satisfied with the ABW tend to not personalise or personalised less (Brunia & Hartjes-Gosselink, 2009).

Speech Guidelines in different zones

The clarity of and compliance with the Speech guidelines are important to ensure that the variety of worksettings are able to support the activities intended (Babapour & Rolfö, 2019). Speech guidelines create different zones that vastly improve audio privacy and differentiate ABW offices from hot-desking that lack zoning and have poorer privacy levels (Inamizu & Makishima, 2019). Studies have found non-compliance as employees conducted noisy interactions in the quiet areas (Babapour, 2019b; Brunia & Hartjes-Gosselink, 2009; Kim et al., 2016; Rolfö et al., 2018; Tagliaro & Ciaramella, 2016b). Non-compliance with the Speech guidelines is attributed to ambiguity and lack of Speech guidelines (Babapour & Rolfö, 2019; Ekstrand, 2016; Rolfö et al., 2018). Due to guideline ambiguity, employees that struggled to concentrate hesitate to confront colleagues causing disruptions or noise as it was unclear what was the right protocol for employees who did not comply (Gorgievski et al., 2010).

Some positive, negative and inconsistent (mix of positive and negative) consequences of the Speech guidelines were also found (Babapour, 2019a). The positive consequences are quick exchanges of information in interactive zones, overhearing conversations in interactive zones and the opportunity to choose worksettings based on the zones, whereas, exposure to too many conversations in the interactive zones is a negative consequence. Other studies also found that non-compliance with the guidelines result in irritation towards colleagues interacting in the 'quiet zones' (Ekstrand, 2016), shortage of quiet zones to conduct concentrated work (Rolfö et al., 2018), and non-compliance with Unassigned seating. Non-compliance with the Speech guidelines led to non-compliance with Unassigned seating because it reduces employees' incentive to switch worksettings since there is less variation in noise levels between zones (Babapour, 2019a; Rolfö et al., 2018). With the negative acceptance and consequences found, employees express a need for clearly defined Speech

guidelines (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017) and propose physical barriers to aid in complete silence for their concentration in quiet zones (Babapour, 2019a).

Neighbourhood Zone

Whilst Neighbourhood Zone has been identified as a guideline, there is a lack of studies discussing employees' acceptance of it. However, one study found that departments with smaller Neighbourhood Zones and fewer variety of worksettings developed their own informal rules regarding appropriate and inappropriate behaviours within the Neighbourhood (Skogland, 2017).

Flexible Working guideline

Even though ABWs are purported to support a Flexible Working guideline through flexible working hours and location, it was identified in one study that the organisation restricted the number of days that employees could work from home. The organisation had a minimum requirement that full-time employees had to be in at least 2 days a week and had a '50/50-rule' on work location which specifies that employees have to be in the office at least 50% of the time (Nijp et al., 2016). This enables the organisation to achieve no significant change in the social environment (Nijp et al., 2016).

2.4.4.2 Issues affecting employees' acceptance of the guidelines

The three main issues found in employees' acceptance of the guidelines are: the Ambiguity of guidelines, Lack of process to inform new employees, and Guidelines conflicting with workplace design.

Ambiguity of guidelines

Guidelines ambiguity was due to implicit guidelines, lack of guidelines and lack of clarity in the communication of guidelines resulting in employees having different knowledge (cognition) and interpretations of perceived acceptable actions (cognitive response) (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017). These are attributable to the lack of clarity in the division of responsibilities to maintain the rules, organisational size and hierarchical structure (Babapour & Rolfö, 2019). In some cases, the management intentionally decided to have ambiguous, implicit guidelines and the lack of workplace guidelines to prevent employees from 'breaking rules'. However, these employees preferred explicit rules to feel secure in their actions

(Babapour & Rolfö, 2019). Guidelines that were explicitly and clearly communicated resulted in more positive work conditions and less physical and mental demands (Babapour, 2019a).

One person's perceived acceptable action may be the equivalent of 'rule breaking' or incorrect use by another due to the varying perceptions on how the ABW is supposed to work (Arundell et al., 2018; Babapour & Rolfö, 2019; Rolfö & Babapour, 2017; Weerdenburg & Brunia, 2016). The perceived incorrect use of worksettings was reported to increase dissatisfaction as it may affect and/ or displace others from using certain worksettings (Arundell et al., 2018). This conflict in perception results in different affective, cognitive and behavioural responses, such as annoyance, confrontation and usage or perceived rule-breaking, based on the inconsistent knowledge of the guidelines (Babapour & Rolfö, 2019). Employees also use the lack of restrictions from guidelines ambiguity to justify their negligence and some implicit rules emerged that has potential for workplace conflict (Babapour & Rolfö, 2019).

Lack of process to inform new employees

The lack of process to educate new employees on the workplace guidelines resulted in inconsistent acceptance of the ABW guidelines as new employees were not made fully aware of them (Mosselman et al., 2009). Guidelines acceptance is even more crucial amongst newly employed managers as their management style will influence those under them and their team's acceptance of the workplace (Brunia & Hartjes-Gosselink, 2009; Skogland, 2017). Additionally, different organisations have different guidelines, as described in Section 2.2. Therefore, it is crucial to communicate guidelines clearly and explicitly as new employees may have their own preconception of guidelines in an ABW office.

Guidelines conflicting with workplace design

Confusion amongst employees arose when the workplace guidelines that dictate the activities accommodated contradict the design. In some instances, these contradictions are due to an Implementation Process error (different colour of worksetting designed and implemented when worksettings were colour-coded to represent type of activities) (Skogland, 2017). In other instances, employees and the Architects have contradicting perceptions of which affordances were more suitable to the worksetting design (Skogland, 2017). For example, the small concentration areas that the Architects' intend for Focused Work were used as a small meeting area as employees found that they were suited for collaboration without disturbing

others and that they were not suited for Focused Work due to poor soundproofing and additional distractions from the circulation route close by (Skogland, 2017).

2.4.5 Technology provisions within ABWs on ABW Output

The few studies that evaluate technology provisions within ABWs found that technology was a source of dissatisfaction (Haapakangas et al., 2018) and a challenging one to get right. Even when satisfaction levels are high, users dissatisfied with the laptop cable connections and IT software updates that were time consuming (Brunia et al., 2016). Other technology dissatisfiers are complicated and inflexible IT systems (Been et al., 2015) and outdated technology limiting Internet accessible areas (Mosselman et al., 2009). To deal with the challenges of locating employees, an integration of technology to locate colleagues was proposed (Wohlers & Hertel, 2017).

2.4.6 Individual person-related factors on ABW Output

The literature also discuss several individual person-related factors that play a role in how employees may react to ABW offices and form preferences (van Diermen & Beltman, 2016), such as their introverted or extroverted personality (Mesthrige & Chiang, 2019; Roskams & Haynes, 2019; Wohlers & Hertel, 2017), age (Mesthrige & Chiang, 2019; Wohlers & Hertel, 2017), previous workplace that they transitioned from (Wohlers & Hertel, 2017), gender (Roskams & Haynes, 2019; Wells, 2000), and need for routine (Wohlers & Hertel, 2017).

Employees that are younger, extroverted or lack the desire for routine are expected to react more favourably towards ABW offices (Wohlers & Hertel, 2017). On the contrary, employees that are older, have introverted personalities or are more susceptible to distraction preferred more segregated worksettings (Roskams & Haynes, 2019) and felt that they were losing their sense of belonging when switching worksettings on a daily basis (Mesthrige & Chiang, 2019).

In terms of space preference, women may prefer the interpersonal relationships afforded in less segregated worksettings to recover from stress and for more effective social support (Roskams & Haynes, 2019).

In terms of preference to personalise the workplace, the effects of gender are inconsistent. Women were found or expected to personalise their worksetting more than men (Roskams & Haynes, 2019; Wells, 2000) but men were also found to complain about desk-sharing and limited personalisation more than women potentially due to their higher need for status (Volker & van der Voordt, 2005). Women were found to personalise more using personal

belongings, whilst men personalised more through social contacts (Brunia & Hartjes-Gosselink, 2009).

Employees from private offices experience the ABW change differently from employees transitioning from Open plan offices as more privacy was afforded in private offices resulting in a larger change (Wohlers & Hertel, 2017), as discussed in Section 2.4.3.

Different ethnicity and living conditions are also found to affect employees' response to change and were more open-minded or had a less negative responses towards decrease in real estate provided and storage (Mesthrige & Chiang, 2019) that affected employees satisfaction with the physical environment.

2.4.7 Health and Wellbeing as an ABW Output

Employees' wellbeing was found to have the strongest positive associations with satisfaction with the physical environment, privacy and communications (Haapakangas et al., 2018). However, the results on health and wellbeing are inconsistent in which several studies found an increase (Arundell et al., 2018; Been et al., 2015; Candido et al., 2016; Tagliaro & Ciaramella, 2016b; Wohlers & Hertel, 2017), one found no significant changes in work-life balance and a slight decrease in health was noted (Nijp et al., 2016), and others found that it was dependent on space pressure (Haapakangas et al., 2018; Kim et al., 2016). One concern raised pre- (Mesthrige & Chiang, 2019) and post-moving (Haapakangas et al., 2018; Kim et al., 2016) into the ABW was cleanliness and the hygiene of sharing worksettings, but it was found to have limited impacts on productivity and wellbeing at work (Haapakangas et al., 2018).

The improvements to health and wellbeing are attributed to:

1. Improvements in eating behaviour through reduction in junk food and healthier eating culture (Arundell et al., 2018);
2. Organisational support for being physically active in the workplace (Arundell et al., 2018);
3. More attractive and enjoyable work environment (Appel-Meulenbroek et al., 2016; Candido et al., 2016; Goodman, 2015);
4. Reduction in sedentary time (Arundell et al., 2018; Foley et al., 2016);
5. Reduction in exhaustion due to improved communications (Brummelhuis et al., 2012); and

6. Superior indoor climate and ergonomic furniture customizable to various needs (Been et al., 2015; Candido et al., 2016; Tagliaro & Ciaramella, 2016b; Wohlers & Hertel, 2017).

However, potential improvements to health and wellbeing are limited in a high space pressure environment in which looking for suitable worksettings is difficult. Wellbeing levels declined when more than six minutes are spent looking for a worksetting (Haapakangas et al., 2018) and when employees had to work on their laptop at a non-ergonomic worksetting (such as Kitchen) all day due to unavailable Desks resulting in upper-body pain (Kim et al., 2016). This may result in more territorial behaviour with employees arriving earlier to occupy their preferred worksetting that adversely impacts their health and wellbeing (Kim et al., 2016).

2.5 Research Gaps – the role of ABW Throughput on ABW Outputs

The existing outputs identified that common issues with territorial workplace are still present in ABW offices, such as the lack of privacy, uncomfortable indoor environment (Brunia et al., 2016; Keeling et al., 2015; Kim et al., 2016), crowding (Keeling et al., 2015), lack of ‘concentration’ spaces and storage spaces (Appel-Meulenbroek et al., 2011, 2015; Been & Beijer, 2014; Brunia et al., 2016; van der Voordt, 2004). However, when compared to territorial First and Second Generation workplaces, ABW offices have the potential to outperform territorial First and Second Generation offices (as discussed in Section 2.4.2).

Comparing the CRE strategies that organisations intend to achieve with the ABW Outputs, the ABW Outputs provide support for the achievement of some CRE strategies, insufficient evidence for some and inconsistent achievement for others, as summarised in Table 2.2. The inconsistent achievement of ABW strategies, such as Increase productivity and Increase employees’ satisfaction, can be attributed to the inconsistent results on employees’ acceptance of the ABW studies that affected their take up of affordances and compliance with the workplace guidelines. The following drivers were identified to affect employees’ acceptance of the ABW and their take up of affordances: workplace guidelines, space pressure, ability to find suitable worksettings, communication, management behaviours, cultural alignment, privacy afforded, activity profile, social ties, physical design and technology. The ABW Implementation Process has the potential to influence all the identified drivers through the workplace design process to design a workplace suited to the needs of employees and the workplace change management process to deal with the soft side influencing how employees feel, think and use the workplace. Even if the innovation (ABW) is technically efficient, the

ABW CRE strategies may not be realised if it was not implemented well (Abrahamson, 1991; Klein & Sorra, 1996).

These inconsistencies on employees' affordance take up lead to the main research gap:

Inconsistent achievement of ABW Outputs are a result of the inconsistent take up of intended affordances within the ABW and non-compliance with the workplace guidelines that are attributable to the ABW Implementation Process and employees' acceptance of the ABW.

The achievement of certain strategies, such as real estate cost savings, are highly dependent on minimising further expenditure from being incurred post-relocation and may dissipate if organisations revert to assigned seating (Becker et al., 1994) due to employees' non-take up of affordances and non-acceptance of the ABW. Minimisation of post-relocation workplace changes are through the ABW Implementation Process to roll out an ABW with a variety of worksettings and guidelines that best suit employees' workplace needs. Hence, there is a need to study ABW offices' designed physical and functional features (how they are intended to be used) for their perceived suitability with employees' needs. The main research gap is further broken down into three research gaps to be investigated in detail in this research.

Research Gap 1: There are limited in-depth studies on the ABW Throughput, the ABW Implementation Processes, that affect the intended affordances designed into the ABW (variety of worksettings and workplace guidelines) and employees' acceptance of them.

Several fields of literature, such as innovation adoption (Abrahamson, 1991; Hall & Hord, 2015; Klein & Sorra, 1996; Rogers, 2003), change management (Anderson & Ackerman-Anderson, 2010; Kotter, 2008; Kotter & Rathgeber, 2006) and CRE (Becker, 2004b; Becker & Steele, 1995; Becker et al., 1994; Brunia et al., 2016; Finch, 2011; Koetsveld & Kamperman, 2011), stress the importance of the Implementation Process to foster employee acceptance and realise positive outcomes. However, there are limited in-depth studies on the Implementation Process of ABW offices to identify the best practice Implementation Process of ABW offices. There are four recent studies that analysed a total of three organisations' ABW Implementation Processes (Babapour, 2019a; Rolfo, Eliasson, & Eklund, 2017; Rolfö, 2018a; Rolfö, 2018b). The ABW workplace change management process has also been identified as the most challenging research area that explains the lack of empirical research (Rasila et al., 2014). One of the most comprehensive researches using empirical evidence on how organisations implement non-territorial offices was conducted more than 25 years ago (Becker et al., 1994) but organisations

and technology have changed drastically since. Given the influential role of the ABW Implementation Process in employees' acceptance of the workplace and the likelihood that ABWs differ in terms of workplace design, process and guidelines, there is a strong need for further investigation (Haapakangas et al., 2019).

Research Gap 2: There are no in-depth investigations of the suitability between the intended affordances designed into the variety of ABW worksettings and its employees' activity needs that affects employees' acceptance of the ABW and take up of affordances.

There is a need to investigate the suitability between employees' activity needs and the various provided worksettings since the concept of ABW relied on employees switching worksettings based on their activities. Employees' switching behaviour is purported to increase productivity as the worksettings are designed to better support employees' activities compared to the limited variety of worksettings in their previous workplace. However, the results in the literature indicate that switching behaviour is limited, with signs of nesting and territorial behaviour, and a low variety of worksetting affordances being taken up. Several activities lack the support of suitable worksettings. Collectively, these contribute to employees' inconsistent take up of affordances and identify the need to study the suitability of worksettings to employees' activities. More in-depth investigation is required on the affordances designed for by the Architects at each worksetting and their suitability with the affordances taken up by employees. Unlike Open plan or Cellular offices that have limited variety of worksettings, ABW offices can have considerable variation in worksettings and guidelines and may differ significantly from one office to another. The potentially large difference in ABW's physical and functional features may contribute towards the inconsistency in results.

There is currently no recent in-depth investigation on the design of ABW offices, such as the variety of worksettings, worksetting features, the activities those worksettings were designed to afford, and their suitability to the affordance employees take up. Some of the studies include the floorplan and categorisation of the variety of worksettings but these still lack detail on the actual worksetting features designed and a comparison between the designed affordances and those employees deem as suitable and take up.

Research Gap 3: There are limited in-depth studies on ABW guidelines (that defines ABW) and employees' acceptance of them as reflected in their compliance and awareness of them.

The results in the literature on ABW guidelines have indicated that there is inconsistent acceptance and compliance with ABW guidelines, such as Unassigned seating, that forms part of the definition of ABW offices. However, in-depth studies on the workplace guidelines in an ABW office is highly limited. The main co-investigations includes a total of four case study organisations (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017). Thus, there is still limited insight in several aspects of ABW workplace guidelines, such as the identification of workplace guidelines, how they are developed in the ABW Implementation Process (van Diermen & Beltman, 2016), employees' acceptance and compliance with them, whether the existing issues on ABW workplace guidelines are common in ABW offices and whether there are any enforcement mechanisms for these guidelines.

Additionally, there are no studies that holistically study the ABW Implementation Process, the physical worksetting features and functional worksetting guidelines contributing to employees' inconsistent take up of affordances. The current research methods to study employees' acceptance of the ABW in how they feel, think and use the ABW are also limited in capturing in-depth explanations as they largely relied on surveys evaluating the Value-added CRE strategies organisations aim to achieve.

The existing literature failed to identify the role of the physical and functional ABW features, the organisational and employee acceptance in employees' take up of affordances because existing studies partially evaluated them in fragments but there has been no holistic study that concurrently evaluated the following in-depth: organisational acceptance of the ABW in terms of the ABW Implementation Process, the physical and functional features of the ABW, and employees' acceptance of the ABW Implementation Process and the ABW's physical and functional features. These research gaps limit the theoretical understanding of the inconsistencies found in employees' affordance take up. Practically, these limit the advancement in ABW design and innovation and practical guidelines on how to leverage the benefits of ABWs whilst minimising or managing potential risks and downsides.

2.6 Summary

This chapter analysed the research background of ABW offices by examining the ABW Outputs in terms of the Provisions from the ABW, the ABW Inputs in terms of the Value-adding ABW Strategic drivers and the outcomes captured by the literature. These provide the foundation to identify the research gaps within ABW Throughputs and ABW Outputs to be addressed by this research. The research gaps are positioned theoretically in the next chapter. This sets up the

theoretical foundation to uncover the role of organisations' and employees' acceptance of the ABW in employees' take up of affordances and compliance with the workplace guidelines that contribute to organisations' achievement of the ABW strategies.

Part 2: Existing theory and the research's theoretical approach

3 Theoretical positioning, existing theory and theoretical approach

3.1 Introduction

This chapter begins with positioning the research gaps within the Theoretical Framework prior to discussing the theoretical approach adopted. The Theoretical Framework consists of three theories, the ABW Implementation theory, the Employee Acceptance Model and the Theory of Affordance, that are discussed in depth. Based on the theories in Chapter 2 and 3, the research gaps are translated into seven Theoretical Propositions to be validated or invalidated in this thesis.

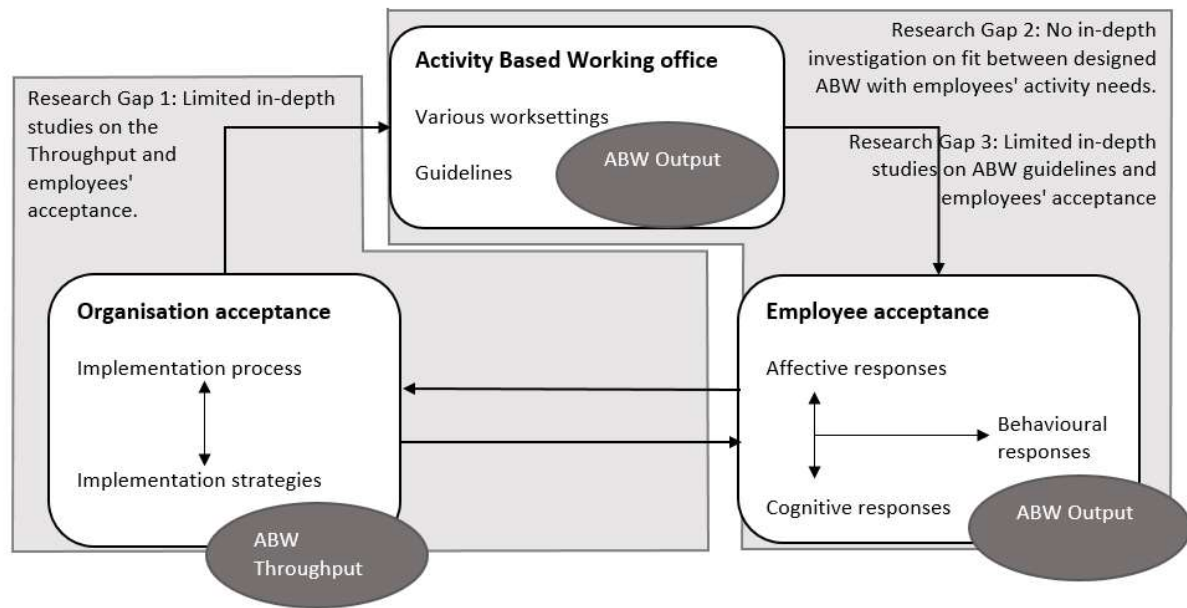
3.2 Theoretical Framework

The main research gap and the three subsidiary research gaps identified in Section 2.5 provided the basis for the Theoretical Framework in this thesis illustrated in Figure 3.1, being the relationships between the ABW Throughput, the ABW Implementation Process, with the ABW Outputs, the provision from ABW and employees' acceptance of the ABW. The first research gap identified limited in-depth studies on the ABW Throughputs that has a flow on effect on the ABW Output, the provision from ABW. The second and third research gap identified the necessity for more in-depth investigation on the link between the two ABW Outputs, the provision from ABW in terms of the variety of worksettings and worksetting guidelines, and employees' acceptance of them.

The theoretical approach to deal with the research gaps draws on both the existing theory from the ABW literature in Chapter 2 and three additional theories. The three additional theories were addressed the research gaps at hand in the following ways:

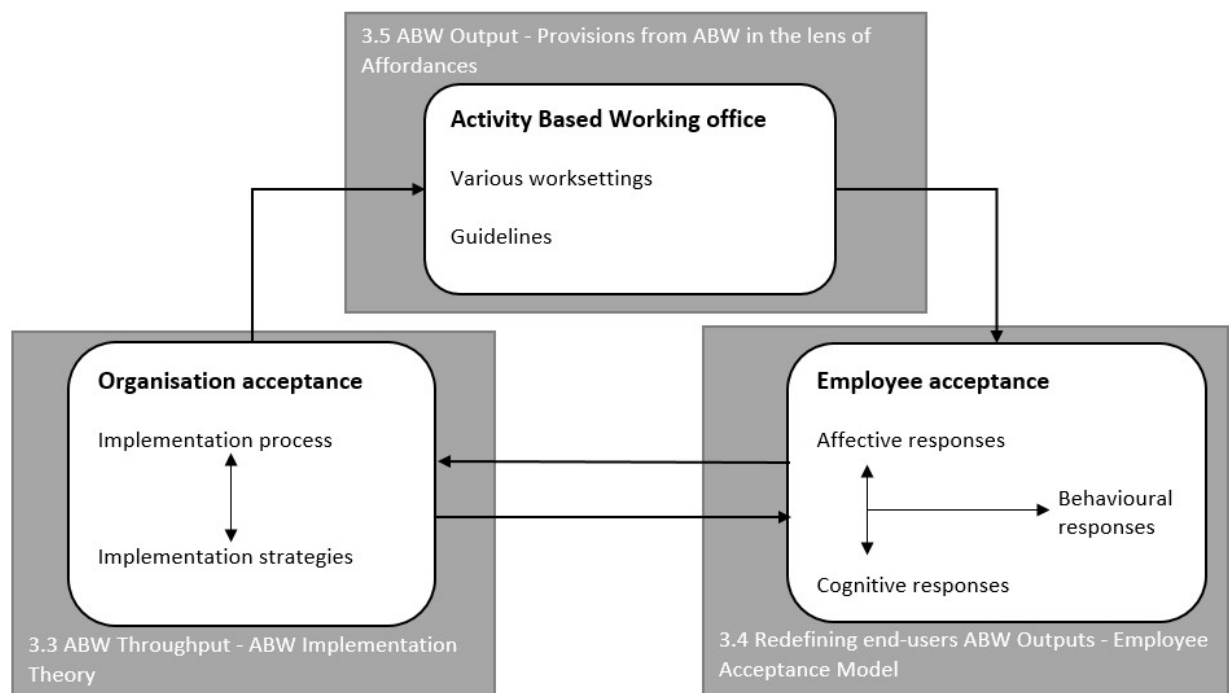
- *ABW Implementation Theory to understand the existing literature on ABW Implementation Process and how employees accept them in depth;*
- *Employee Acceptance Model to design a model based on the three psychological aspect of acceptance (affective, cognitive and behavioural) for workplaces; and*
- *Theory of Affordance provides a theoretical background to conduct a semi-grounded study architects' design intentions for the variety of worksettings that is then compared to employees' acceptance of them.*

Figure 3.1: Positioning the Research Gaps within the Theoretical Framework



These theories and the theoretical approach that deals with the ABW Throughput and ABW Output are further discussed in Section 3.3 to 3.5 and are illustrated in Figure 3.2. Based on the theoretical approach, theories and research gaps, seven Theoretical Propositions are developed and presented in Section 3.6.

Figure 3.2: Theoretical Approach backing the Theoretical Framework



3.3 ABW Throughput – ABW Implementation Theory

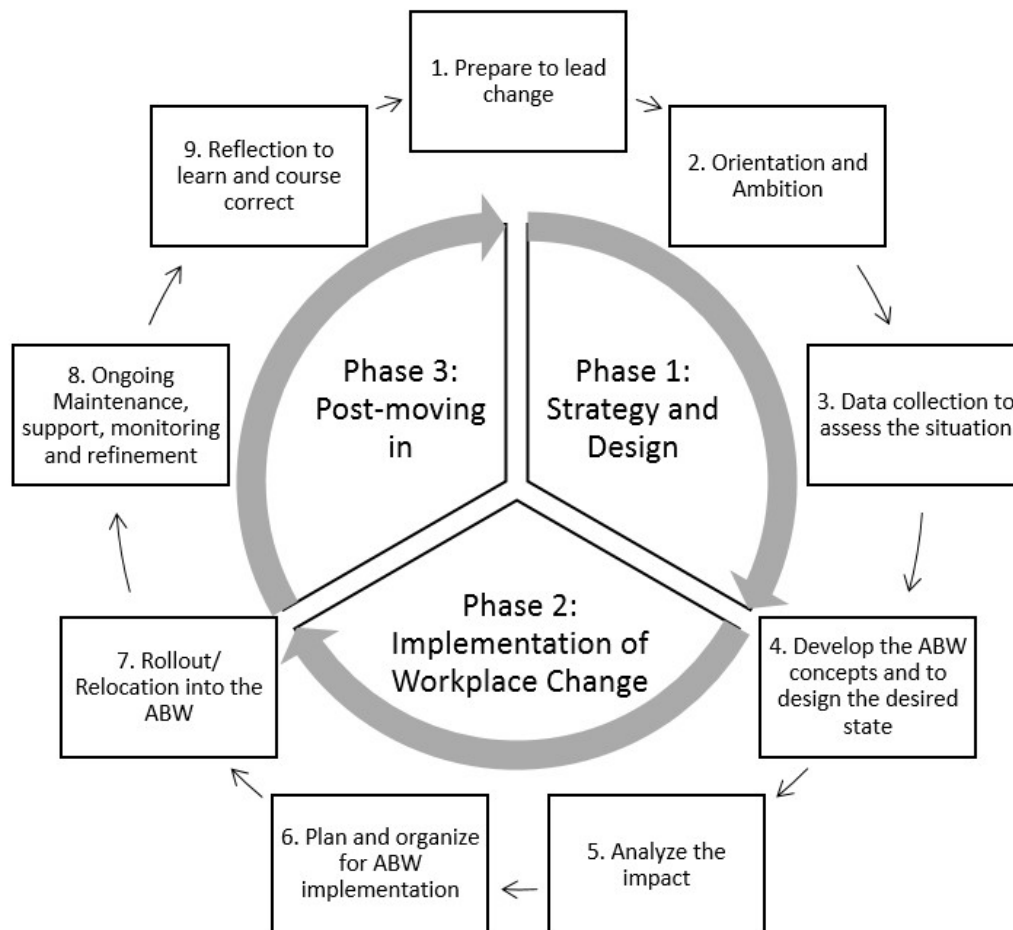
This section discuss the ABW Throughput that is the ABW Implementation Process and their theories in the literature. The importance of the Implementation Process of an innovation, such as ABW, is important to reap positive ABW Outputs (Becker, 2004b; Becker & Steele, 1995; Becker et al., 1994; Brunia et al., 2016; Finch, 2011; Koetsveld & Kamperman, 2011) and influence employees' acceptance levels (Skogland, 2017). Organisations moving into ABW offices can expect to face high resistance from employees and emotional reactions (Ekstrand, 2016) that can be managed through the ABW Throughput or ABW Implementation Process.

Reviewing the reasons why the ABW Throughput was quoted as the top five positive and negative aspects of the ABW Output (Been et al., 2015) reveal that organisations implemented ABW differently and employees experience them differently, thus influencing their workplace acceptance (Allen, Bell, Graham, Hardy, & Swaffer, 2004; Skogland, 2017). The Implementation Process is critical in determining both the physical and functional features of the ABW (Rolfö, 2018) that deals with the suitability between ABW and their employees' needs; and the workplace change management process which addresses employee resistance and emotional reactions and acceptance of the workplace and the guidelines (Appel-Meulenbroek et al., 2011; Ekstrand, 2016; Rolfö et al., 2018; Skogland, 2017). When cultural change is required, both employees and leaders have to undergo behavioural change for a sustainable change in culture to occur of which the underlying change is in their beliefs (Anderson & Ackerman-Anderson, 2010) in the inherent benefits (Herscovitch & Meyer, 2002), interconnected norms of the groups or systems (Cameron & Green, 2015; Inalhan, 2009) and the individual's sense of obligation to provide support for the change (normative commitment to change) (Herscovitch & Meyer, 2002).

A review on all ABW implementation and some organisational change management literature (to supplement the workplace change management employees' experience) was conducted to understand the existing recommended theories on ABW Throughput (illustrated in Figure 3.3). Figure 3.3 was then used as a frame of reference to investigate the actual ABW Implementation Process which is under-reported in the literature. The majority of the theories from both domains aligned because the ABW implementation literature is a workplace innovation that typically includes organisational change management in the process to manage and facilitate employees' ABW transition (Becker et al., 1994; Bell, 2006; Inalhan, 2009; Koetsveld & Kamperman, 2011).

The Implementation Process for this research is taken to begin after the organisation has decided to adopt the ABW. Thus, the decision-making steps to assess the ABW suitability with the organisation, such as ‘Conducting a needs and resources assessment’ and ‘Conducting a fit assessment’ with the innovation (Meyers, Durlak, & Wandersman, 2012), were excluded from the ABW Implementation Process steps (Figure 3.3). There are conflicting results on whether the involvement of all employees in the decision-making process is necessary with a proponent that it increases employees’ sense of belonging and workplace ownership (Rolfö, Eliasson, & Eklund, 2017) and an opponent that it is unnecessary as long as the workgroup’s ideas and choices can be recognised in the final product (Maarleveld, 2008).

Figure 3.3: ABW Implementation Process steps



Source: After Anderson & Ackerman-Anderson (2010) and Becker et al. (1994)

The three phases (Figure 3.3) have different aims. Phase 1: Strategy and Design is the ‘set up’ phase aiming to set the foundation for a successful ABW through a positive climate that minimises employee resistance, Phase 2: Implementation of Workplace Change is to prepare the workplace for employees and prepare employees for the workplace and Phase 3: Post-

moving in is when the workplace has been actualised and additional measures are taken to maximise workplace acceptance for current and future workplaces (Anderson & Ackerman-Anderson, 2010). However, organisations tend to move too quickly through Phase 1, overspend on Phase 2 resulting in insufficient funds to deal with the changes that may be required in Phase 3. The subsequent sections will delve into the nine steps in more detail.

The ABW Implementation Process may differ depending on the strategies undertaken (Becker et al., 1994; Koetsveld & Kamperman, 2011), such as Process-oriented, Business-driven, Solution-oriented and Cost-driven strategies of which the latter two strategies are inferior, leads to lower acceptance and should be avoided (Koetsveld & Kamperman, 2011). Business-driven projects were more user-centric aiming for a more effective work environment as opposed to Cost-driven projects that aimed to produce the same results without reducing effectiveness (Becker et al., 1994). Business-driven projects tend to complete all steps in the Implementation Process resulting in higher acceptance levels and long-run sustainability unlike Cost-driven projects that may revert to traditional ways of working resulting in similar costs (Becker et al., 1994). Solution-oriented strategies replicate a basic, standardized workplace solution across multiple sites with minor modifications and omitted steps to assess the current situation and conduct a change in business practice, whereas, Process-oriented strategies have standardized principles guiding the implementations and the process to identify the most appropriate solution (Becker et al., 1994).

Rolfö, Eliasson and Eklund (2017) are proponents for long planning duration (Phase 1 and Phase 2) and customised Implementation Process. In a small organisation (less than 50 employees), long planning duration (2.5 years) was found to increase employees' acceptance as they had more time to mentally prepare themselves to develop a superior, unified understanding of the ABW. With the customised Implementation Process, the extent in which this should be customised is unclear. A standardised Implementation Process may resemble the organisation implementing a Process-oriented strategy in which standardised principles are used to guide the Implementation Process to identify the most appropriate solution (Becker et al., 1994).

Inconsistencies between the ABW Implementation and Organisational Change Management Literature

Two primary inconsistencies or differences between the two fields of literature, ABW Implementation and Organisational Change Management, were found. The first primary

inconsistency is attributed to the non-specific nature of Organisational Change Management to innovations (Dewett, Whittier, & Williams, 2007) as a type of change and its project-focussed nature. As Organisational Change Management includes changes for non-innovations, the long-term need to continuously maintain, support, monitor, refine and improve the implemented ABW is often omitted (Anderson & Ackerman-Anderson, 2010), whereas, the real estate literature is clear that these are critical (Bell, 2006; Ekstrand, 2016; Sims, Joroff, & Becker, 1996). Organisational Change Managers are project-focussed in which projects typically do not extend beyond one year (Kotter, 1996). On the contrary, CRE professionals, specifically FM's core business, includes ongoing physical environment maintenance extending beyond the focus of ABW implementation as a short-term project to several years post-moving in. The second primary inconsistency is attributable to the generic nature of Organisational Change Management that is non-specific to an innovation of the workplace therefore, the details of some steps were primarily drawn from the ABW Implementation literature, such as the discussion in Step 3: Data Collection to assess the situation that identifies gathering data specific to ABW.

3.3.1 Phase 1, Step 1: Preparing to lead the change

With the support of top management (van Diermen & Beltman, 2016), this step typically consist of assembling a Change Leadership team and the various sub-groups it oversees, such as CRE, Human Resources, FM, ICT and a reference group (that is a group of employee representatives to provide opinions about certain matters) (Bell, 2006; Kotter, 1996; Kotter & Rathgeber, 2006; Rolfo, Eliasson, & Eklund, 2017; Tagliaro & Ciaramella, 2016b). Setting up the Change Leadership team (also known as the Steering Committee) is the beginning of change management and this team typically consists of a committed team of leaders and employees from various departments. Their role is to lead change, communicate the vision, make decisions about the ABW project and to develop the necessary support function- capital outlay, communication and participation plan (Anderson & Ackerman-Anderson, 2010; Becker & Joroff, 1995; Bell, 2006; Meyers et al., 2012; Rasila et al., 2014).

Communication throughout the ABW Implementation Process is complex and a summary is provided here. An effective communication plan (Bell, 2006; Inalhan, 2009; Rolfo, Eliasson, & Eklund, 2017) consists of two-way clear and quality communication (Cameron & Green, 2015; Finch, 2011; Kreitner & Kinicki, 2007; Paton & McCalman, 2008) that strives to foster trust amongst employees and to facilitate employees' understanding of the workplace change

(Brunia et al., 2016; Koetsveld & Kamperman, 2011). Constant timely communication of information through customised communication channels matched to the recipients facilitates employees' understanding of the change, increases transparency for more acceptance (Kotter & Rathgeber, 2006; Rolfö, 2018) and minimizes uncertainty and potential negative rumours (Paton & McCalman, 2008). The range of communication channels vary based on formality (formal or informal), communicator (direct manager, change ambassador or others), mode of communication (face-to-face or non-face-to-face) and presence of a feedback mechanism (De Paoli et al., 2013; Rolfö, 2018; van Diermen & Beltman, 2016). Key communications are best done formally by direct managers face-to-face with a feedback mechanism to directly address concerns (van Diermen & Beltman, 2016). All managers play a fundamental role in supporting employees' ABW adoption through their own actions, investing time and resources to enable active bottom-up participation and translating the workplace strategy into team objectives and management style that works best for team productivity that may include setting up basic team rules (De Paoli et al., 2013; Rolfö, 2018; van Diermen & Beltman, 2016).

3.3.2 Phase 1, Step 2: Orientation and Ambition

The second step focus on translating the ABW strategies into clearly defined goals that meet both current and future organisational needs for and by the Change Leadership team and the various sub-groups (for example, Anderson & Ackerman-Anderson, 2010; Becker & Joroff, 1995; Becker et al., 1994; Bell, 2006; Ekstrand & Hansen, 2016; Paton & McCalman, 2008; Tagliaro & Ciaramella, 2016b). The workplace change process is better accepted when the focus is on employees' wellbeing and aligned the ABW with the organisation's long-term objectives instead of cost reduction (Rolfö, 2018). High ambition and clear goals contributes to higher satisfaction and perceived performance ratings (Rolfö, Eliasson, & Eklund, 2017).

At this point, external competency are typically engaged for data collection and design to provide organisations with expertise that they lack (Rolfö, 2018). These typically includes architects, acousticians, lighting experts, safety engineers, ergonomists (Rasila et al., 2014; Rolfö, Eliasson, & Eklund, 2017; Rolfö, 2018). The term 'Architects', as noted earlier, is used broadly in this thesis to include any entities that were employed by the organisation to design the ABW. This may consist of workplace designers, interior designers and consultants involved in gathering the necessary information to input into the workplace design.

Since the ABW workplace is designed for all employees, there are some proponents that all employees affected by the change should be engaged from this step onwards for more

acceptance (Becker, 2004a; Maarleveld, 2008; Paton & McCalman, 2008; Rolfö, 2018; Tagliaro & Ciaramella, 2016b; Thomson, 2006). Employees' engagement differs from involvement as the latter does not necessarily include employees in contributing and making decisions (Carnall, 2007; Maarleveld, 2008). Employee engagement also has the potential for long-term cost savings by avoiding wrong decisions that have to be remedied post-moving in (van Diermen & Beltman, 2016). However, the lack of addressing all employees input may negatively affect acceptance (Been et al., 2015; Rolfö, 2018). Employee engagement has cost and time constraints (Thomson, 2006) with no guarantee for superior design and acceptance (Rolfö, 2018) but top-down implementation may cause friction (Been et al., 2015). Alternatively, an active working group consisting of employee representatives across the hierarchy and departments was positively received as a middle ground (Been et al., 2015).

3.3.3 Phase 1, Step 3: Data Collection to assess the situation

Data collection must be undertaken to assess the situation to determine the design and worksetting requirements to specify the ABW (Rolfö, Eliasson, & Eklund, 2017). This prepares the employees for the workplace and the workplace for the employees (Bell, 2006; Rolfö, 2018). Internal multi-disciplinary collaboration with the Architects is typically required for this step (van Diermen & Beltman, 2016). Engagement of all employees is recommended in the development process of the ABW concept to improve suitability (Brunia et al., 2016; Koetsveld & Kamperman, 2011; Rolfö, 2018) and help employees reflect on their ways of working and improvement opportunities (Rolfö, Eliasson, & Eklund, 2017).

The six data collection aspects are:

- (a) Reassessing how, where and what activities are conducted at each worksetting (Becker, 2004a; Becker & Joroff, 1995; Becker et al., 1994; Rolfö, Eliasson, & Eklund, 2017; Rolfö, 2018; Sims et al., 1996; Thomson, 2006) - understand employees' needs and how the current workplace supports it. This is critical in planning and allocating the adequate mix of worksettings for each team (Becker et al., 1994; Brill et al., 2001; Brunia et al., 2016; Khamkanya & Sloan, 2008; van der Voordt, 2004);
- (b) Reassess occupancy levels to determine space requirements (Becker, Joroff, & Quinn, 1995; Thomson, 2006) - in terms of occupation density and uses over time;
- (c) Understanding current spatial customs and conventions across departments (Thomson, 2006) - identify the effectiveness of them and predict their support for future standards;

- (d) User group facilitation (Rasila et al., 2014; Rolfö, 2018; Thomson, 2006) - engage employees, manage their expectations and be inclusive of their ideas to foster more ownership, empowerment and satisfaction (Bell, 2006; Brunia et al., 2016; Rolfö, 2018; Sims et al., 1996). Ideally, this should be conducted in three workshops to gather input, build ideas and present the resulting ABW and potentially include reference site visits to provide employees with some ABW ideas (Rolfö, 2018);
- (e) Understanding the relationship process or workflows (Becker et al., 1995; Paton & McCalman, 2008; Rasila et al., 2014) - provide an indication of the extent of change to better plan the fundamental change in business practices (Becker et al., 1994; Paton & McCalman, 2008); and
- (f) Cultural audit and readiness to change workplace (Becker, 2004a; Bell, 2006; Meyers et al., 2012) - identify potential social, psychological and political potholes that may increase employees' resistance. If employees' resistance seriously threatens the project success, it may be worth delaying the project until their readiness to change has increased (Becker, 2004a). A misalignment between the organisation's culture, values and norms can limit the achievement of the intended benefits (Ekstrand, 2016).

Ways to engage employees include focus group interviews, diaries, questionnaires and workshops (Rolfö, Eliasson, & Eklund, 2017). More successful ABW cases included User group facilitation (Brunia et al., 2016).

3.3.4 Phase 1, Step 4: Develop the ABW concepts and to design the desired state

This step focuses on designing the ABW based on the data from the previous step (Anderson & Ackerman-Anderson, 2010; Becker et al., 1994; Koetsveld & Kamperman, 2011; Thomson, 2006). Step 4 typically begins with a design brief that both the organisation and Architects agree on prior to proceeding with the detailed design proposals. The design brief includes the overall workplace concepts, workplace strategies that align with the organisational strategies, the proposed workplace-employee ratio, variety of worksettings, the space allocation towards each activity and department (if any) and workplace guidelines (Becker, 2004a; Khamkanya & Sloan, 2008).

Both the architectural and functional aspects of the ABW designed should be people-centric to correspond with employees' needs (Candido et al., 2019; Maarleveld, 2008) and the organisational demands with grounds for their proposals (Thomson, 2006). If the organisation

is conducting a pilot in the following step, the architects may only design for the pilot study in this step and only proceed to designing for the actual workplace after the pilot study. Space management practice and transformation to business practices, such as performance measures and new management policies, should be developed and fed into the ABW design as it influences the way ABW are used (Becker & Joroff, 1995; Becker et al., 1994; Bell, 2006; Rolfö, 2018; Thomson, 2006). Developing the guidelines with employees will assist in addressing concerns and prevent territorial behaviour distorting proper usage of the workplace (Becker et al., 1995; Been et al., 2015; Bell, 2006; Brunia et al., 2016; Kim et al., 2016; Tagliaro & Ciaramella, 2016b). Employee engagement in all the hard and soft aspects of the ABW and business practice transformation will also influence their acceptance (Becker & Joroff, 1995; Bell, 2006; Rolfö, 2018), such as presenting the ABW concepts and design for feedback (Rolfö, Eliasson, & Eklund, 2017). To engage employees, participatory design methods using sketches and visualisations as communication tools can be utilised (Rasila et al., 2014). Several design considerations have been picked up in the ABW literature:

- Adequate number and types of workplaces (van Diermen & Beltman, 2016) including Employee-to-worksetting ratio (Rolfö, 2018) and Space configuration (Rolfö, 2018). A few considerations in relation to Space configuration are:
 - Locating meeting spaces (or worksettings employees require often) close to the work areas for accessibility to retreat to for discussions (Brunia et al., 2016);
 - Arrangement of worksettings to manage noise (Becker et al., 1994; Brill et al., 2001; Brunia et al., 2016);
 - Size of the Open plan worksettings which should not be too large (no more than 15 people) and balanced with enclosed spaces to provide acoustic and visual privacy and prevent distractions (Brunia et al., 2016; van Diermen & Beltman, 2016);
 - Sufficient storage space in a convenient location (Becker et al., 1994; Brunia et al., 2016; Kim et al., 2016; van der Voordt, 2004); and
 - Tailor-made floorplan for every department depending on their needs and activities conducted (Skogland, 2017);
- Attractive Architecture (exterior and interior) (Rolfö, 2018; van Diermen & Beltman, 2016);

- Flawless functional technology (Rolfö, 2018; van der Voordt, 2004; van Diermen & Beltman, 2016) supporting employees' mobility (Brill et al., 2001; Brunia et al., 2016; De Paoli et al., 2013; Koetsveld & Kamperman, 2011; Sims et al., 1996), an efficient helpdesk to deal with technology malfunctions is crucial (van der Voordt, 2004); and
- Physical workplace comfort attributable to several factors including ergonomics, indoor climate which includes temperature and air quality, natural lighting and colour schemes (Brill et al., 2001; Brunia et al., 2016; Kim et al., 2016; van Diermen & Beltman, 2016).

3.3.5 Phase 2, Step 5: Analyse the impact

The next step is to analyse the impact of the ABW concepts and design typically through a pilot with a full-scale mock up (Becker, 2004a; Becker & Joroff, 1995; Bell, 2006) or engaging employees with the blueprint or physical models of the proposed ABW office (Rolfö, Eliasson, & Eklund, 2017). This is highly dependent on the organisation's budget and project scale.

Prior to conducting the pilot, the organisation should clearly define the aspects to be evaluated, such as their satisfaction on tangible elements, underlying social and emotional concerns (Becker, 2004a), and the evaluation methods, such as through interviews, surveys, workshops and observations (Rasila et al., 2014). The aim of the pilot is to test all aspects of the ABW (including technological solutions), identify what works (or does not) to manage risk, make necessary adjustments and to allow pilot employees to familiarise themselves with new workplace concepts as a workplace change management tool (Becker & Joroff, 1995; Bell, 2006; Ekstrand & Hansen, 2016; Rasila et al., 2014; Rolfö, Eliasson, & Eklund, 2017). The selection of employees to pilot the change has to be carefully selected and should consist of a group which is not too big, has a supportive manager and a group that is receptive towards change to avoid pilot failure that will damage both the reputation and acceptance of the wider ABW project (Becker & Joroff, 1995; Bell, 2006). The pilot's perceived success is also crucial because failures are widely communicated and a success will facilitate the following Implementation Process (Rasila et al., 2014).

Invitations for non-pilot staff are proposed for them to visit and to try the pilot to increase familiarity amongst employees (Bell, 2006, p. 197). The big change to work in the pilot may be overwhelming for some employees and adequate time has to be provided to educate and support them (Rasila et al., 2014). Temporarily moving into the pilot is also recommended to gradually adjust to the new work environment (Rasila et al., 2014).

3.3.6 Phase 2, Step 6: Plan and Organise for ABW implementation

This is typically the most complex step (Becker & Joroff, 1995) and is also known as the Workplace Change Management process (Rasila et al., 2014) to ready employees affectively, behaviourally and cognitively on the behavioural and structural aspects of the ABW (Meyers et al., 2012; Thomson, 2006). A large part of this step is implementing the communication plan to manage employees' reactions to the ABW by preventing negative affective responses, increasing awareness, equipping employees with knowledge on the ABW and ensuring that the necessary milestones are undertaken to relocate into the new ABW. The structural aspects includes the procurement or construction of fit-outs for the ABW (Koetsveld & Kamperman, 2011) that is not the focus of this research as these are typically managed through contracts.

Large-scale kick off sessions introducing the ABW (Koetsveld & Kamperman, 2011) and its guidelines (Rolfö, Eliasson, & Eklund, 2017) are recommended to create awareness and desire to participate but these must be unambiguous, clear and consistent from the start to the end (Babapour & Rolfö, 2019; Ekstrand, 2016; Rasila et al., 2014; T. van der D. J. M. Voordt, 2003). Announcing that all management levels are joining employees in the Unassigned seating indicates leading by example and promoting equality (Ekstrand, 2016; Kotter, 1996, p. 91). Architects involvement may also help communicate the ABW concept to end-users (Rasila et al., 2014), thus, creating a direct feedback loop.

Managing communications is fundamental and the workplace change team should be ready to manage change and opposition (Rasila et al., 2014). Employee resistance and concerns should not be viewed negatively as it can result in participation (van Diermen & Beltman, 2016) that may lead to positive attitudes, commitment and less resistance as they are better informed about how they're affected and benefitted (Been et al., 2015; Davis et al., 2011; van Diermen & Beltman, 2016; Vischer, 2008). Differing groups and readiness to adapt may require customised change management (Rasila et al., 2014). Communications should also be clear on when participation is optional to avoid employees missing out on compulsory tasks, such as digitising documents and storage reduction (Babapour, 2019a). It is critical not to overload employees with information but to communicate relevant, well-timed and contextualised information (Bell, 2006). A range of information should be provided to employees as different employees are attracted to different things (Bell, 2006). Some organisations may choose to introduce the workstyle changes prior to moving into the new ABW for a smoother transition with less 'teething pains' (Becker et al., 1994).

Various communication channels should be utilised, such as group meetings of various sizes, memos, newsletters, posters, informal one-on-one talks, workshops, intranet, weekly meetings (Kotter, 1996; Rolfo, Eliasson, & Eklund, 2017), pilot viewing, option to look at other ABW offices, visual images (Been et al., 2015), E-learning sessions (Koetsveld & Kamperman, 2011), two-way, formal communications, internal social media, management communications and face-to-face communication as the main channel (van Diermen & Beltman, 2016). More communication channels are recommended to create awareness and provide key knowledge that facilitates users' understanding, embracing and exploiting the new ABW implemented (Bell, 2006; Ekstrand & Hansen, 2016; Kotter, 1996; Kotter & Rathgeber, 2006; Meyers et al., 2012). Face-to-face communication channels, such as workshops, can be used to deal with concerns, anticipated problems and problem solving for the new way of working (Rolfö, Eliasson, & Eklund, 2017).

A longer Implementation Process duration (two years) was related to higher workplace acceptance as employees had more time to recognise the benefits (Rolfö, Eliasson, & Eklund, 2017). However, delays are different as they may result in more hesitations formed about the new workplace (van Diermen & Beltman, 2016).

3.3.7 Phase 2, Step 7: Rollout/ Relocation into the ABW

When the ABW is completed, the organisation will start relocating employees into the ABW (Paton & McCalman, 2008).

3.3.8 Phase 3, Step 8: Ongoing maintenance, support, monitoring and refinement

Post-relocation, ongoing maintenance, support, monitoring and refinement of the workplace begins to improve the workplace (Bell, 2006; Koetsveld & Kamperman, 2011; Meyers et al., 2012; Rasila et al., 2014; Sims et al., 1996; Thomson, 2006). The aim of this phase is to provide assistance and useful feedback mechanisms to deal with complaints and misunderstandings quickly as part of supporting employees' use of the ABW and its technology (Becker & Joroff, 1995; Brunia et al., 2016; Ekstrand & Hansen, 2016; Koetsveld & Kamperman, 2011; Meyers et al., 2012; Sims et al., 1996).

This step is typically given the least attention because change management normally ends a few months after the change is implemented (Kotter, 1996; Kotter & Rathgeber, 2006).

However, ABW implementation is an ongoing process of continuous learning that takes time

(Becker & Joroff, 1995; Ekstrand, 2016; Sims et al., 1996) to further embed the new way of working for long-term success to avoid employees reverting back to their old way of working due to teething problems (Bell, 2006). This may involve ongoing training (Becker & Joroff, 1995; Sims et al., 1996), initiatives such as erecting signs at unused spaces to educate employees or change perceptions (Ekstrand, 2016), and enforcing workplace guidelines (Babapour, 2019a; Brunia et al., 2016). Ongoing monitoring of occupancy and satisfaction should be conducted to guide further refinements and future changes (Sims et al., 1996), such as replacing or modifying underutilised worksettings to increase effectiveness (Mosselman et al., 2009).

For organisations to realise their CRE strategies in the long run, existing theories stress that managers should lead change through their own actions (Been et al., 2015; Ekstrand, 2016) through acceptance and continuous compliance with the workplace guidelines (Ekstrand, 2016). Both employees and leaders have to undergo behavioural change for a sustainable change in culture of which the underlying change is their beliefs (Anderson & Ackerman-Anderson, 2010) in the inherent benefits (Herscovitch & Meyer, 2002), interconnected norms of the groups or systems (Cameron & Green, 2015; Inalhan, 2009) and the individual's sense of obligation to provide support for the change (Herscovitch & Meyer, 2002).

To provide organisations with ongoing flexibility, ABW implementation does not end here but rather it evolves over time to meet the organisation's needs (Bell, 2006; Sims et al., 1996). A steering committee may also be formed to manage the proposed changes, implement them incrementally and deal with ongoing input for more than two years post-relocation (Babapour, 2019a). These helped employees develop ownership, appreciation of the ABW solutions and increased their acceptance over time after the novelty effects of locating in an ABW wears off (Babapour, 2019a). This indicates that the Workplace Change Management team should allocate long-term resources for these to be addressed.

3.3.9 Phase 3, Step 9: Reflection to learn and course correct

The final phase is the organisation's reflection to learn from experience and course correct for future workplace projects of a similar scale (Anderson & Ackerman-Anderson, 2010; Meyers et al., 2012; Paton & McCalman, 2008).

3.4 Redefining end-users ABW Outputs – Employee Acceptance Model

The success of ABW as an innovation goes beyond monitoring the number of organisations adopting ABW over time to include ABW Outputs, such as employees' ABW acceptance, to understand the fundamentals behind the inconsistent achievement of ABW Outputs evaluated through the Value-added parameters. To evaluate ABW Outputs, existing ABW literature typically employed surveys to evaluate employees satisfaction towards the Value-added parameters - of which satisfaction is arguably both a cognitive and affective response (Organ & Konovsky, 1989; Weiss & Cropanzano, 1996). Whilst these are valuable, they do not capture a holistic, in-depth insight into the aspects that this research will focus on: employee's acceptance of the ABW guidelines, the various worksettings, the Implementation Process and unintended responses. Therefore, this section redefines the ABW Outcomes captured from end-users' psychological dimensions through the Employee Acceptance Model that is not based on Value-added parameters.

The Employee Acceptance Model is based on the Technology Acceptance Model (TAM). The TAM identifies that users' acceptance of new technological innovations, like ABW, is fundamental to realising the potential benefits that determine its success (Davis, 1985). Within the ABW field, acceptance is occasionally included as a 'success' measure representing employees' behavioural responses to the new ways of working and their awareness of the employee benefits (cognitive) (Becker et al., 1994). The TAM is more comprehensive where technology acceptance is conceptualized as individual's cognitive (perceived usefulness and perceived ease of use), affective (attitude towards using) and behavioural responses (actual system use) (Davis, 1985; V Venkatesh & Bala, 2008) drawing its roots in psychology and it aligns with the change management field significantly (Kotter & Rathgeber, 2006, Fisher & Howell, 2004; Kark Smollan, 2006; Kraiger, Ford, & Salas, 1993; Pachankis, 2007; Ulrich, 1983)). As these three responses are related, a negative response in one is likely to negatively impact the individual's technology acceptance and use (or non-use) (Venkatesh & Bala, 2008). Effectively, greater technology acceptance enables organisations adopting the technology to realise the potential benefits and strategies. Studies suggesting that affective and cognitive outcomes drive behavioural outcomes tempts authors to omit either affective or cognitive outcomes (or both) to simplify the study of behaviour (Kark Smollan, 2006). However, simply assessing behavioural response is insufficient as it neglects the interrelatedness and explanatory power of affective and cognitive responses (Estrada, Isen, & Young, 1997; Kark Smollan, 2006; Ulrich, 1983).

Like the TAM, the Employee Acceptance Model, designed as part of this research, was based on the three psychological dimensions (affective, behavioural and cognitive acceptance). A similar underlying principle to the TAM was adopted that cognitive and affective acceptance affected employees' behavioural ABW acceptance due to their interrelatedness and explanatory power for employees' behavioural acceptance. The following sections explore the definition of each of these three psychological dimensions from the psychology literature and draws on literature from the psychology, ABW workplace, innovation implementation and organisational change management literature to identify affective, behavioural and cognitive acceptance parameters suited to ABW. The final Employee Acceptance Model is presented towards the end of this subsection.

Both intended or unintended responses that occur as a result of ABW implementation within organisations are assessed to avoid neglecting the unintended responses and overemphasizing the intended responses (Fisher & Howell, 2004; Klein & Sorra, 1996; Rogers, 2003). The general assumption is that more quality planning will lead to less unintended responses (Balogun, 2006) but these may occur even if the organisation achieves their primary intended outcome (Fisher & Howell, 2004). For the purposes of this research, intended responses are those anticipated by the Architects as they align with and facilitate organisations' achievement of the Value-adding ABW Strategic drivers. Unintended responses are those unanticipated by the Architects that may positively or negatively align with the intended organisational outcomes (Fisher & Howell, 2004). Since ABW implementation is a change, it is a process in which employees' acceptance of the ABW is non-static and can vary over time with the potential to stabilize over time to the point of equilibrium (Balogun, 2006; Fisher & Howell, 2004).

3.4.1 Affective acceptance

Sailer & Penns' (2010, p. 8) definition of affect is adopted and defined as the 'emotional interpretation of perception, information or knowledge' that varies depending on the individual's age, experience and culture influencing the individual's cognitive structure (Ulrich, 1983). Affective responses include emotions (Kark Smollan, 2006; Ulrich, 1983), mood (Kark Smollan, 2006), temperament (Kark Smollan, 2006) and a feeling state (Heywood, 2007) but many authors have supported that affect and emotions are rather closely aligned and have used them synonymously (Ulrich, 1983; Weiss & Cropanzano, 1996). Similar to Kübler-Ross' (2009) model, workplace relocations may cause employees to go through emotional stages, such as denial, anger, bargaining and acceptance (Inalhan, 2009).

Studying affective responses within the workplace is important because positive affective responses foster social skills, kindness, clear-headed, well-organized, open-minded, flexible problem solving and thinking that may translate to more effective employees (Isen, 2001) and successful outcomes and behaviours (Lyubomirsky, King, & Diener, 2005). On the contrary, adverse affective events, such as noise or distraction invasion, can trigger affective responses, such as anger and frustration. This may lead to affect-driven behaviour, such as withdrawal, conflict and territorial behaviour (Ashkanasy, Ayoko, & Jehn, 2014), or workplace relocation events, such as a delay in moving in, may trigger changes in employees' affective responses, for example, a loss of enthusiasm and buy-in (Inalhan, 2009).

Affective responses are rarely captured in ABW literature except in employees' satisfaction that jointly assessed affective and cognitive responses. Some post-occupancy evaluations may include assessing affective responses but not focus on them. These may include checkboxes for concerns and feelings post-moving in (Tagliaro & Ciaramella, 2016b), and exploring what employees value about the workplace, such as employees' enjoyment of the work environment, sense of pride and community (Appel-Meulenbroek et al., 2016).

Affect is classically evaluated through self-report by asking individuals what they feel as it is convenient and simple but is critiqued for only being applicable to conscious emotional states (Parrott & Hertel, 1999; Picard & Daily, 2005). More innovative alternatives use sensors to measure physiological reactivity, such as facial activity, posture activity and heart rate, but this is limited by methodological fit and technological resources availability (Bradley & Lang, 1994; Breckler, 1984; Picard & Daily, 2005). Self-reports are still prevalent where researchers typically use a survey including a bipolar Likert scale for 'agree/ disagree' affective response statements (Allen & Meyer, 1990; Babakus, Yavas, Karatepe, & Avci, 2003; Bless, Bohner, Schwarz, & Strack, 1990). The affective response statements will then be split into positive, negative, neutral or mixed affect (Breckler, 1984; Estrada et al., 1997; Fisher, 2002; Lucia-Palacios, Pérez-López, & Polo-Redondo, 2016; Luo & Chea, 2008; Ogden, 2013; Organ & Konovsky, 1989; Peters, O'Connor, & Rudolf, 1980).

This research will capture affective responses using self-reporting by asking individuals to describe how they feel, rate how they feel (on a Likert scale of 1-5) and explain the contributors to that feeling for worksetting and the guidelines. These are then classified into positive (rating of 4-5), negative (rating of 1-2) or neutral (rating of 3) affective responses.

3.4.2 Cognitive acceptance

Cognition is the mental process of generating information or knowledge (Sailer, 2014) separately from the emotional aspects of knowledge itself (George, 1962). Cognition includes interpretive and constructive mental activities (Weisberg & Reeves, 2013), such as learning, perceiving, thinking, reasoning and recollecting (George, 1962), based on incoming information, their knowledge, memory, motivation (George, 1962; Kraiger et al., 1993; Weisberg & Reeves, 2013), visual and spatial processing and attention (Weisberg & Reeves, 2013). Some of these are supported in the office accommodation context where employees' cognitive responses post-relocation are highly dependent on their previous office accommodation as many respondents tend to compare the new workplace to their previous workplace (Been et al., 2015; Bergstrom, Miller, & Horneij, 2015). Three parameters of employees' cognitive acceptance were identified to reflect their knowledge, perceived support and commitment to use the ABW.

Knowledge

Common cognitive measurements test an individual's knowledge with multiple-choice, true-false, free-recall exams (Kraiger et al., 1993) or a Likert scale of approval or disapproval with statements containing knowledge about different subjects (Bless et al., 1990; Yuksel, Yuksel, & Bilim, 2010). Since individuals' behavioural responses are limited by their knowledge on how to use the innovation, cognition is critical (Hall & Hord, 2015). Therefore, this study proposes to evaluate employees' knowledge on the activities suited to each worksetting and the workplace guidelines. Assessing the extent of employees' knowledge is new in the ABW field but this is an important cognitive response since studies have found that employees lack knowledge in aspects, such as the workplace guidelines and adjustment of their furniture (Been et al., 2015; Ekstrand, 2016; Ekstrand & Hansen, 2016; van der Voordt, 2004).

Perceived support

Similar indirect measures to those proposed in the technology domain's perceived usefulness are present in the literature on office layouts or work environment, such as the 'perceived support from the work environment' for the activity that the employee is conducting (Appel-Meulenbroek et al., 2016; Brunia et al., 2016; Hua, Loftness, Kraut, & Powell, 2010) and 'perceived support of productivity by the work environment' on a 1-5 Likert Scale (Brunia et al., 2016). This study proposes to evaluate employees' perceived support for each activity that they conduct at a worksetting to assess the perceived suitability of each worksetting designed.

Commitment of use

Additionally, cognitive strategies are a form of cognitive outcome (Fisher & Howell, 2004). When continuous usage and routinisation determines the success of innovation implementation, the cognitive strategies that are often of interest are the individual's consistency of use and intent to continue using the innovation (Klein & Sorra, 1996; Linton, 2002). This is similar to the concept of the long-term sustainability of innovation use in the Diffusion of Innovation literature (Rogers, 2003). Capturing individual's ongoing use intent is lacking in the Technology Acceptance literature as it assumes that behavioural intentions are equivalent to use behaviour, as discussed in Section 3.4.3. These are captured in this research by asking employees about their intentions to continue using the ABW at their current level of use and whether they have any intentions to make future changes in their innovation use (Hall & Hord, 2015).

Whilst the Technology Acceptance Model proposes a few other cognitive measures, such as perceived control and self-efficacy (for example, Davis, 1986; Venkatesh & Bala, 2008; Viswanath Venkatesh & Davis, 2000), these are not employed in the model as these are more geared towards a technology device, such as a computer.

To capture unintended cognitive responses, the inclusion of a less structured and a more open method is necessary. For example, the inclusion of an open-ended section in their questionnaire either to capture any open-ended comments (Kim et al., 2016) or continuation of a semi-directed statement (Millward et al., 2007, p. 551). This open-ended information is subject to negative skew but is highly valuable as the design of the quantitative methods may be limited in capturing the negative aspects of the ABW (Kim et al., 2016; Millward et al., 2007). This research employs some semi-directed statements, open-ended sections and open discussion for employees to respond in whatever way they want.

3.4.3 Behavioural acceptance

For this research, behavioural responses are the actions or inactions in the way the ABW is used that are overt, observable and measurable including verbal expressions ("Behavior: Research Starters Topic," 2015; Brower & Abolafia, 1995; O'Riordan, 1976). The simplest classic approach to assessing innovation usage is its 'use' or 'non-use' (Lapointe & Rivard, 2007) because non-use will not yield any potential benefits, thus, automatically rendering the change as a failure especially if the innovation adoption is discontinued, abandoned or rejected (Abrahamson, 1991; Lapointe & Rivard, 2007). Innovation adoption should strive for

full use of the innovation (Rogers, 2003). However, depending on an innovation's complexity, its Extent of use may vary and some unintended behaviours, such as Territorial behaviour, has been reported. Extent of use and Territorial behaviour are discussed in turn.

Extent of use

Assessing extensiveness of use accounts for the different extent of adoption and adaptation (Klein & Sorra, 1996; Shih & Venkatesh, 2004). Different employees will adopt the innovation to a different extent and may adapt the innovation to a variety of uses (Klein & Sorra, 1996) and various innovation configurations (Hall, 2011). Unlike certain technology adoption (Fisher & Howell, 2004), employees' behavioural responses towards the ABW is not as simplistic as 'use' or 'non-use' because not using the ABW post-relocation is often not a choice for employees. All employees somewhat use the ABW even if they do not comply with the workplace guidelines and switch worksettings. Therefore, a more comprehensive manner in studying employees' extent of use is required.

The technology or information system adoption literature traditionally assessed 'usage behaviour' based on the rate of use, such as amount of time spent on the system (Davis, 1993; Shih & Venkatesh, 2004; Venkatesh & Bala, 2008; Viswanath Venkatesh & Davis, 2000), but is increasingly diverging to include the nature, extent or variety of use (such as basic or advanced use), quality and appropriateness of the system use (Delone & Mclean, 2003; Kawakami, Kishiya, & Parry, 2013; Shih & Venkatesh, 2004; Talukder, 2014). Similarly, the 'amount of time' spent using the ABW is less insightful as the ABW office remains as the primary workplace for most employees despite the Flexible Working guideline. Additionally, appropriateness of innovation use is excluded because it is challenging to define inappropriate uses due to the differing perceptions. The take up of an affordance that was unintended by the Architects may not deem it as 'inappropriate' but could lead to the take up of affordances that the Architects were unaware of or did not recognise, such as those described in Section 2.4.4.1.

To investigate extent of use within the ABW, this research investigates all affordances (Section 3.5) taken up by the employees at every worksetting and compares this to those intended by the Architects. Instead of capturing the 'amount of time' spent using the ABW, the frequency of employees' take up of affordance at each worksetting was captured that revealed the affordances commonly taken up at each worksetting.

Territorial behaviour

As discussed in Section 2.4.1.3.5, switching behaviour is fundamental to the ABW functioning to afford employees a variety of suitable worksettings that affects the organisation's achievement of some CRE strategies. Ideally, the extent of employees switching worksettings is high based on their activities but not all employees have a diverse range of activities that may result in non-switching behaviour. Organisations attempt to restrict nesting and territorial behaviours through workplace guidelines as they decrease employees' switching behaviours and lead to a range of undesirable consequences (as discussed in Section 2.4.1.1, Section 2.4.1.3.5 and Section 2.4.4.1). However, several literatures identified the low switching behaviour and signs of nesting and territorial behaviour. As the extent of switching behaviour is considerably more challenging to evaluate without shadowing employees, the extent of territorial behaviour and compliance with the workplace guidelines are evaluated.

3.4.4 Employee Acceptance Model

This section commences with a discussion on exemplary levels of use models and presents the Employee Acceptance Model designed to capture the ABW Outcomes holistically from an end-user psychological perspective (Table 3.1). The links between the affective, behavioural and cognitive acceptance that contribute towards employees' acceptance are tested in this thesis through the research design and data collection. However, validating the acceptance level within the ABW organisations are outside the scope of this research as it will require deploying larger scale quantitative research that does not align with the research gaps and research questions dealt with in this thesis. Nevertheless, the Employee Acceptance Model designed includes the various acceptance levels for completeness to illustrate the ABW Outputs from the individual end-user level, comprising their affective, behavioural and cognitive acceptance, desired by organisations to achieve their ABW CRE strategies.

Upon reviewing the literature for a model that provided different levels of innovation use, Hall & Hord (2015) and Klein and Sorra (1996) provided exemplar models with different levels of innovation use from the field of education innovation and organisational management respectively. Whilst Hall & Hord (2015) provided a very comprehensive model, their model is less suitable for ABW for various reasons. In implementing education innovation, the teachers are direct decision makers on whether they wanted to implement innovations they learnt about and the classrooms of students are a large group directly, immediately impacted by their teacher's decision. The students are the end-users impacted by the decision to adopt the

education innovation but are not the decision makers. Whereas, in the ABW context, organisational acceptance through the ABW Implementation Process provides employees with the innovation, ABW office, regardless of whether they wanted it to be implemented; but the employees are the end-users that decide how to use it and are directly, immediately impacted by their own decision on how to use the ABW. Thus, the amount of ‘planning’ which goes into employees’ ABW use and the amount of discussion about the end-users’ innovation acceptance is different from education innovations.

Table 3.1: Employee Acceptance Model

	Employee Acceptance Levels				
	<i>Acceptance Level 1: Limited or Non-Use</i>	<i>Acceptance Level 2: Compliant Use</i>	<i>Acceptance Level 3: Sporadic and Inadequate Use</i>	<i>Acceptance Level 4: Adequate Use</i>	<i>Acceptance Level 5: Committed and Creative Use</i>
Affective Responses	Very Negative	Negative	Neutral	Positive	Very Positive
Knowledge of ABW	Very Low	Low	Moderate	High	Very High
Perceived support from the ABW	Very Low	Low	Moderate	High	Very High
Commitment of use	Very Low	Low	Moderate	More than compliant but less than committed use.	High
Extent of Use	Very Low	Low	Moderate	High	Very High
Territorial Behaviour	Very High	High	Moderate	Low	Non-existent

Source: Author adapted from Klein and Sorra (1996)

Klein and Sorra (1996) conceptualised five levels of use of an innovation depending on implementation climate¹ and innovation-values fit which were further distinguished by these parameters: Skilfulness; Emotions; Obstacles/ Barriers to use; Commitment of use; Incentives and disincentives for innovation use; ‘Employee resistance’ and ‘Consistency of use’. Their model was adopted and adapted from a multi-level unit of analysis (organisational and

¹ Implementation climate refers to “... targeted employees’ shared summary perceptions of the extent to which their use of a specific innovation is rewarded, supported and expected within their organisation” (Klein & Sorra, 1996, p. 1060) that is based on their perception of organisation’s implementation policies and practices.

employee level) to individual employee level parameters for this research. Additional affective, cognitive and behavioural responses put forward in the earlier sections were also included in the Employee Acceptance Model for this research. Five parameters from Klein and Sorra (1996)'s model aligns closely with the proposed parameters:

- 'Skilfulness' reflects employees' knowledge of the innovation;
- 'Emotions' reflects employees' affective responses;
- 'Obstacles/ Barriers to use' is the opposite of perceived support afforded by the worksettings. Other barriers to use are such as space pressure resulting in the lack of suitable worksettings that are evaluated but excluded from this model as it is an organisational level indicator;
- 'Employee resistance' reflects employees' territorial behaviour to resist the non-territorial office intended by the organisation; and
- 'Commitment of use' reflects employees' long-term behavioural intentions.

Additional parameters that were not included by Klein and Sorra (1996) but are included in the proposed model are the 'Extent of Use' of the ABW as reflected in the way employees use the workplace (number of worksettings used, range of activities conducted at various worksettings and compliance to workplace policies). 'Level 5: Committed and creative use' is the organisation's intended outcome and 'Level 1: Limited or Non-Use' is the unintended outcome from organisations investing in an ABW office. A five-scale spectrum was employed for each parameter.

From the existing literature on ABW Inputs and Outputs, it is proposed that organisations aspire for their employees' responses to be at Acceptance Level 5: Committed and Creative Use; and to avoid Acceptance Level 1: Limited or Non-Use. Collectively, if Acceptance Level 5: Committed and Creative Use is achieved by the employees within the organisation, organisations are most likely to achieve their ABW CRE strategies.

3.5 ABW Output – Provisions from the ABW in the lens of Affordances

Gibson's Theory of Affordances explores the opportunities for action that the environment provides or supplies to its inhabitants (Gibson, 2015). Each opportunity for action within the environment is known as an 'affordance'. The same environment may contain many observers with limitless opportunities for them to live in it (Gibson, 2015, p. 129). For example, the large rock in the field affords or provides the opportunity for a human to sit on (the action), stand on, lean on and lie on. The Theory of Affordance was applied to the ABW Outputs to study the

physical (worksetting variety and features) and functional (workplace guidelines) features designed into and provided by the ABW in terms of affordances.

Affordances are an animal-relative property, that is the ABW may not offer the same opportunities for action and may offer different type of supports to its different inhabitants (Gibson, 2015). Within the animal kingdom, various animals differ across inter- and intra-species and differ physiologically and psychologically affecting the actions that they are capable of performing ('action capabilities') and the psychological-ability of the animal to recognise the possible actions that they can perform (knowledge and awareness capabilities) as not all opportunities for action or affordances are equally obvious (Gibson, 2015; Norman, 2013; Withagen, de Poel, Araújo, & Pepping, 2012). However, ABW employees that are the primary end users of ABWs present some general physical and psychological similarities and norms which makes designing for them possible.

Intended versus emergent affordances

Despite an Architect's intended affordances or affordances that they intentionally design to support in the workplace design process, the Architects should expect the existence of other affordances, such as emergent affordances, that they have included in their design unintentionally. Architects do not just design their intended affordances but invitations influencing employees behaviour (Withagen et al., 2012). These invitations are merely a subset of all the affordances available (Withagen et al., 2012), thus, enabling Architects "...to attract or repel certain behaviour of an agent if and only if the agent perceives this affordance" (Withagen et al., 2012, p. 256) or it "facilitates or frustrates" behaviours (Thanem, Värlander, & Cummings, 2011). Besides the physical workplace design, the workplace guidelines designed by the Architects also attract or repel employees' perceived affordances. They promote or restrict employees take up of affordances as they communicate the acceptable behaviours within the ABW. Thus, this research studies the intended affordances that the Architects intended to invite in each worksetting, the actual affordances taken up (including emergent affordances), niches and the factors that drive or deter the take up of affordances.

Real versus Perceived affordances

Affordances can be further broken down into real affordances and perceived affordances (Norman, 1999). The difference between the two is that real affordances are all the possible opportunities for action that an individual can action whereas perceived affordances are

affordances that the individual perceives and is aware of. Since this research does not study technology systems, perceived affordances here will only refer to the real affordances that the user perceives and not unreal affordances, such as those in technology systems (Norman, 1999).

There are several affordances within the ABW but not all affordances are equally obvious (Gibson, 2015; Norman, 2013; Withagen et al., 2012) and perceived. Only affordances that are perceived may be acted upon and the inability to perceive them will deem them useless to employees (Norman, 2013; Norman, 1999). The most obvious affordances that are perceived and often taken advantage of is known as a 'niche', such as using the Meeting Rooms for meetings. Employees' perceived affordances depend on their cognition that may be influenced by various factors, such as design, employees' knowledge, the social environment and employees' changing needs (Venkatesh & Bala, 2008), that are discussed in turn below.

Design

The design of the ABW determines the physical (worksetting variety and features) and functional (workplace guidelines) features. The design should reflect the Architects' intended affordance such that it is more intuitive and obvious through visual cues and signifiers (Norman, 2013) than the emergent affordances. Visual cues or signifiers may influence an individual's perceivability of the affordance because it triggers or hints towards a certain affordance (s). Signifiers are "...any mark or sound, perceivable indicator that communicates appropriate behaviour to a person" (Norman, 2013, p. 16) such as signages which have no useful affordances but provides a visual cue to the users. When more complex actions are required, education of users during the ABW Implementation Process may be required to make these affordances perceivable to the users. Complex actions can also be a tool to assist designers with making some affordances less perceivable or hiding them (Norman, 2013). Visual cues may trigger employee's prior experience and knowledge due to the similarities and employees' ability to transfer their knowledge and experience to the new object or environment without any re-education.

Additionally, Architects can use design to conceal employees' take up of certain real affordances by making them less obvious or adding in extra measures to hide those affordances (Norman, 2013). For example, the communications and data room in offices are typically in a highly accessible area close to the building's core but is hidden and concealed to avoid human interference that may result in a system failure. Communications and data rooms

are typically externally painted in the same colour as adjacent walls to create a camouflaging effect and key card access only without any labels on the door signifying to onlookers that what's behind the door does not concern them. Thus, the room still contains the desired affordances and inhibits undesired affordances (Maier, Fadel, & Battisto, 2009, p. 405).

The design process is challenging because it requires the cooperation of several different disciplines whilst ensuring that the design is usable, understandable, attractive, affordable, reliable, manufacturable, serviceable, distinguishable from competing products, functions provided and appealing (Norman, 2013). In ABW offices, design is not limited to the physical architectural features but extends to functional features (the worksetting guidelines) influencing employees' perceived affordances. Whilst employee engagement in the Implementation Process may attempt to bridge the gap between the employees' needs and the workplace change team's understanding of them, the Workplace Change team and end-users tend to be different entities with differing focuses (Norman, 2013). For example, the Workplace Change team may be more focused on price and appearance during procurement, whereas end-users may be more focused on functionality and usability.

Employees' knowledge

Psychologically, employees' perceived affordances may differ depending on their knowledge. Employees' prior experience and knowledge may be both an advantage and barrier in adapting to the new ABW environment as employees' preconceptions and perceived affordances will have to be reshaped (Ekstrand & Hansen, 2016) through the ABW Implementation Process. Some manual dexterity does not have to be directly taught and some perceptual cues and signifiers can be picked up with their five senses (see, touch, feel, hear, taste) triggering knowledge transferability of affordances from a prior workplace (Fayard & Weeks, 2007). Employees' learning of the ABW's physical and functional features from the ABW Implementation Process is critical to provide employees with the knowledge on the acceptable perceived affordances to take up. Employees' involvement in the ABW Implementation Process provides them with knowledge on the perceived affordances present and complete re-learning is not necessary.

Social environment

As the workplace is a non-static environment with multiple employees, the perceivability of affordances are affected by the social environment and the workplace guidelines to behave in

a socially acceptable manner. The affordances to potentially interact with others are ever-changing. The social environment includes the social relations between employees (Thanem et al., 2011), such as politics and cultures, which are intangible and occurs in the individual's cognitive and mental processes. These affect employees' take up of affordances to behave appropriately such that their behaviour reflects compliance with the guidelines (to be rewarded or avoid punishment), internalization (to incorporate the social environment's beliefs with their own) or identification (to identify themselves with the social environment) (Venkatesh & Bala, 2008). Gibson describes the presence of multiple individuals in the same room as "the richest and most elaborate affordances of the environment..." (Gibson, 2015, p. 126) because other individuals are capable of moving and making changes unlike static artefacts such that "Behaviour affords behaviour..." (Gibson, 2015, p. 127). For example, a colleague initiating a conversation induces a change in real affordances as there is now an offer to interact - a real affordance that was previously unavailable. The physical environment can only facilitate social behaviour but it cannot create or dictate social behaviour (Ekstrand, 2016) unlike the social environment. For example, using the casual large coffee areas during work hours was initially perceived as socially unacceptable resulting in low take up of this social affordance in the ABW (Ekstrand, 2016).

Changing needs

Employees may have differing, changing needs over time. Employees' perception of affordances and their usefulness may change based on their needs and ability to recognise them but affordances in the ABW are ever-present and constant because the properties of the ABW environment and the employees remains the same (Gibson, 2015). For example, an employee may only recognise the affordance to take a nap in the Meeting Room when they feel the need to but the affordance to conduct a meeting or take a nap is ever-present. However, the take up of an affordance by an employee may displace others of it as two employees cannot sit on the same chair which is why non-switching, nesting and territorial behaviour is an issue as discussed in Section 2.4.4.1. Thus, using the Meeting Room for a nap may be an affordance perceived negatively by employees that are displaced and required the Meeting Room for a meeting but may be perceived positively by the exhausted employee despite their intentions (Gibson, 2015).

Explaining employees' take up of perceived affordances

Employees' inability to perceive the intended affordances may lead to workplace adaptations (Maier et al., 2009, p. 407), interpretation errors, signages introduced to communicate certain intended behaviours and obsolescence because the building cannot be adapted feasibly. Thus, the Employee Acceptance Model and ABW Implementation Process complements the Theory of Affordance that takes on an external ecological approach (Cutting, 1982; Withagen et al., 2012) and lacks explanations for the affordances taken up. The Employee Acceptance Model (Section 3.4.4) complements the Affordance theory to explain employees' behaviour (Cutting, 1982; Withagen et al., 2012) or take up of affordances offered by the physical and functional features of the ABW through internal psychological explanations on individual's observed behaviour. The ABW Implementation Process facilitates in explaining the affordances taken up as it affects the affordances designed into the ABW and may affect employees' learning of the affordances within the ABW. The ABW Implementation includes re-socializing and reshaping employees' perceived affordances that includes their thinking about how worksettings should be used and the socially acceptable behaviours in the ABW, such as those outlined in the workplace guidelines (Original Creative Co-op B.V., 2010).

3.6 Theoretical Propositions

Based on the Research Gaps, the theoretical approach and existing theories, the Theoretical Propositions to be validated in this thesis and the relevant chapter (s) addressing them are as follows:

Main Theoretical Proposition: Organisations' acceptance and employees' acceptance of the ABW office plays a role in employees' take up of affordances within the ABW and compliance with the guidelines. [Chapter 8: Conclusion]

Theoretical Proposition 1 (TP 1): Business-driven implementation strategy is the superior implementation strategy that will result in more positive cognitive responses towards the ABW Implementation Process as it focuses more on employees' needs and the affordances that should be designed into the ABW. [Chapter 5: The link between ABW Throughput and ABW Outputs]

Theoretical Proposition 2 (TP 2): Worksettings and features that generate positive affective responses translates into employees' behavioural take up of affordances resulting in higher

demand and higher utilisation; and vice versa. [Chapter 6: ABW Outputs – Employees' Acceptance of the Various ABW worksettings]

Theoretical Proposition 3 (TP 3): Post-moving into the ABW, ongoing maintenance and workplace management are often overlooked but are critical to sustain employees' affective responses and behavioural take up of affordances within the workplace. [Chapter 6: ABW Outputs – Employees' Acceptance of the Various ABW worksettings]

Theoretical Proposition 4 (TP 4): The intended affordances designed for by the Architects should have more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for. [Chapter 6: ABW Outputs – Employees' Acceptance of the Various ABW worksettings]

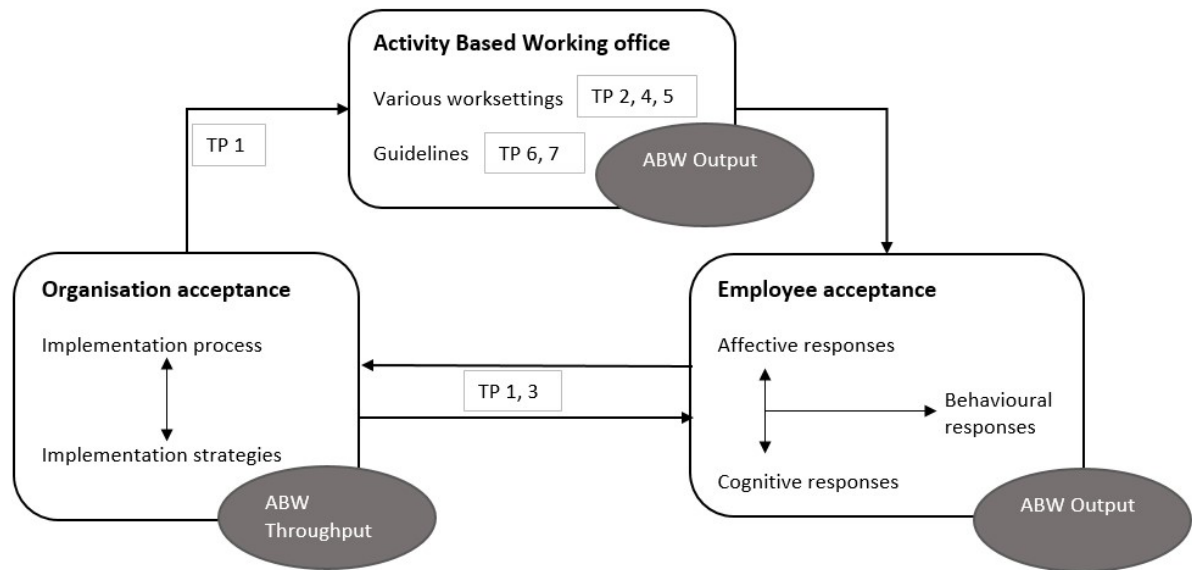
Theoretical Proposition 5 (TP 5): The emergent affordances that have positive cognitive and behavioural responses are affordances that require few supporting worksetting features; and vice versa. [Chapter 6: ABW Outputs – Employees' Acceptance of the Various ABW worksettings]

Theoretical Proposition 6 (TP 6): Employees' primary learning of the Workplace Guidelines is through their involvement in Phase 1 and 2 of the ABW Implementation Process. [Chapter 7: ABW Outputs – Employees' Acceptance of the ABW Guidelines]

Theoretical Proposition 7 (TP 7): Common issues generating negative acceptance of the ABW workplace guidelines are attributable to the lack of process informing new employees of the guidelines, ambiguity of guidelines and guidelines that are conflicting with the workplace design. [Chapter 7: ABW Outputs – Employees' Acceptance of the ABW Guidelines]

The Theoretical Propositions are positioned within the Theoretical Framework illustrated in Figure 3.4. These Theoretical Propositions are revisited in the relevant results chapter and conclusion chapter to discuss the supporting or non-supporting results that validates or invalidates them.

Figure 3.4: Positioning the propositions within the Theoretical Framework



3.7 Summary

This chapter positions the research gaps theoretically, puts forward a Theoretical Framework and delves into the three domains of theories underlying this research: ABW Implementation Process, Employee ABW Acceptance Model and Affordances. These provide a theoretical foundation prior to discussing the research design employed in the next chapter.

Part 3: Research Design

4 Research Design and Methods

4.1 Introduction

This chapter identifies the research questions and research approach to address the research problems identified in the literature review. A multiple case study methodology with multiple methods were employed to align with the research's exploratory and idiosyncratic nature. Cases were selected based on the dominant industry in Australia that has adopted ABW.

4.2 Ethics Approval

Ethics approval was obtained from the University of Melbourne Human Research Ethics committee prior to contacting any potential case study organisations. The ethics application was deemed as a minimal risk application with reference number 1648278.1. The main concern in the ethics of this research was protecting the identity of all participating organisations and individuals. The Ethics Documents are attached in Appendix B: Ethics Documents.

4.3 Research Problem

This section begins with revisiting the research gaps discussed in Section 2.5 prior to putting forward the research problem and the purpose of the thesis.

This thesis is about organisations' and employees' acceptance of ABW offices. Existing studies have identified that organisations are struggling to achieve all the CRE strategies that they intend to achieve with the implementation of ABW offices. Their inconsistent achievement of the CRE strategies are attributed to employees' lack of ABW acceptance and non-take up of the intended affordances within the ABW. Whilst the ABW Implementation process has the potential to influence the design of both the physical and functional features of the ABW and employees' acceptance of the ABW, there has been limited in-depth studies of the ABW Implementation Process (ABW Throughput).

There is also limited in-depth studies on employees' affective, cognitive and behavioural acceptance of the physical and functional features of the ABW. The fundamental concept of an ABW is that the physical variety of worksettings designed better supports the large range of activities employees may conduct. A lack of suitability between the worksettings designed and the activities conducted will provide employees with little incentive to switch worksettings.

However, there are no in-depth investigation on this. To support the fundamental ABW concept, several workplace guidelines are designed to facilitate sharing worksettings and flexibility of time and place. The existing literature identifies that employees are struggling to accept the workplace guidelines resulting in guidelines non-compliance and unawareness. Existing studies are limited by their quantitative research methods that do not provide an in-depth explanation for employees' guidelines acceptance.

Therefore, the research problem is that studies on the ABW Outcomes exclude studying the ABW Throughput and the physical and functional features of the ABW (ABW Output) in-depth. This assumes that there are few differences and high similarities in the ABW Throughput and the provisions from the ABW in terms of their physical and functional features. The research problem indicates that a gap exists theoretically in the field of CREM with regards to explaining the inconsistent take up of affordances offered by the ABW in relation to the ABW Throughputs and employees' acceptance towards the physical and functional features of the ABW. Studies on employees' acceptance of the physical and functional features of the ABW rarely extend beyond employees' satisfaction towards the ABW as a proxy for employees' acceptance.

The purpose of this thesis is to argue that:

The inconsistent take up of affordances offered by the ABW (ABW Outputs – Outcomes evaluated from employees' acceptance) can be explained by studying the ABW Throughputs and an in-depth assessment of employees' affective, cognitive and behavioural acceptance towards the physical and functional features of the ABW (ABW Output – Provisions from the ABW).

The research problems and gaps addressed in this research have both theoretical and practical implications. Theoretically, there are limited in-depth studies exploring the role of the ABW Implementation Process and employees' affective, behavioural and cognitive acceptance of the ABW's physical and functional features. These ignore the process to design the ABW that influences the final ABW designed which may greatly differ from one ABW to another in its physical and functional features. These also neglect the effect of the ABW Implementation Process and employees' affective, behavioural and cognitive acceptance of the ABW on the inconsistent outcomes that ABWs have achieved. As the fundamental concept of ABW relies on designing worksettings that match employees' activities and activity needs, the lack of in-depth studies fails to identify if the ABW designed matches employees' activities and activity

needs. The practical implication of these is the lack of achievement of all the strategies that ABW adopters set out to achieve in an environment where ABW adoption is increasing. This indicates that organisations are investing millions of dollars in workplaces but are at high risk of not achieving their expected returns.

4.4 Research Aim

The research investigates the role of organisations' acceptance of the ABW, through their ABW Implementation Process (ABW Throughput); the physical and functional ABW features (ABW Output- Provisions from the ABW); and employees' acceptance of the physical and functional ABW features affectively, cognitively and behaviourally (ABW Output – Outcomes evaluated through employees' acceptance) in employees' take up of affordances (ABW Output – Outcomes evaluated through employees' acceptance). The findings in the literature are fragmented across various studies. They attributed the inconsistent outputs to employees' take up of affordances that provide the basis for this thesis. While specific to ABW in the financial institution industry studied, the findings inform the CRE field. Using a psychological perspective to ABW Outcomes (Physical and functional features of the ABW and employees' acceptance of the ABW) and the ABW Throughput (ABW Implementation Process), the research aims to identify and defragment the role of these on employees' take up of affordances through the holistic in-depth study.

In addition to addressing the research gaps theoretically, this research has an overall practical aim of providing greater understanding on the inconsistent achievement of CRE strategies (ABW Input) that organisations set out to achieve. This may provide more insight into how the CRE strategies that organisations set out to achieve can be better achieved and/ or more clarity in their decision making to adopt the ABW.

4.5 Research Question

The main research question that drove this thesis was:

Main Research Question: What is the role of employees' and organisations' acceptance of ABW offices on employees' take up of affordances within the ABW?

The three subsidiary questions that facilitated answering the main research question are:

Research Question 1: What role does organisations' acceptance through the ABW Implementation Process play in employees' acceptance of the ABW?

Research Question 2: How does the worksetting variety and the worksetting features affect employees' take up of affordances within the workplace?

Research Question 3: What are the key drivers behind employees' acceptance of the ABW workplace guidelines?

To address the main research question, the three subsidiary research questions investigate employees' take up of affordances within the ABW through organisations' ABW implementation processes (Research Question 1), employees' acceptance of the physical ABW features (Research Question 2) and employees' acceptance of the functional ABW features (Research Question 3). The subsidiary questions have a theoretical basis explored at a theoretical level in Chapter 3 under the Theories of ABW Implementation and the psychological perspective to Employee acceptance. The research questions are explored by the empirical study that provided results to validate or invalidate the Theoretical Propositions presented in Section 3.6. These research questions are necessary as they shaped and bound the entire research project, methodology, design and analysis (Natalier, 2010). The questions test a new understanding for the field of Corporate Real Estate Management that:

The ABW Implementation Process and employees' acceptance of the ABW's physical and functional features affectively, behaviourally and cognitively affects employees' take up of affordances offered by the ABW.

The research questions imply several inherent propositions. These are, that:

- Organisations' acceptance of the ABW affects employees' acceptance of the ABW; and
- Employees' use their affective and cognitive acceptance of the ABW in forming their behavioural acceptance and take up of affordances within the ABW.

4.6 Research Methodology

This study undertook a multiple case-study (Yin, 2009) approach to replicate the research design across three cases and conduct a cross-case analysis (Neuman, 2012). The case study methodology was the most appropriate method for this study because it is a naturalistic inquiry method enquiring into "... a contemporary phenomenon in depth and within its real-life context ..." (Yin, 2009, p. 18) to enable an in-depth study (Stark & Torrance, 2005) of the social phenomenon on how ABW are implemented and employees' acceptance of it (Yin, 2014). Case study was the superior approach for this study because it addresses the research questions containing multiple variables of interest in which data was collected through

multiple sources to triangulate and some Theoretical Propositions were developed in advance to guide data collection and analysis (Yin, 2014). A common epistemological issue with case studies is drawing the boundary of data to include or exclude (Stark & Torrance, 2005). The formulated research questions and Theoretical Propositions to be tested were used as boundaries for this research.

Case studies retain a holistic and real-world perspective whilst focusing on the contemporary events of the case to answer the 'how' and 'why' that does not require control or manipulation over behavioural events (Yin, 2014). Case studies capture the ABW implementation and acceptance and to trace their linkages. The 'social reality' created through the case study organisation's social interaction is studied within the project context and the data collected is described prior to analysing and further theorising (Stark & Torrance, 2005). For these reasons, case studies is a common and acceptable methodology in the field of ABW (for example, Brunia et al., 2016; Ekstrand, 2016; Hoendervanger et al., 2016) and innovation adoption (for example, Gallivan, 2001; Lee, Hsieh, & Hsu, 2011; Rogers, 2003). The epistemological orientation adopted in this study is the 'relativist perspective' in which there are multiple realities with multiple meaning or findings that are observer-dependent (Yin, 2014) within the ABWs studied.

This research focuses on understanding the ABW case study organisations as opposed to coverage to generalize to all ABWs leading to a common criticism or weakness about case studies (Stark & Torrance, 2005). However, case studies are useful to illuminate general issues (Stark & Torrance, 2005). To deal with the criticisms, multiple case studies were selected as opposed to a single case study to avoid misrepresenting the phenomenon, low external validity due to the uniqueness of a single case, and criticisms and scepticisms about the researcher's ability to conduct empirical work (Yin, 2014). Nevertheless, the generalizability of the results from this study is still limited.

Given the scale and scope of study, three cases were deemed as sufficient to achieve a contrast and was feasible within the timeframe for this research (Yin, 2014). Multiple cases were selected for theoretical replication in which contrasting results were expected that were theoretically explainable and predictable reasons (Yin, 2014) to investigate the 'whys' (Stark & Torrance, 2005). Following Yin's (2014) discussion on how to replicate across multiple case-studies, the theoretical foundation is developed in Chapter 3, followed by selecting the three cases based on a set of criteria and measures incorporated in the design and data collection

process (Section 4.7). The results of each case study were considered prior to replicating the research across to the other case studies, thus, a reiterative process to reflect on whether changes to the earlier stages (theoretical development and design data collection) were required. Overall, only minor changes to how some data was collected were made. For example, changing the way some questions were phrased for more clarity.

The multi-case rationale here is from the theory that different Implementation Processes will yield different employee acceptance (Yin, 2014). Therefore, cases of different scales (theoretical condition) were selected because this was likely to lead to different budget and Implementation Processes which would subsequently affect employees' ABW acceptance. Each of these multiple cases were run and analysed as holistic studies as opposed to a multi-case embedded study (Yin, 2014).

Whilst this study predominantly relies on qualitative data, some quantitative data was collected, providing a mixed-method research design. The qualitative methods were selected to understand the employees' acceptance because it provided an inductive approach (Neuman, 2012) that is superior at including multiple voices from individual perspectives using rich and meaningful descriptions and explanations (Denzin & Lincoln, 2008; Miles & Huberman, 1994; Neuman, 2012) within a local context (Guba & Lincoln, 1994). Due to the ability to gain a deeper, grounded understanding of the norm (Cooper & Schindler, 2014) and discover other dimensions in the inquiries, qualitative studies has the potential to enable the revision of the proposed theoretical frameworks (Miles & Huberman, 1994) and generalisations. Mixed methods strengthens the research design because it minimizes the limitation of qualitative and quantitative approaches (Creswell, 2014). For example, qualitative methods enable studying unanticipated outcomes of employees' acceptance level that are typically limited by quantitative approaches; and the quantitative methods provided supplementary data for triangulation to validate the results from the qualitative methods.

4.7 General research design

Case Studies Selection

The case studies were a non-probability sampling of case studies as there are no probability theories involved in this research and there was no complete list of ABW offices in Australia to randomly select cases (Tranter, 2010). Even if such a list existed, randomly selected organisations may not be interested in participating (Tranter, 2010). Therefore, purposive

sampling was employed to select the case studies and interviewees in a purposive way based on the researcher's prior research that identified the potential case studies in Australia (Tranter, 2010). An information-oriented selection was also undertaken to "... achieve information that permits logical deductions of the type" (Flyvbjerg, 2006, p. 230).

Only domestic cases were considered due to the financial feasibility of conducting the research domestically. From the empirical survey conducted by the researcher (compiled in Section 1.2), a list of potential ABW case studies in Australia was identified of which approximately 30% of the potential ABW case studies are financial institutions. Therefore, financial institutions were selected as they are fast, early and ongoing adopters of ABW resulting in more potential organisations to approach and a large group of adopters that may benefit from the results of this research in their future workplace implementation. A potential weakness of choosing financial institutions was their large size made it non-feasible to study all departments through qualitative primary research methods. However, their size enables a large selection of diverse departments with different mobility profiles for this research. Since mobility profile and activity variety refers to similar concepts, mobility profile is employed in this research.

Case Study Background

Three Australian financial institutions (B1, B2, B3) were studied- one was an Australian organisation but a New Zealand branch (B1) as highlighted in Table 4.1. All parent companies of the financial institution are headquartered in Australia and the initial intent was to only study sites in Melbourne as the study is extensive and required a long period of time making overseas travelling not financially feasible. An Australian case study site was initially intended with B1. However, due to a large Australian-wide organisational restructuring, a different site in New Zealand was selected. B1's case study was made possible because the Property team managing the project and designing the preliminary floorplan was based in Melbourne alongside another internal project personnel based in New Zealand to liaise with the domestic Architect to design a floorplan incorporating services that complied with local regulations. Additionally, B1 had been developing a collection of worksettings since 2015 in Australia which were rolled out in the New Zealand site. Therefore, the first stage of the study on understanding the Implementation Process and the intended activities for each worksetting was run domestically. There were no concerns regarding the potential effect of cultural background between Australia and New Zealand for cross-case comparisons since Australia and New Zealand are quite similar in culture compared to other developed Asian countries

(Hofstede Insight, 2019). Prior to the studied ABW site, all three organisations had previous experience with implementing ABW offices within the organisation or in their parent company.

Table 4.1: Background summary of case studies

	B1	B2	B3
Headquartered in Australia	Yes	Yes	Yes
Located in Australia	No, New Zealand	Yes	Yes
Headquarter building/ site	No	Yes	Yes
ABW concept and worksetting developed in Australia	Yes	Yes	Yes
Project strategic level	Level 2: Major building and business unit level project; Regional office	Level 1: Strategic FM project; Headquarter office	Level 1: Strategic FM project; Headquarter office
Scale (number of people)	Approx. 200	More than 1,000	Approx. 300-400
Completion date	2017	2013	2017
Year studied	2017-2018	2017	2018

Using Kaya et al.'s (2004, p. 77) definition of level of strategic-ness of projects, B2 and B3 were of a "Level 1: Strategic FM (facilities management) projects" since the projects were undertaken as a tool or as part of a major organisational and business change in the headquarters. Some challenges in conducting case studies are the difficulty in isolating the effects of ABW in organisations from other changes that might be going on at the same time (Blok et al., 2012) especially in "Level 1: Strategic FM (facilities management) projects". B1 was a "Level 2: Major building and business unit level project" regional office. Even though B2 and B3 are both headquarter projects, the scale of the projects was very different. B2 was a project involving more than 1,000 employees, whereas, B1 and B3 involved less than 400 employees because B1 was a regional office and B3 was a smaller local retail bank under a parent company. Due to the varying scale, B2 occupied a whole building as a single tenant as opposed to B2 and B3 whom occupied less than 2 floors within an office building. As a single tenanted building, B2 hired the same Architects as the developer to design the ABW and claimed that they had more negotiation power to design a building that is suitable for the workplace and integrated with the fit-outs.

The ABW were studied at least six months post-relocation for Stage 1 and twelve months post-relocation for Stage 2 so that employees' responses were more stabilised and their ABW experience was more dynamic. This aligns with the nine months range proposed by Rolfö (2018) that was sufficient for employees to get used to their new premises. However, projects

that were completed more than five years prior to data collection were excluded due to the challenges in collecting reliable data on the Implementation Process since interviews relied on participants' memory and project documentation are increasingly difficult to obtain over time. The years in which the case study project was completed and studied are included in Table 4.1.

Prior to relocating to the new ABW site, employees in B1 and B2 were located across several sites unlike the employees in B3 that were already co-located. However, locating across several sites was not an intended business or property strategy in B1 as all of B1's employees used to be co-located in the same site until an earthquake hit the city in 2011 and the office was no longer deemed safe for occupancy. To keep the business operational, B1 had to scatter their business units across several pre-existing locations. As the relocation to the branches was unplanned and the branches were not designed to accommodate back office functions, B1's employees were in tired and old buildings that poorly supported their activities until they moved into the ABW.

Before the ABW relocation, all case studies were in an older building with an Open plan office environment in which some managerial staff had their own offices. Independent of the change in workplace, employees in all three case studies experienced an upgrade in the new internal environment quality due to the upgraded services, such as lighting, heating and cooling. Since Indoor Environmental Quality and its potential influence over employees' overall satisfaction is not studied in this research, there are no concerns over the potential bias this may have over the results. As discussed in Section 1.6 and Section 4.3, employees' satisfaction as a proxy for ABW acceptance lacks in-depth information and insight on how the ABW or workplaces can be further improved to better support employees' activity needs and increase employees' acceptance.

4.8 Methods and procedures: Data collection and sources

Several data sources and mixed methods of qualitative and quantitative data collection and analysis were employed, which is usual (Yin, 2014) and a strength of case studies (Stark & Torrance, 2005). This sub-section describes the case study approach undertaken with details on the data collection methods.

Where relevant, data triangulation and mixed methods were conducted to improve internal validity of the data (Cooper & Schindler, 2014; Yin, 2009). Mixed methods was adopted to address the same research questions with different methods to collect complementary data

(Yin, 2014, p. 65). This enabled the collection of a richer and larger variety of data compared to employing a single method to address the complex research questions at hand (Yin, 2014). Several methods were considered after evaluating the practicability considerations on which methods were feasible for the research questions, aims and researcher capability; social science considerations on which methods will provide the most comprehensive and valid means to address the research questions; and resource considerations on which methods are cost-feasible from a time and financial perspective (Natalier, 2010). Balancing these methods were largely determined by the resources available (Stark & Torrance, 2005).

Table 4.2: Matrix of methods addressing each theme investigated

	Themes/ Issues to be investigated	Method 1: Individual Interview with:				Method 2: Internal Project documents	Method 3: Focus Group Interviews (4-6)	Method 4: Non-participant observation (5 full days)
		<i>Project Manager (2)</i>	<i>ABW Architects (1) and workplace consultant (1)</i>	<i>ABW Change Manager (1)</i>	<i>CREM or FM (1)</i>			
Stage 1: Implementation Process	<i>Implementation Process of the ABW</i>	H	I	H	H	H	P	
	<i>Architects' intended affordances</i>	I	H	I	H	H	I	
Stage 2: Employee ABW acceptance	<i>Affective outcomes</i>	P	P	P	P	P	H	P
	<i>Cognitive Outcomes</i>	P	P	P	P	P	H	P
	<i>Behavioural Outcomes</i>	P	P	P	P	P	H	H
Data analysis methods	<i>Method 1: Content Analysis</i>	Y	Y	Y	Y	Y	Y	N
	<i>Method 2: Simple Statistical Analysis</i>	N	N	N	N	N	Y	Y

Legend:

H	Highly informative source
I	Informative source
P	Potential source
	Unlikely source
ABW	Activity Based Working
CREM	Corporate Real Estate Manager
FM	Facilities Manager
Y	Yes
N	No

The data for each case study was collected using a two-Stage fieldwork approach as illustrated in Table 4.2 above with the following data collection aims:

- Stage 1: To develop an understanding of the ABW, the Implementation Process, the project team's idea or proxy of employees' ABW acceptance and the intended affordances for each worksetting. The two methods employed here are: Interviews and Document Analysis; and
- Stage 2: To gather data on employees' acceptance level of ABW and the Implementation Process through Focus Group Interviews and non-participant observations.

The Focus Group Interview and non-participant observations in Stage 2 relied on data that was gathered in Stage 1 to guide the data collection, such as a general understanding of the ABW, its layout, photographs of the various worksettings and the Implementation Process. Thus, it facilitated the research process to divide the data collection into two Stages and do a preliminary analysis of the data in Stage 1 before proceeding with Stage 2.

The data sources used in each case and the themes addressed in each method is summarised in on the next page. Whilst the research design and data collection methods were the same across all three cases, there was a variation in the data sources due to the availability of data across all three case studies. Results have to be interpreted with caution and may be susceptible to negative bias, such as respondents' cognitive acceptance responses, that may overly focus on negativity (Gorgievski et al., 2010; Kim et al., 2016).

Table 4.3: Data sources for each case study

	Number of interviews conducted, documents or availability (Y – Yes)			Sub-theme addressed				
	<i>B1</i>	<i>B2</i>	<i>B3</i>	<i>Workplace concept and guidelines</i>	<i>Implementation Process</i>	<i>Project team' s proxy of employee acceptance</i>	<i>Architect' s intended affordances</i>	<i>Employees' ABW Acceptance</i>
Method 1: Individual Interviews								
External Strategy Consultant		1		B2				
Facilities Manager	1	1				B1, B2		
Head of Concierge			1		B3	B3		
Head of workplace		1		B2	B2	B1, B2		
Inhouse Design manager	2	1		B1, B2	B1	B2	B1, B2	
Lead Architect		1	1	B2	B2, B3	B3	B2, B3	
Operational workplace set-up officer		1			B2			
Project Manager	1	1	1	All	All	All		
Workplace analytics consultant		1		B2		B2		
Workplace change manager	1	2	2	All	All	All	B1, B3	
Method 2: Internal Project Documents								
Aspirational brief			Y	B3			B3	
Building and environment factsheet		Y		B2				
Change and Communication plan	Y	Y	Y		All			
Change Champion PowerPoint documents			Y		B3			
Floorplans	Y	Y	Y	All				
Functional brief			Y	B3			B3	
Implementation Process	Y		Y		B1, B3			
Pilot brief			Y	B3				
Post-occupancy evaluation results	Y	Y	Y			All		
Post-moving in utilisation report	Y					B1		
Worksetting compilation and functional intent	Y	Y	Y	All			All	
Workplace concept design and development	Y	Y	Y	All			All	

Table 4.3 (Continued...)

	Number of interviews conducted, documents or availability (Y – Yes)			Sub-theme addressed				
	<i>B1</i>	<i>B2</i>	<i>B3</i>	<i>Workplace concept and guidelines</i>	<i>Implementation Process</i>	<i>Project team' s proxy of employee acceptance</i>	<i>Architect' s intended affordances</i>	<i>Employees' ABW Acceptance</i>
Method 3: Focus Group Interviews								A –
Number of interviews	4	6	6					
Total number of interviewees	18	23	22					
Method 4: Non-participant observation studies	Y	Y	Y					All

4.8.1 Stage 1: ABW Implementation Process

In Stage 1, two methods were employed to gather data - Method 1: Individual Interviews and Method 2: Internal Project Documents. Stage 1 was aimed at gathering data on:

- Background information on the ABW;
- The organisation's drivers to adopt ABW;
- A summary on each step undertaken by the organisation to implement the ABW;
- The project team's evaluation of ABW Output (if any);
- The intended affordances designed for at each worksetting; and
- The workplace guidelines that promote and restrict the intended affordances taken up.

Semi -structured interviews were conducted for all three cases with some questions prepared in advance to guide the discussion without restricting discussions to the questions prepared. Data triangulation using the interviews and documents were performed as a verification to ensure that the data gathered was reliable and valid. For B1 and B3, the cross-data source verification was conducted. However, for B2, more interviews were conducted to cross-verify the information gathered from the interviewees. More internal project documents provided by

B1 and B3 resulted in data saturation and less interviews were conducted to verify the information compared to B2.

4.8.1.1 Method 1: Individual interviews

Individual interviews were employed as a method because of their ability to focus directly on the research questions and provide insightful explanations (Yin, 2009). The quality of interviews is dependent on the questions' articulation, an interviewee's recollection and may be subject to response bias (Yin, 2009), such as their current situation resulting in a description of the current problems and aspirations (Stark & Torrance, 2005) rather than recalling the past events. Other limitations of in-depth interviews include extending the results from a small group of interviewees into generalisations about the larger population, collecting misleading or incorrect information, difficulty in addressing routine activities and the inability to gain in-depth understanding of a social setting (Travers, 2010).

Despite these potential limitations, in-depth individual interviews were selected because they enable the researcher to address a range of themes in depth, flexibility to focus on certain complexities when necessary, require less time than ethnographic fieldwork, were less intrusive and less demanding on the research subjects and are more socially acceptable (Travers, 2010). A range of interview types were considered but semi-structured interviews were preferred as they allow for some structure to explore a range of themes relevant to the research without being overly restrictive and provided the scope to explore the interviewees' answers in more depth than structured interviews (Travers, 2010).

Conduct of interviews

The sampling of the interviewees were both purposive sampling and snowballing (Tranter, 2010). The interviewees were selected and approached based on internal referrals and their expected knowledge about the interview themes and project (Tranter, 2010). All interviewees approached volunteered their participation. They were members of the project team or architects involved in implementing the ABW in the case studies. As there are relatively few individuals that held those positions, interviews were conducted until there was a saturation of information in conjunction with the data gathered from Method 2: Internal Project Documents.

For all interviews conducted, compliance with the ethics approval and the following stages of performing an interview by Brinkmann & Kvale (2015) were followed:

- Thematizing the interview - the purpose and themes of each interview was identified based on the interviewee's role and involvement in the project, the literature review, the research gaps and questions at hand;
- Designing the interview - An interview guide including interview questions based on the themes identified, relevant documents to be discussed and aggregate time for each theme was prepared to provide the interviewer and interviewee with a rough guide (Travers, 2010). The interviews were designed to provide interviewees with adequate time for recollection and to provide some cues to trigger their memories. Interviews conducted ranged from 45 minutes to 2 hours and multiple interviews were conducted with some interviewees;
- Interviewing - To set the stage, the interviewee was briefed on the ethics documents, the purpose of the interview and interview themes were explained to the interviewee. Audio recording only begins after the consent form was signed;
- Transcribing - All interviews were transcribed from the audio recording to text by the researcher;
- Analyzing - All interviews were coded using NVivo 11 and the coding method is further explained in Section 4.9.1; and
- Verifying - Whenever possible, the interview data gathered was cross-verified with data from other interviews within the same case study organisation or with the documents received.

The key interview themes in Stage 1 ranged from the list below:

- Overall workplace concept - how the workplace was intended to function, strategies pursued in the ABW Implementation, previous workplace concept, ratio of employee to worksetting and how it was decided upon;
- Overall ABW Implementation Process - an overview of the process and an in-depth discussion on what happened in each step (aim, output, who was involved, role, challenges encountered - if any, timeframe), other initiatives alongside workplace change and learnings from previous buildings, post-moving in changes, post-moving in workplace management; and
- Workplace design - discussion on variety and purpose of worksettings, physical boundaries distinguishing Neighbourhoods, layout or floorplan; and

- Workplace guidelines – a discussion on the guidelines intended by the Architects, protocols if employees go against the workplace guidelines (if any).

Questions in the interview guide were structured using five types of questions (Brinkmann & Kvale, 2015; Travers, 2010):

- Open-ended single-topic introductory or descriptive questions such as: “Can you describe the ABW concept?” (Brinkmann & Kvale, 2015; Travers, 2010). These questions were often to explore the interviewee’s opinion, feelings or knowledge (Travers, 2010) to generate spontaneous and rich descriptions from the interviewee’s experience. Multi-part questions were avoided to ensure that all questions were answered. These questions captured:
 - Factual responses to document the case study’s events and the various entities involved from the interviewee’s description; and
 - The interviewee’s subjective assessment of their experiences and the case study events discussed which may include their intellectual and emotional experience;
- Contrast questioning such as: “How does the new ABW concept differ from the previous workplace?”. These were useful to gather data required on both workplaces and to help interviewees struggling with descriptive questions as they could answer by making comparisons (Travers, 2010);
- Interpreting and probing questions such as: “Is it correct that this happened before ... followed by ...?”. These are used to gain clarification on lengthy responses;
- Follow up and specifying questions such as: “Can you specify the intended activities in the Meeting Room?”. These were used to obtain more direct answers after their initial response to request for more information or to gain more clarification. Occasionally, these were probing, reflective or summary questions (Travers, 2010);
- Semi-structured questions such as: “I would now like to move on to this topic ... if that’s okay with you?”. These were to politely divert to another theme when a theme has been exhausted or answers lacked relevance.

The interview guide was designed to meet the quality criteria described by Brinkmann and Kvale (Brinkmann & Kvale, 2015). The various styles of interview questions were short yet yielded long, “... spontaneous, rich, specific and relevant answers from the interviewee ...” to allow interviewees to express themselves and their experience (Brinkmann & Kvale, 2015). The interviewer kept in mind to be knowledgeable, structure the interviews as outlined in the

interview guide, pose questions and respond in a clear, gentle, sensitive and open manner whilst steering the conversations to stay critical (Brinkmann & Kvale, 2015) and to constantly reflect on the ongoing conversation to ask probing questions when necessary (Travers, 2010). The focus was not on the number of interviews conducted but the extent to which the research themes are answered and verified with the available resources (Travers, 2010). A sample of the interview guide and the interview questions under each interview theme is attached in Appendix C1: Stage 1 Interview guide.

4.8.1.2 Method 2: Internal Project Documents

The documents collected from the organisations was analysed using Content Analysis which is further described in Section 4.9.1 as this is also the primary method for data analysis for interviews conducted. Meanwhile, this section focuses on how the documents were collected.

Conduct of document analysis

The requests for relevant documents were discussed with the organisational representative at the case study organisations. The organisational representative brainstormed on the relevant documents that they were permitted to share with the researcher. Reference to relevant documents were also spontaneously raised during the interviews and interviewees voluntarily brought them up for discussion and sent them to the researcher. The document analysis was done using a password-protected computer with NVivo 11 and stored as a password-protected NVivo file. The documents were coded under a list of headings based on the aims identified in Stage 1 and the interview themes under Method 1: Individual Interview. The types of documents that were collected and analysed are listed in .

4.8.2 Stage 2: Employee ABW Acceptance

Two methods were employed in gathering data in Stage 2 - Method 3: Focus Group Interviews and Method 4: Non-participant Observations.

Stage 2 was aimed at gathering data to:

- Understand the impact of employees' involvement in the ABW implementation on their acceptance of the ABW;
- Identify employees' acceptance in relation to the various ABW worksettings, the guidelines and the Implementation Process; and

- Understand employees' actual use of the variety of worksettings - activities conducted (affordances taken up), compliance with workplace guidelines and unanticipated behaviours.

The Focus Group Interviews addressed all of these aims and the non-participant observations verified the behavioural data gathered.

4.8.2.1 Method 3: Focus Group Interviews

Focus Group Interviews are defined as in-depth group interviewing enabling researchers to 'focus' on a limited number of themes in a relatively unstructured environment (Travers, 2010). They captured various responses at once, used group dynamics and processes to gather responses and captured observations of individual's reaction to others (Barbour & Schostak, 2005; Patton, 2015; Travers, 2010). Participating employees were provided with a setting to freely express their opinions and the opportunity to raise issues that they deemed are important and significant (Bryman & Bell, 2011; Willis, 2010). They were useful in providing an insight into how and why people have differing views (Willis, 2010). Whilst surveys could have collected some information sought after and provided quantifiable results, surveys were deemed less than suitable because they lacked explanatory power for what was being sought and employees in corporations tend to experience survey fatigue.

Purposive sampling which is common for focus groups (Barbour & Schostak, 2005) was used to choose business units of different mobility and location-flexibility profiles:

- Low mobility within the organisation and most tasks conducted are desk-based;
- Medium mobility within the organisation; and
- High mobility within and outside organisation in the same country (Greene & Myerson, 2011; Haynes, 2012).

There was another mobility profile consisting of very high mobility employees that are often travelling globally and least likely to spend time in the ABW (Greene & Myerson, 2011).

However, they were excluded from this study due to their lack of experience in the ABW and challenges in organising a focus group with several of them due to their extensive mobility.

Mobility and location-flexibility profiles were selected as a criterion because prior evidence in the literature has identified their role in employees' ABW acceptance and switching behaviour (Greene & Myerson, 2011; Roskams & Haynes, 2019; Skogland, 2017; Wohlers & Hertel, 2017).

Due to the type of organisation studied, there was several business units to choose from that represented the mobility and location-flexibility profiles identified above. Interviewees were drawn through natural sampling in smaller business units using existing social networks and constructed sampling in larger business units that grouped some strangers (Willis, Green, Daly, Williamson, & Bandyopadhyay, 2009). The organisational representative contacted these interviewees through email to participate voluntarily, booked a Meeting Room within the ABW for the focus group interview and sent an invitation for the scheduled focus group interview. More Focus Group Interviews were possible for larger case study organisations (B2 and B3) as they had more sizable business units.

Focus groups were carefully organised and segmentation based on participants' status (Neuman, 2012), managerial and non-managerial when possible. Segmentation based on participants' status was an attempt to prevent ego threats and ego defence (Cooper & Schindler, 2014). The group dynamics were managed by the researcher to prevent domination by participants with stronger personalities or opinions and the interviewees were able to express themselves truthfully through the mix of individual and group activities (Fontana & Frey, 2003; Patton, 2015; Travers, 2010). Whilst the segregation of managerial and non-managerial employees was possible in B2 and B3 due to the more sizable business units, it was not possible in B1 as some teams were the size of the focus groups sought after (less than six employees). Therefore, two focus groups that segregated managerial from non-managerial employees were set up for each business unit representing the low, medium and high mobility profiles in B2 and B3, whereas, one focus group for each of the four business unit in B1 was conducted. A total of 18, 22 and 23 interviewees participated in the focus group interviews for B1, B2 and B3 respectively. Of the four business units in B1, two business units represented low mobility teams, one business unit represented the medium mobility team and one business unit represented the high mobility team. Even though segregation of managerial and non-managerial employees was not possible in B1, the 'Power Distance' in New Zealand is very low. This indicates that the effect of hierarchy was unlikely to have much effect on group dynamics (Hofstede Insight, 2019). In a very low 'Power Distance' work environment, "...communication is informal, direct and participative." with frequent information sharing and high accessibility (Hofstede Insight, 2019). The effect of low 'Power Distance' in B1 was observed by the researcher in the group dynamics as it was not possible to identify their status based on their interactions. All the focus groups ran had a minimum of three interviewees and

a maximum of eight interviewees. In designing these interviews, the seven stages of performing an interview described in Section 4.8.1.1 was followed.

As focus groups are suitable for common, non-sensitive experience (Travers, 2010), the ABW and its Implementation Process discussed were suited to this method. Some challenges anticipated were navigating the topic of employees' workplace acceptance because many employees took their workplace and their activities conducted for granted without consciously reflecting on them unless there was something negative (Travers, 2010). The Focus Group Interview activities were designed to deal with this challenge as discussed under 'Conduct of Focus Group Interviews'.

Focus Group Interviews are less suited where participants share a common relationship to the topic, for example, if the participant was part of the Workplace Change Management team that may be more sensitive towards the topic and react defensively or cause others to be more sensitive in their responses (Travers, 2010). Therefore, none of the focus group participants were part of the Workplace Change Management team.

The focus groups were semi-formal with a directive and controlling posture, guiding discussion and preventing digression or variation from topic or agenda unless it was related to the workplace (Fontana & Frey, 2003). With regards to participation during the interview, some individuals were more audience-like and quieter (Barbour & Schostak, 2005; Willis et al., 2009) and 'group-thinking' emerged in which all members shared the same opinion potentially due to group culture or similarities of their views (Fontana & Frey, 2003). The use of directing questions directly at participants that were quieter and audience-like helped them to engage in conversations and the use of written activities helped to include their input. Whenever 'Groupthink'-ing emerged, interpreting and probing questions are used to clarify if everyone shared the same opinions. Bantering was also observed as part of the normal social interaction and group dynamics (Barbour & Schostak, 2005).

Other challenges encountered were such as the logistics of accessing participants and setting up a suitable time for the participants (Barbour & Schostak, 2005; Willis et al., 2009). These were managed by the organisational representative and the focus group researcher being as flexible as possible.

Conduct of Focus Group Interviews

The focus groups ran for 1.5 hours and were conducted as per the three aims described above in compliance with ethics approval. They were conducted in an enclosed Meeting Room at the case study organisation for the interviewees' convenience. All Focus Group Interviews followed a similar interview guide except for one focus group in B1 consisting of a full Anchor team of traders. Since they conducted most of their work at the desk and had no requirement to comply with Unassigned seating, the focus group was excluded from the written activities and focused on discussions of their experience on how well the ABW supported their needs.

From the start of the Focus Group Interview, all interviewees were provided a different pen colour to fill out the consent form and were informed to only use that specific pen throughout the entire focus group. This enabled the researcher to track the interviewees' verbal and written responses throughout the entire Focus Group Interview. The Ethics documents were also sent to the participants the week prior to the Focus Group Interview for them to review and to provide them with an electronic copy of the document that they have signed.

Using PowerPoint slides to facilitate the focus group, all focus groups began with an icebreaker, an introduction of the research, the ethics documents, overview of interview and conducting the three activities within the allocated timeframes. The three activities were designed to cover three themes and several sub-themes:

1. Employee acceptance of the Implementation Process of the workplace (15-20 minutes):
 - Employees' work patterns and their Neighbourhood on the floorplan;
 - Employees' identifying their involvement in the ABW Implementation Process. These were followed by a description of how they were involved, what they learnt and how they felt about their involvement in the steps;
 - Employees' concerns about working in the ABW pre-relocation and how their concerns were addressed;
 - Whether their participation in the implementation affected the way they feel, think and use the ABW; and
 - Employees' preference for employee engagement (more or less).

This activity was facilitated with a PowerPoint slide with outlining the workplace Implementation Process.

2. Employee acceptance of the various worksettings (30-45 minutes)

A photo elicitation method using photographs of the various worksettings (Patton, 2015) was employed to ensure that everyone understood the worksetting type for discussion. The same photographs were used on the worksetting poster and the PowerPoint during discussion.

This activity started with an introduction of the worksetting poster and how to fill them out. The worksetting posters were put up on walls around the room and participants spread out and rotated around the room to complete the posters. The worksetting poster required employees to express how they felt about the worksetting and why they felt that way (open-ended responses). They would then use a set of twelve stickers to identify the activities they conducted at each worksetting. For each activity, they then indicated (by circling) their frequency of use (Daily, Weekly, Monthly or Never) and how well the worksetting supported the activity (on a scale of 1-5), the suitability of the worksetting to the activity (Yes, No) and their intentions to continue or stop using the worksetting for the activity in the future (Continue, Stop).

When employees have had the opportunity to finish filling out the worksetting poster, a discussion was conducted on the following:

- Each worksetting poster – for employees to elaborate or add on to their responses, discuss the ‘why’ behind their responses, gather general comments and probe for contradictory responses. For example, daily use of worksetting for Focused Work even though support level was low and less than suitable;
- Whereabouts employees conducted certain activities such as Phone Conversations;
- If noise was an issue at their Neighbourhood desk area and how they dealt with it; and
- Gather input on the layout, provision of equipment, provision of worksetting variety and their favourite or least favourite worksetting.

The worksetting poster activity took 15-20 minutes followed by another 15-20 minutes for discussion. The discussions were useful to capture feedback that employees could not express on the written poster.

3. Employees’ acceptance of the workplace guidelines (15-20 minutes):

This activity began with employees filling out an individual worksheet on workplace guidelines that they are aware of (Cognitive), their guidelines compliance (behavioural), whether they liked the guideline (Affective) and why they liked it or not (Cognitive). Interviewees were given as much time as they wanted to fill out the worksheet and most took under 10 minutes.

This was followed with a quick discussion on the following themes:

- Desk-employee ratio in their team (if they were aware of it);
- Factors affecting employees' compliance with the guidelines;
- Guidelines that the employees found challenging to comply with and why;
- How employees learnt about the guidelines; and
- How employees felt and thought about the ABW.

A sample of the Focus Group Interview guide is attached in Appendix C2: Stage 2 Method 3: Focus Group Interview guide.

Transcribing the Focus Group Interview

The transcription of the Focus Group Interviews were more complicated than the Individual interviews because it involves several interviewees. The researcher transcribed the focus group to ensure that the meaning behind the social and emotional aspects of the group's interactions is captured (Brinkmann & Kvale, 2015). Each audio recording was transcribed word-for-word and included the participant's assigned identification number to cross-reference with their written responses (Liamputtong, 2016).

4.8.2.2 Method 4: Non-participant observations

Observations is a research method that records the researcher's impression of the present situation that includes invading other people's space to construct meaning. Due to the complexity of human behaviour, it is impossible to record the researcher's entire impression (Jones & Somekh, 2005) without being overly intrusive. Therefore, this research undertook behavioural mapping through non-participant observation to avoid being overly intrusive and excludes participation in the social setting (Bryman & Bell, 2011; Cosco, Moore, & Islam, 2010). The observation data provided triangulation of employees' behaviour reported in the Focus Groups and is considered superior to observe behaviour compared to questionnaires (Bryman & Bell, 2011).

The main behaviours of interest were non-specific to individuals but rather how the various worksettings are used. Due to the predetermined scope of what was being sought after (Jones & Somekh, 2005), a structured observation was employed to capture the following in the observation schedule prepared in advance:

- Tasks that employees are conducting at each worksetting;
- Worksettings' Occupancy rate (including those that were occupied but employee was absent); and
- Other unexpected behaviours (open ended) (Jones & Somekh, 2005).

Since observers would always have some effect on people being observed (Jones & Somekh, 2005), this research dealt with it by pre-informing the employees within the observation areas on the observation dates, purpose of observations and data to be collected to avoid any misconception on information theft. This was done through the organisational representative emailing the leaders and employees a week prior to the observations. The researcher also dressed in semi-formal business attire to fit into the workplace social environment that was being observed (Jones & Somekh, 2005).

Since observations relied on the researcher's construction of meaning of the environment, there is a risk that it will not match that of the participant or those being observed (Jones & Somekh, 2005). Therefore, non-participant observations were conducted to observe simple things (tasks instead of activities) and was not relied upon as the sole method for data collection of employees' behavioural acceptance of the workplace. Even though the researcher wanted to collect data on the activities conducted by employees, two activities such as 'Routine Work' and 'Focused Work' may be observed as the same from an observer's perspective but are clearly distinguished by the employees conducting them. However, it is too intrusive, disruptive and impractical to ask every employee what activity they are conducting. Therefore, these were simplified into observable tasks, such as reading, writing, video conference, talking on the phone, working on monitor and using earphones, to avoid misrepresenting the activities that were performed. A sample of the Observation Schedule is attached in Appendix C3: Stage 2 Observation Schedule sample.

Conduct of non-participant observations

Since the scale of the projects were significantly different, it was not feasible to conduct observations for B2's entire building. Therefore, only the work areas occupied by the business units that participated in the Focus Groups were observed in B2 but the entire floorplate

tenanted by both B1 and B3 were observed. As an indication of differences in scale, the observed work area for one large business unit in B2 had the same number of observed worksettings as B1's floorplate.

To conduct the observations, the floorplans for each study area were obtained from the organisation representative. Using the floorplan, the observation route and structured observation sheet was prepared by the researcher to plan the walking route and gather data on each worksetting labelled for observations. The observations were documented electronically on an Excel spreadsheet and hardcopies of the observation sheet were printed as an alternative when technology failed. An Excel spreadsheet was preferred as there are some pre-programmed alternatives to choose from and it eliminated the time spent from keying in the written data for analysis.

The observations occurred over five consecutive working days at various times (alternating between starting early or ending later) across the working day to potentially capture the behavioural dynamics, such as employees arriving earlier to claim their preferred worksetting, reserve worksettings and potential territorial traces from leaving things behind. A minimum of four observation rounds, that took approximately half an hour for each observed area in each round, were conducted each day and the researcher remained in the ABW from approximately 8am to 6pm. The researcher did not occupy any worksettings when the observations were conducted as this would have displaced others that may have wanted to use the worksetting. The researcher stood at the neighbourhood and walked around it to record details of use on each worksetting.

4.9 Methods and procedures: Analysis

Semi-grounded theory was adopted to analyse the results for this research as it relies on the pre-existing theories on ABW implementation and proxies for ABW acceptance. The pre-existing theories within the literature (Liamputtong, 2016) were relied upon to identify the research gaps (Creswell, 2013), put forward theoretical propositions and provided the overarching themes to analyse the results. Therefore, the method of analysis is not Grounded theory. Whilst Grounded theory is commonly used in qualitative research, it is inherent in the approach that the research has no theoretical grounding and/ or pre-research literature review (Glaser and Strauss, 1973). Having some theoretical grounding prior to data collection for case studies is essential (Yin, 2009) that goes against adopting Grounded theory but supports the adoption of semi-grounded theory. A semi-grounded approach also enabled

feedback to further improve the Employees Acceptance Model developed based on the results gathered.

The semi-grounded theory approach to analyse data was reflected in the data analysis methods: Content Analysis and Simple Statistical analysis. A constant comparative method of data analysis was adopted as all new information gathered was compared to the emerging categories collated from existing literature and data (Wahyuni, 2012). The Data analysis methods for each Data collection method is summarised in Table 4.4 below.

Table 4.4: Data analysis methods

	Themes/ Issues to be investigated	Method 1: Individual Interview with:				Method 2: Internal Project documents	Method 3: Focus Group Interviews (6-9)	Method 4: Non-participant observation (5 full days)
		Project Manager (2)	ABW Architects (1) and workplace consultant (1)	ABW Change Manager (1)	CREM or FM (1)			
Data analysis methods	<i>Method 1: Content Analysis</i>	Y	Y	Y	Y	Y	Y	N
	<i>Method 2: Simple Statistical Analysis</i>	N	N	N	N	N	Y	Y

Legend:

ABW	Activity Based Working
CREM	Corporate Real Estate Manager
FM	Facilities Manager
Y	Yes
N	No

4.9.1 Data analysis method 1: Content Analysis process

Content Analysis is defined as an analytical method and process of classifying, organising and reducing texts or content into categories conceptually or thematically to identify consistencies or inconsistencies that provide intellectual meaning (Julien, 2012; Neuman, 2012). This is the primary analytical method to analyse the data collected in all interviews (Individual and Focus Groups) and documents gathered (including images) (Julien, 2012; Neuman, 2012). The advantages of Content Analysis for this study is that it is a direct analysis method, inexpensive, flexible to deal with various types of data for various purposes and is unobtrusive (Ryan & Bernard, 2003; Sproule, 2010). However, Content Analysis is very time consuming and the

interpretation of the data may be subjected to the researcher's analytical interpretation (Ryan & Bernard, 2003; Sproule, 2010) that is dealt with by using the actual words by the interviewees or the data source in the codes instead of the researcher's interpretation.

The conceptual categories or themes are theory-based or developed through induction from the data gathered through the research (Brinkmann & Kvale, 2015; Sproule, 2010) as opposed to deduction because the methods employed were to obtain information on the themes prepared instead of falsifying hypothesis (Brinkmann & Kvale, 2015). Being open to understand the phenomenon was prioritised more than validating or invalidating the Theoretical Propositions. This aligns with the semi-grounded theoretical approach to analyse the data based on the literature review, theoretical framework and research questions incorporated into the research design for Stage 1 and 2 (Ryan & Bernard, 2003; Sproule, 2010).

Additionally, implicit coding was used to identify implicit meanings, patterns and potential explanations from the data (Brinkmann & Kvale, 2015; Sproule, 2010), thus, providing the grounded theory approach (Willis, 2010) to reduce the data (Ryan & Bernard, 2003). Coding facilitated in the reduction of qualitative data into a more meaningful and manageable size (Miles & Huberman, 1994; Neuman, 2012). Compared to explicit coding that relies on a set of simple coding guidelines, implicit coding is more subjective but supports more in-depth analysis (Sproule, 2010). The coding of the data followed the three golden rules outlined by Sproule (2010) such that all relevant research data is coded (Exhaustive coding), coding categories have zero or minimal overlapping and ambiguities (Exclusive) and the coding categories are "... analytically interesting and coherent (pg326)".

The thematic Content Analysis enabled the researcher to explore predetermined (priori-codes) themes and themes that emerged from the data (Ryan & Bernard, 2003; Willis, 2010), thus, relying on an emerging coding framework (Attride-Stirling, 2001; Bryman & Bell, 2011). Some relational analysis was conducted to explore potential relationships, such as employees' mobility profiles with their acceptance of the Implementation Process and the ABW (Attride-Stirling, 2001; Sproule, 2010). Three aspects of the relationships were explored: Strength, sign and direction of relationship (Sproule, 2010). The Content Analysis was conducted based on Sproule (2010)'s and Attride-Stirling (2001)'s process:

- 1) The rationale for the study and the level of analysis was predetermined in the research design stage based on the literature review conducted;

- 2) The appropriate documents for Content Analysis were pre-identified in the research design. The electronic copies of these documents were loaded into NVivo to conduct the Content Analysis (Bryman & Bell, 2011). NVivo is a computer-assisted data management and analysis tool that supports the import of various data types and sources to be analysed and coded based on themes to create nodes and sub-nodes representing varying level of themes;
- 3) The parameter of analysis was decided based on the key themes identified that were also translated into the interview questions asked. These broad themes were the 'piori-codes' that are codes pre-determined prior to data analysis (Ryan & Bernard, 2003; Willis, 2010) such as: Workplace concept, ABW Implementation Process, Workplace guidelines and ABW Worksettings. Open coding was conducted as the first pass through of the data collected to identify concepts and themes from the raw data through a line-by-line examination (Neuman, 2012; Ryan & Bernard, 2003; Willis, 2010) and supports the semi-grounded theory approach. A high level of flexibility was employed to enable data-driven coding. The inductive codes generated were either sub-codes under the priori-codes (Brinkmann & Kvale, 2015; Ryan & Bernard, 2003; Willis, 2010), new priori-codes reflecting emerging themes from the data or modified priori-codes. This is also known as concept-driven coding as the priori-codes were themes developed in advance by the researcher through reviewing the literature (Brinkmann & Kvale, 2015). Each case was coded separately but had a similar thematic structure to enable cross-case comparison. All codes were later inspected to combine codes that are highly similar, recode or renamed (Brinkmann & Kvale, 2015);
- 4) There was no numerical measurement of the codes since Content Analysis is not being used to measure frequency of certain words for this study;
- 5) After the first round of open coding, axial coding was performed to further review the raw data, process the identified open codes and rigorously specify and elaborate on the priori codes (Neuman, 2012; Willis, 2010). Axial coding enables the researchers to connect the codes identified in the first round of coding to further organise them into categories or sub-categories (Liamputtong, 2016). The analysis of the codes then moved from a descriptive to theoretical level until there is no longer new insights and interpretations emerging, a point of 'saturation' (Brinkmann & Kvale, 2015);

- 6) The translation rule here was to keep the codes short and reflective of the actual words used by the interviewees or data source to retain information and provide the researcher with mental triggers;
- 7) There was no surplus information at the end as all relevant information was coded under a pre-existing theme or a new theme was created if it did not fit under any of the themes; and
- 8) The codebook consisting of an organised list of codes was compiled (Ryan & Bernard, 2003). It contains the actual codes with examples to simplify interpretation and allow comparison to the theoretical framework to identify fit and linkages (Ryan & Bernard, 2003).

Even though Focus Groups cannot be analysed in the same way as the individual interviews, the analytical process was similar (Willis, 2010) and Content Analysis was employed for both. However, there are some debate that Content Analysis is inadequate as it neglects the insightful dynamic social interaction of the Focus Group Interviews (Liamputtong, 2016). Whilst the dynamic social interaction of the Focus Groups was useful to create a comfortable environment for employees to express themselves, this research is more interested in the product of the social interaction rather than the dynamics of the social interaction itself. Therefore, the coding of the Focus Groups was kept at an individual level by noting the assigned ID number next to the response to enable the comparison of responses from different individuals inter- and intra- focus groups. These inter- and intra-focus group comparisons enabled findings on the varying mobility groups. For example, recurring lengthy discussions about the same topic across focus groups enables generalisations to be formed (Patton, 2015; Willis, 2010).

4.9.2 Data analysis method 2: Simple Statistical Analysis

The quantitative data gathered was from some written activities in the Focus Groups and the Observations conducted. The quantitative data was well-organised and entering them into Microsoft Excel was a simple clerical task (Neuman, 2012). The data was then cleaned to ensure that the data was accurate and error-free (Neuman, 2012). The raw quantitative data was dealt with using Microsoft Excel.

With regards to the observation data, simple statistical data discussed below were generated and presented in tables (Cooper & Schindler, 2014; Shapiro, 2008). No regressions were run as the aim of these data was not to validate hypothesis but to supplement the qualitative results

gathered. For example, the observation data identified tasks conducted at each worksetting that were cross verified with the activities that employees reported conducting during the Focus Group. The subsequent discussion will discuss some definitions and reveal how certain calculations were performed for the simple statistical observation data.

To help define Occupancy rate, an 'occupied' worksetting includes both employees present and employees absent that have occupied the worksettings with their belongings (Mosselman et al., 2009). Therefore, Occupancy rate was a function of the number of worksettings occupied over the total number of that type of worksetting observed.

$$\text{Occupancy rate per type of worksetting} = \frac{\text{Number of worksettings occupied}}{\text{Total number of worksettings}}$$

Utilisation rate is a function of the number of employees present at a type of worksetting over the total number of employees that the Architects intended to accommodate in that type of worksetting observed.

$$\begin{aligned} \text{Utilisation rate per type of worksetting} \\ = \frac{\text{Number of employees present}}{\text{Total number of employees intended to be accommodated}} \end{aligned}$$

Therefore, Occupancy rate and utilisation rate differs as Occupancy rate is independent of the number of employees occupying it and focused on the worksetting availability or unavailability for take up of affordances, whereas, utilisation rate focuses on how well the worksetting is being utilised when employees were present.

To calculate the 'weighted average' for both occupancy and utilisation rate, the weight is based on the number of worksetting of a certain size, such as small, medium and large Meeting Rooms. For example, if the average occupancy for 3 small Meeting Rooms are 30%, 4 medium Meeting Rooms are 25% and 2 large Meeting Rooms are 35%, the weighted average occupancy rate calculation is:

Weighted average occupancy rate for Meeting Rooms

$$\begin{aligned} & (\text{Number of small Meeting Rooms} \times \text{average Occupancy rate for small Meeting Rooms}) \\ & + (\text{Number of medium Meeting Rooms} \times \text{average Occupancy rate for medium Meeting Rooms}) \\ & + (\text{Number of large Meeting Rooms} \times \text{average Occupancy rate for large Meeting Rooms}) \\ = & \frac{\quad}{(\text{Sum of small, medium and large Meeting Rooms})} \\ & = \frac{(3 \times 30\% + 4 \times 25\% + 2 \times 35\%)}{(3 + 4 + 2)} = 28.88\% \end{aligned}$$

To calculate the 'Under or Over-utilisation rate', the calculation was 'Occupancy rate less Utilisation Rate':

$$\begin{aligned} & \text{Under (Over) utilisation per type of worksetting} \\ & = \text{Occupancy rate} - \text{Utilisation Rate} \end{aligned}$$

When this was a positive number, the worksetting was underutilised such that there were less employees accommodated than intended by the Architects, whereas, when it was a negative number, the worksetting was over-utilised such that the worksetting accommodated more employees than it was designed for. Due to the definition and calculation method of Utilisation rate, maximum Utilisation rate (100%) is much more easily achieved in individual worksetting relative to team worksettings.

The reservation rate reflected the number of worksettings that were occupied by things or items but with no employee (s) present was calculated by taking the number of reserved worksetting over total worksetting of that type:

$$\text{Reservation rate per type of worksetting} = \frac{\text{Number of reserved worksettings}}{\text{Total Number of worksettings}}$$

The Reservation rate is important as it indicates that the worksetting is occupied and others were displaced from taking up any affordances there even though there was no one present.

4.10 Data theory: Criteria for judging the quality of research design in this research

To ensure that the research designed meets academic quality, Construct Validity, Internal Validity, Reliability and Bias are addressed in this section.

Construct Validity

Construct validity questions whether the right operational measures have been selected for the concepts and questions being studied (Yin, 2014). To construct validity in the thesis, multiple sources of data that promoted convergent lines of inquiry and a chain of evidence was established to enable the reader to trace and follow the 'evidentiary process' (Yin, 2014).

To obtain convergence of evidence, majority of the lines of inquiry had two sources of data when feasible. In Stage 1, the two sources of data were interviews and documents, whereas, in Stage 2, the two sources of data were Focus Group Interviews and observations. In Stage 1, if

the line of inquiry was primarily answered from one data source, another data source was used to verify the information obtained such that both the key informant and documents validate the same information. During certain interviews, the key informants brought up certain project documents which were later forwarded to the researcher. In Stage 2, employee acceptance was primarily collected from the participants during the Focus Group Interviews with the behavioural acceptance data validated through non-participant observations. During the Focus Group Interviews, different activities enabled the collection of some written results in addition to verbal results which contributed to providing two forms of feedback (written and verbal) for consistency and validation purposes.

The chain of evidence and evidentiary process was made as clear and transparent as possible to maintain a clear trail of evidence throughout the thesis writeup. This included retaining the participant ID from transcribing to NVivo coding, including them in the footnotes of the results discussion and using direct quotes whenever necessary.

Each case study organisation and interested interviewees will also be provided a copy of the output from this thesis. The key informants were also required to verify the researcher's interpretation of the ABW Implementation Process prior to proceeding to Stage 2 of the research.

Internal Validity

Internal Validity questions whether a causal relationship that is being sought after has been established or whether it was due to spurious relationships (Yin, 2014). Internal validity is a common concern, especially in case studies and it is predominantly dealt with in data analysis (Yin, 2014). Since the study was replicated across multiple cases, some pattern matching was made possible to form generalisations. Unmatched patterns are discussed and analysed further to understand the discrepancy.

Since this study relied on explanation building, the study undertook the following procedure:

- 'Initial explanatory proposition' were made based on the literature review and theories;
- Compare the proposition to the data from the first case study;
- Revise the proposition; and
- Compare the revised proposition to more details from the first case study and the subsequent case studies and repeat this process as frequently as required (Yin, 2014).

Some internal validation was also achieved through providing various participants with the opportunity to review some analysed results (Seidman, 2013). For instance, the chronological events-series analysis of the ABW Implementation Process was validated from documents gathered, the informants from the workplace change team and end-users' participating in the focus group results.

The cross-case synthesis method was conducted (Yin, 2014) to establish causal relationships beginning with the broad list of themes identified from the literature. The first case study was analysed to identify more sub-themes that were then used as predefined themes to analyse the subsequent cases and more themes were added on whenever relevant. This allows for an iterative process to capture both the similarities and dissimilarities between cases, simplify cross-case comparisons and their explanatory propositions or theories.

External Validity

External Validity questions the generalizability of the study beyond the study regardless of the methods employed (Yin, 2014). Multiple cases and replicating the research design across three cases as outlined in Section 4.7 was done to provide external validity (Yin, 2014). This research may be generalizable to:

- Financial institutions;
- Countries with similar work cultures to Australia and New Zealand; and
- ABW accommodating employees with similar employee mobility profiles and conduct similar activities to those studied.

Reliability

Reliability questions whether running the study again in the same case study organisation with the same research design will produce the same results (Yin, 2014). A case study protocol was documented, developed and followed closely during the research containing several sections: overview of the case study, procedures to collect data, questions for interviews based on themes and focus group activities (Yin, 2014). This ensured consistency in replicating the research across the multiple case studies undertaken and to enable others replicating the research to achieve similar or comparable results.

Bias

Bias may exist in all research but there is a higher risk for bias when the researcher is actively participating and personally involved in data collection and analysis (Patton, 2015). Bias occurs when the researcher has a preconceived position and may be swayed towards collecting supportive evidence instead of contrary evidence (Yin, 2014). Thus, biasness is the degree to which the researcher is open to contrary evidence (Yin, 2014) or objectivity that will enable judgement-free neutral data collection to open up to deep and meaningful interactions in the data collection (Patton, 2015). The researcher was completely open to contrary evidence and relied on semi-grounded approaches in data collection and data analysis to ensure that the results collected are free of bias. The researcher strived for the highest ethical standards and remained updated with related research to strive for accuracy, reliability and credibility whilst acknowledging research limitations (Yin, 2014).

To deal with the potential for biasness, the following was undertaken as recommended by (Patton, 2002, 2015):

- Systematically collecting data through the planned Case Study Protocol and Interview Guide;
- Remaining 'empathetic neutrality' to remain sensitive towards the interviewees' emotions without compromising their objective neutral position;
- Having multiple data sources for each case to enable triangulation whenever possible; and
- Obtaining external review through academic supervision and presenting preliminary outputs in the research community through conferences and journal papers.

4.11 Summary

This chapter described the research design and methods employed for this research. The background of the three financial institutions case studies and their relevant data sources were summarised. Both qualitative (predominant) and quantitative data was collected across two Stages to establish the ABW Implementation Process and understand employees' acceptance of the ABW and the Implementation Process. The next chapters present the results from this research.

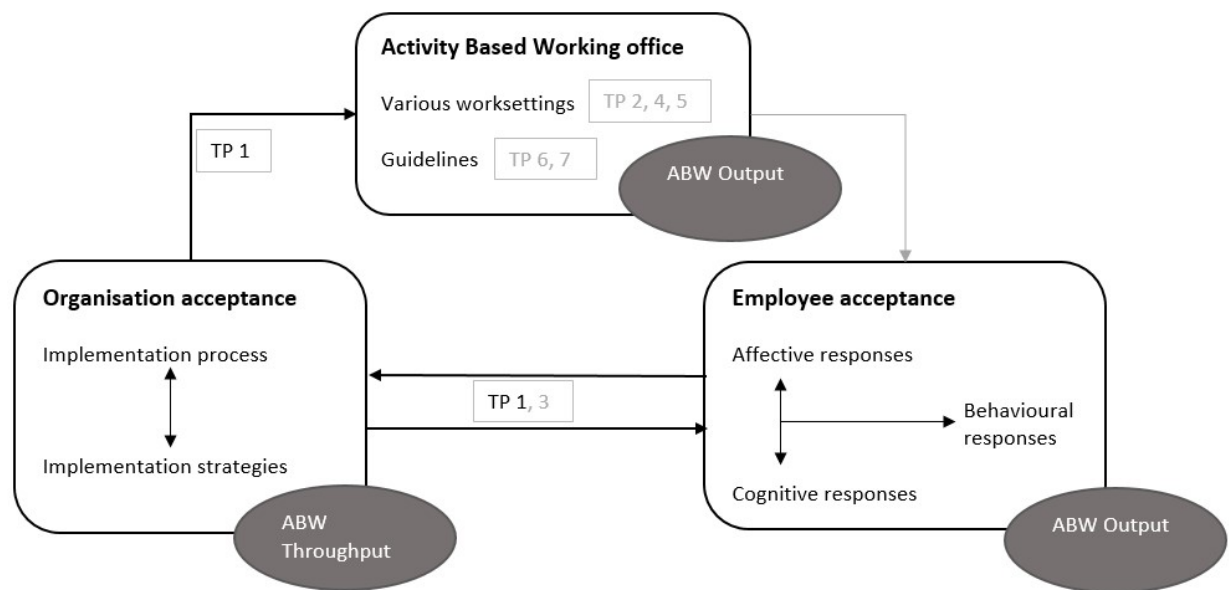
Part 4: Empirical Study

5 The link between ABW Throughput and ABW Outputs

5.1 Introduction

This chapter explores the link between the ABW Throughput, through the ABW Implementation Processes and strategies, and employees' acceptance of the ABW Throughput as a form of ABW Output. The ABW Implementation Process includes establishing and designing the intended affordances into the ABW (Phase 1), communicating the intended affordances to the employees (knowledge) (Phase 2) and providing ongoing support to assist employees in their adaptation to the ABW and to adapt the ABW to them (Phase 3). Prior to moving in, employees may begin to develop affective and cognitive responses towards the ABW that are managed during the workplace change management process (Phase 2) and some of these are collected in the responses gathered. Figure 5.1 positions this chapter within the context of the overall research.

Figure 5.1: Theoretical positioning of Chapter 5



The Theoretical Proposition addressed in this chapter is:

Theoretical Proposition 1 (TP 1): Business-driven implementation strategy is the superior implementation strategy that will result in more positive cognitive responses towards the ABW Implementation Process as it focuses more on employees' needs and the affordances that should be designed into the ABW.

This chapter addresses Theoretical Proposition 1 by starting with a discussion on the ABW Implementation strategies pursued by the case study organisations, followed by demonstrating the differences in the implementation processes, employees' cognitive acceptance of the various ABW implementation processes and implementation issues unrelated to the ABW Implementation strategies. The results for this chapter was gathered through Stage 1 of the Research Design as discussed in Section 4.8. The results were compared to the ABW Implementation Theory from the literature as summarised in Section 3.3. Research Gap 1 is addressed to provide more insight into the limited studies on the ABW Throughput, the ABW Implementation Process, that affect the intended affordances designed into the ABW. This research defragmented the role of ABW Throughput in employees' acceptance of the Throughput.

5.2 ABW Implementation strategies pursued by Case Study Organisations

As per Becker *et al.* (1994) and Koetsveld and Kamperman (2011)'s definition of the four types of implementation strategies discussed in Section 3.3, evidence from both the interview analysis and document analysis (Section 4.8) support conclusions that both B2 and B3 pursued a Business-driven strategy as opposed to B1 which pursued a strategy that combined both Process-oriented and Solution-oriented strategy, the Process-Solution-oriented strategy, in the workplace implementation. As part of the Business-driven strategy pursued by B2 and B3, the recommended implementation process in the literature was followed more closely and each step was undertaken more extensively compared to B1. The differences in the steps undertaken in the implementation process are illustrated in Section 5.3.

Even though the possibility to undertake more than one workplace implementation strategy has not been identified in the literature, B1 demonstrated that a Process-Solution-oriented strategy can be pursued at the same time. B1 resembled a Solution-oriented strategy in that they had a set of pre-designed worksettings developed over past years geared towards mobility and which had specific manufacturers (Becker *et al.*, 1994). The organisation had a menu of the available pre-designed worksettings, the intended affordances at each worksettings and a manual to teach users to mobilise the worksettings. The case study also intended to further develop their pre-designed worksettings for future workplace projects. Although B1's workplace was not exactly 'rubber-stamped' across locations as they had different layouts and use of colours, the use of the pre-designed worksettings across locations made their various workplaces look similar. B1 also resembled a Process-oriented strategy

because they had a pre-determined workplace change process which the organisation implemented across their ABW transformations in Australia and New Zealand and followed it quite closely in this project (Becker et al., 1994). The pre-determined workplace change process is comprehensive including detailed steps on how each step is conducted, who is involved, points of approval, documents and PowerPoint slides for meetings and workshops. Even though B1 seemed to resemble a Process-Solution-oriented strategy, the participants' cognitive interpretation was that this was a Cost-driven strategy. As a result, they wanted the workplace change team to be more upfront and admit that the project was cost-driven instead of trying to convince them that the move to an ABW was the 'best thing ever'². Arguably, B1 may have also pursued a Cost-driven implementation strategy, as defined in Section 3.3, as their implementation process was less user-centric, they did not complete all the steps recommended in the literature and had limited budget to make the workplace improvements that the employees desired to make the ABW more effective. There is insufficient evidence to conclude that B1 pursued a Cost-driven strategy as there was no discussion amongst the Workplace Change team that the aim of the ABW was to produce similar work outcomes without reducing effectiveness and employees had not fully reverted to traditional ways of working (Becker et al., 1994). Regardless of the Workplace Change team's aim, some Anchors discussed that their work outcomes in terms of their work efficiency and productivity decreased³.

The different implementation strategies resulted in some differences between the implementation processes (Becker et al., 1994; Koetsveld & Kamperman, 2011). It was found that each step was conducted more extensively with more communication channels (including direct face-to-face communication channels) in B2 and B3 compared to B1 attributable to the Business-driven implementation strategies being pursued. The following subsections compares the ABW Implementation Processes and employees' cognitive acceptance of the ABW Implementation Process between the Business-driven strategy (B2 and B3) versus Process-Solution-oriented strategy (B1) with illustrations from each phase of the ABW Implementation Process. Subsequently, common issues with regards to the ABW Implementation Process independent of the implementation strategies are discussed.

² Participants 31, 42 and 44 in B1

³ Participants 31, 32, 33 and 34 in B1

5.3 Difference in ABW implementation process between Business-driven strategy versus Process-Solution-oriented strategy

Some differences in the implementation processes evident from the analysis of data collected from Stage 1 (interview data and project documents) are the amount of time invested and the extensiveness of how each step (as defined in Section 3.3) was conducted. Organisations pursuing a Business-driven strategy (B2 and B3) invested more time and conducted each step more extensively than the organisation pursuing a Process-Solution-oriented implementation strategy (B1) to better identify and communicate the intended affordances designed.

However, B1 that pursued a Process-Solution-oriented strategy had more engagement with their Change Champions than the organisations pursuing a Business-driven strategy (B2 and B3) by involving them in the workplace design through participatory-design. Change Champions refers to individual employees selected by the manager of the team as representatives of their teams or department. These individuals are chosen based on their role within the team, their understanding of the various team members and ability to influence team members.

The cross-case comparisons of the three organisations that drew on both interview and documentary data and the existing ABW Implementation literature are summarised in Table 5.1. The table is an analytical summary and reduction of data from multiple interviews and documentary sources. Illustrations from each phase are discussed later: Step 3 from Phase 1; Step 5 and 6 from Phase 2; and Step 8 from Phase 3.

The results also revealed that conducting the steps in the chronological order identified in the literature is not as straightforward as the literature suggests. The evidence here showed that they could be iterative, conducted across more than one step and in a different order. Iterative steps were found in B1's data collection. In the literature, data collection was typically conducted in Phase 1, Step 3: Data collection to assess the situation, however, B1 conducted data collection across Phase 1, Step 3 (Data collection to assess the situation), Phase 1, Step 4 (Develop the ABW concepts and design the desired state) and Phase 2, Step 6 (Plan and organise for ABW implementation). For instance, B1 gathered data to plan the neighbourhood allocations in Phase 2, Step 6. The gathering of some data was also conducted across more than one step in B2 and B3, such as gathering data to understand the business processes and workflow that was conducted across Phase 1, Step 2 (Orientation and Ambition) and Phase 1, Step 3 (Data collection to assess the situation). Contrary to the literature that analysing the

impact of the ABW design (Phase 2, Step 5) should occur right after developing the design (Phase 1, Step 4), the results indicated that the three organisations conducted this later as part of Phase 2, Step 6 (Plan and organisation for ABW implementation). Thus, a different sequence of steps than the ABW Implementation Theory.

Table 5.1: Cross-case comparison with the ABW implementation literature

Phase/ Steps	Cross-case comparison	Differences from the ABW implementation literature
Phase 1: Strategy and Design		
Step 1: Preparing to lead the change	Undertaken in the three organisations	None identified.
Step 2: Orientation and Ambition	- All organisations insisted that the leadership team and property teams agreed on the business and property objectives as a precursor to proceed with the workplace project. - B2 and B3 (Business-driven strategy) spent more time on this step than B1 (Process-solution-oriented strategy) to reposition the organisation and to evaluate if this change suited all teams. - Selection of Change Champion in B1.	- Unlike the literature, not all employees were involved due to costs, time consumed and sufficient representation by the leaders. - Selection of Change Champion fell under Step 1 in the literature to set up the team leading the workplace change.
Step 3: Data collection to assess the situation	- Conducted by the three organisations but through different methods and channels - More extensive in B2 and B3 (Business-driven strategy) than B1 (Process-solution-oriented strategy).	- User group facilitation and understanding the relationship process or workflows: B1 conducted this with Change Champions but B2 and B3 conducted this with leadership team. - Cultural audit and readiness to change workplace: was not conducted as extensively as suggested by the literature. - Storage audit was not identified by the literature but conducted by all three organisations.

Table 5.1 (Continued)...

Phase/ Steps	Cross-case comparison	Differences from the ABW implementation literature
Step 4: Develop the ABW concepts and design the desired state	In B2 and B3 (Business-driven strategy), this was led by the external Architect teams who put together a design brief, whereas in B1 (Process-solution-oriented strategy), this was led by the Property team in conjunction with the Change Champions using pre-designed worksettings and there was no formal design brief. Leadership approval was also required in all organisations to proceed with the next steps.	Unlike the literature's recommendation, none of the three organisations presented the ABW design to all employees for feedback and employee engagement. None of the organisations developed the workplace guidelines with the employees.
Phase 2: Implementation of Workplace Change		
Step 5: Analyse the impact	- Planned in B1 (Process-solution-oriented strategy) but not executed - Conducted in B2 and B3 (Business-driven strategy)	- Pilot area in B2 and B3 not to test the workplace design concept and not to make changes to the workplace design. - B2 also used it for furniture selection purposes (not in the literature). - Not a separate step but embedded in Step 6 and not conducted before Step 6.
Step 6: Plan and organise for ABW implementation	Yes – all implemented multiple communication channels	Unidentified in the literature: Roll out of new technology and significance of Change Champions.
Step 7: Rollout/ relocation into the ABW	- Goal to have teams up and running by 10am on relocation day. - Relocation staggered depending on number of employees moving.	None identified

Table 5.1 (Continued)...

Phase/ Steps	Cross-case comparison	Differences from the ABW implementation literature
Phase 3: Post-moving in		
Step 8: Ongoing maintenance, support, monitoring and refinement	• Continuous support through meetings and workshops. • Cleaners instructed to remove personal belongings. • All organisations received demands to make physical changes but B1 (Process-solution-oriented strategy) made the least changes due to budget constraints.	None identified
Step 9: Reflection to learn and course correct	Through feedback from surveys and participating in this study to feed learnings into future buildings.	None identified

Unlike the recommendation from the literature to involve all employees affected by the change to ensure better alignment of the designed affordances with the employees' needs and superior acceptance (Becker, 2004a; Maarleveld, 2008; Paton & McCalman, 2008; Rolfö, 2018; Tagliaro & Ciaramella, 2016b; Thomson, 2006), none of the three case study organisations involved all employees. In Phase 1, the three organisations primarily engaged with the leadership team, employee representatives (B2 and B3) and Change Champions (B1) to decide on the ABW aspirations, the workplace strategy and to gather input on the intended affordances to design for. Employees were then involved in Phases 2 and 3 of the ABW Implementation Process as part of communicating and educating employees about the intended affordances designed and preparing them for the relocation. They explained that involving all employees would be too costly (Thomson, 2006), time-consuming and the leaders were representatives of all the employees under them instead of representatives across hierarchy and departments (Been et al., 2015). All three organisations intended for the Change Champions to act as a communication channel between the workplace change team and the employees but B1 also engaged with the Change Champions in the data collection and workplace design steps. This indicates that earlier engagement of Change Champions in B1 should result in superior cognitive acceptance of the ABW and its implementation process.

The following sub-sections presents illustrations from each phase to illustrate the differences in ABW Implementation Processes between the ABW Implementation strategies adopted.

5.3.1 Phase 1, Step 3: Data collection to assess the situation

Whilst B2 and B3 hired Architects (van Diermen & Beltman, 2016) to gather the required data for the intended affordances to design for, this data was gathered internally in B1 by the Change Champions. Various methods, as per the literature, were employed as by the organisations, summarised in Table 5.2.

Table 5.2: Cross-case comparison of organisations' methods to collect data in Step 3

	Case Study Organisation		
	<i>B1</i>	<i>B2</i>	<i>B3</i>
Workshops	Yes – with Change Champions	Yes – leaders and employee representatives	Yes – with executive leadership team
Survey	Yes- gathered by Change Champions	Yes	Yes
Interviews	No	Yes	Yes – business unit representatives
Observation studies	No	Yes	Yes - twice

All three organisations conducted discussions through interviews or workshops and conducted surveys to understand how the current workplace was being used, the existing utilisation, activities conducted, work requirements, technology requirements and satisfaction levels at the workplace. Both B2 and B3 also invested in conducting observation studies for an insight on the affordances taken up in their previous workplace. The data collection methods and process were more extensive in B2 and B3 than B1 attributable to the Business-driven strategies pursued but B1 engaged their Change Champions more in co-creation and participatory-design as part of their Process-oriented part of their strategy. Additionally, B2 also gathered information on individual business processes and strategies and included these to model the flexibility profiles of existing employees and their future workforce. The interviews conducted by the organisation also revealed some issues with their existing workplace such as:

- Time lag from when issues arise until employees resolved them as teams struggled to find suitable team meeting spaces to resolve issues together;
- Struggle to access their team leaders who were frequently in meetings; and

- Teams were working very differently and there was a hierarchical structure as oppose to a flatter hierarchy.

In B3, the Observation study run by the organisation was conducted twice to verify the data as the leadership team struggled to believe the low utilisation rate and take up of existing affordances documented in the first report.

Of the six data collection aspects discussed in the literature, the data gathered in all three organisations were highly similar to three aspects from the literature:

- Reassessing how, where and what activities are conducted;
- Reassess occupancy levels to determine space requirement; and
- Understanding current spatial customs and conventions across departments.

The three data collection aspects that varied from the literature and from each other are:

- User group facilitation: The Change Champion workshops in B1 included various activities to gather data on the affordances to design for, build ideas on their ideal workplace (workplace co-creation) and presenting the ABW and its designed affordances after it had been developed, for feedback. Compared to the literature, User group facilitation was supposed to be conducted with all employees to manage their expectations and foster ideas on the affordances to design for as part of employee engagement to increase acceptance but none of the three case studies involved all employees. B1 mainly engaged their Change Champions, whereas, B2 and B3 involved selected employees to gather data on intended affordances to design for without engaging them to build ideas and present the resulting ABW to gather input (Been et al., 2015).
- Understanding the relationship process or workflows: These were conducted with different entities in the three organisations (Change Champions in B1, employee representatives and leaders in B2 and leaders in B3) and data was also gathered across two steps, Step 2 and Step 3 (in B2 and B3). In B1, the Change Champion workshops included activities to understand the employees' daily life, affordances they took up and who they worked with. In addition to conducting this step in the methods identified in Table 5.2, this was partially conducted in an earlier step, Step 2: Orientation and Ambition, in B2 and B3 in which the leaders discussed how business is currently conducted, their vision of how it may be conducted in the future and brainstormed on how the workplace can support those affordances. Collectively, these

provided information on whether the business practices had to change, how and to what extent to move into the ABW (Becker et al., 1994; Paton & McCalman, 2008). B2 also made some fundamental organisational changes that included an organisational restructuring, but these are outside the scope of this research.

- Cultural audit and readiness to change workplace: Instead of conducting this in Step 3, this was partially conducted earlier in Step 2: Orientation and Ambition. All organisations evaluated how the new workplace would support their desired workplace culture and identified potential resistance points. However, it was not as extensive as per the literature as they did not identify potential social, psychological and political challenges (Becker, 2004a; Bell, 2006; Meyers et al., 2012). Cultural audit was only partially conducted when the Property team and leadership team evaluated their objectives and its alignment to ensure there is no leadership resistance to change. They ensured that there was no mismatch with workplace culture (Ekstrand, 2016) and no unresolvable resistance points to proceed beyond Step 2. Additionally, B2 and B3 identified teams that may be more resistant to change based on how desk-bound or mobile they were and permitted desk-bound employees to be Anchors.

The data collection step was mainly to identify intended affordances to design for as opposed to engaging employees for higher acceptance as part of workplace change management. The storage audit was not mentioned by the literature in determining their space requirements but was a key step in all three organisations as the ABW typically has less individual and team storage provision. Heavily paper-reliant teams had to change their work processes for a sustainable reduction on paper reliance through more digitisation.

5.3.2 Phase 2, Step 6: Plan and organise for ABW implementation

As part of their Business-driven strategy, the workplace change teams in B2 and B3 had additional direct face-to-face communications with all employees, communication channels and activities to involve all employees compared to B1 which mainly communicated through the Change Champions and electronically. These are summarised in Table 5.3. All three organisations developed a communication plan to communicate the intended affordances designed into the ABW and the necessary steps to undertake to relocate into the ABW. The communication plan included various communication channels, timing and content of the communications sent out in an attempt to cater to the large variety of employee preferences (Bell, 2006; Ekstrand & Hansen, 2016; Kotter, 1996; Kotter & Rathgeber, 2006; Meyers et al., 2012).

The few communication channels that were found in all three organisations were: Leadership team initial communications, Change Champions, Pre-change surveys, Digital updates, Decluttering and document digitisation and the rollout of new technology. As per the literature, a large-scale kick off session was held (Koetsveld & Kamperman, 2011) to announce that all management levels will join the employees in the ABW's Unassigned seating (Ekstrand, 2016; Kotter, 1996, p. 91). The Change Champions took on the role as the main communication channel and intermediary between the project team and the employees in all three organisations, but this was not identified in the ABW implementation literature. All organisations had specific initiatives that employees could voluntarily participate in, such as a competition to name the Meeting Rooms in B1, an 'Amazing Race' competition in B2⁴ and Neighbourhood and building tours in B2 and B3.

Table 5.3: Cross-case comparison with the literature on workplace change initiatives/communication channels

	Case Study Organisation			Literature
	<i>B1</i>	<i>B2</i>	<i>B3</i>	
Leadership team initial communications	Yes	Yes	Yes	Yes
Change Champions	Yes	Yes	Yes	No
e-Learning module	No	Yes	Yes	Yes
Workshops for all leaders and employees	No	Yes	Yes – 2 types of workshops	Yes
Townhall sessions	No	Yes	Yes	Yes
Intranet	Yes	Yes	No	Yes
Pre-change surveys	Yes	Yes	Yes	Yes
Digital updates	Yes	Yes	Yes	Yes
Decluttering and document digitisation	Yes	Yes	Yes	Yes
Changing work processes	No	Yes	Yes	Yes
Rollout of new technology	Semi	Yes	Yes	Not quite
Direct communications with Workplace Change Manager	No	Yes	Yes	Recommended with Architects
Organisation-specific initiatives	Naming Meeting Room competition	'Amazing Race', Neighbourhood and building tours	Neighbourhood and Building tours	

⁴ The 'Amazing Race' competition in B2 was ran as an activity in which employees that voluntarily participated were provided with a list of things that they had to look for in the ABW and the fastest group that found them won a prize. The intention was to help participating employees familiarise themselves with the ABW.

One critical compulsory task found in all three organisations several months prior to relocation was digitisation and reduction in paper documents and storage (Babapour, 2019a) due to the reduction in individual and team storage in the ABW. Another initiative intended to reduce teething pain in the three organisations was the roll out of new technology in their current workplaces prior to relocating into the ABW to transition employees away from technology (landline phones in some teams and desktops) that reduces employees' mobility. This increases employees' mobility around the office to take up the intended affordances in the ABW. Both B2 and B3 provided all employees with laptops and some employees received iPads and mobile phones, whereas, only some employees in B1 received laptops. Employees' familiarity with their technological devices prior to relocation also helped for them to start working quickly on Move-in Day and take up the intended affordances in the ABW.

As part of B2 and B3's Business-driven strategy, they changed heavily paper-reliant business processes (Becker et al., 1994) in teams that were identified as such in Phase 1 in an attempt to decrease their paper-reliance for long-run sustainable digitisation and paper reduction. The aim was to change those printing and paper-related affordances (opportunities for action) undertaken prior to moving in to enable them to take up more affordances within the ABW. Changing the business processes of teams that were heavily paper-reliant was not part of B1's pre-determined process and was not conducted by B1 despite having some teams that were heavily paper-reliant.

Other communication channels employed by B2 and B3 and not B1 were employee information or Town Hall sessions, the compulsory e-learning module (Koetsveld & Kamperman, 2011) and workshops (Kotter, 1996; Rolfo, Eliasson, & Eklund, 2017). These were to communicate the intended affordances in the ABW and for the leaders to learn how to lead and collaborate inter- and intra-teams in the new work environment. B3 also had compulsory three hours workshops for employees to learn about how they experience change and technology workshops to manage employees' affective and cognitive responses to the workplace change and to learn how to take up the technology affordances within the ABW. The technology workshops were held a few months after the new technology devices were deployed pre-relocation to assist working more digitally, efficiently and productively with less paper reliance. These were rolled out prior to moving in to enable mobility so that they could remove the desktops and familiarise employees with the technology for business to run as usual when they move-in.

Unlike B1, both B2 and B3 included direct communication channels with the Workplace Change Manager or their representatives for a more hands-on approach and to ensure that employees had a familiar person to turn to for support on Move-in Day. The Workplace Change Manager in B3 also presented updates at team briefings, addressed queries and was available for one-on-one meetings to assist employees and teams with identifying the affordances available within the ABW that suited their work. This aligned with the literature's recommendations to deal with concerns and problem solve face-to-face (Rolfö, Eliasson, & Eklund, 2017) but differs from the recommendation to provide employees a direct feedback loop with the Architects (Rasila et al., 2014) to communicate the ABW concept to the end-users. The lack of a direct feedback loop with the Architects may result in a misinterpretation of the affordances designed into the ABW, which is explored in Chapter 6.

5.3.3 Phase 2, Step 5: Analyse the impact

Even though the participants' feedback indicated that B1's employees could have benefitted from a pilot, B1 did not conduct a pilot as planned, unlike B2 and B3. Conducting a pilot was part of the pre-determined process in B1 and they intended to conduct a pilot but had to cancel their plans as the pilot space had to be used for a team that had to urgently evacuate their office due to structural concerns as they were in an earthquake struck location, as discussed in Section 4.7.

Comparing the aims of the pilots in B2 and B3 with the literature, their main aim was not to make design adjustments, as per the literature, because both organisations' workplace construction and worksettings procurement had already begun by then. However, the two aims to identify what worksetting and features work (or do not) for the affordances taken up, including the technology installed and to allow employees to familiarise themselves with the affordances within the ABW, were met. One Workplace Change Manager in B2 explained that there is a conflict of timing between the two aims as conducting the pilot right after design to make design adjustment was too early for a workplace change management purpose but conducting the pilot as part of the workplace change management was too late for design changes as procurement of most worksettings had already been completed by then to ensure organisations can move-in by the targeted date⁶. Nevertheless, B2 attempted to include

⁶ Quote from Workplace Change Manager in B2: "With the pilot floor, it is a chicken and egg one. In an ideal world, you'd have a pilot floor in before you even started talking about the design so that you can really get the users to influence it but we could not do that because it was too time and cost prohibitive."

employees' input by allowing them to choose some furniture in the pilot which is an aim that has not been previously identified in the literature but was not new practice in workplace change projects. The workplace change team received positive feedback about the effectiveness of the pilot for employees' learning of the ABW affordances and mental preparation. The pilot, facilitated to minimise the drastic workplace changes, caused some employees to struggle to return to their previous workplace as they now preferred the ABW.

5.3.4 Phase 3, Step 8: Ongoing maintenance, support, monitoring and refinement

Across the three organisations, providing ongoing maintenance, support, monitoring and refinement were aimed at increasing employees' take up of the affordances directly or indirectly through support from their managers. Both B2 and B3 had more avenues in place to support employees, including making improvements and hosting technology and leadership workshops (B3), whereas, B1 only held workshops exclusively for the Change Champions and, due to budget constraints, made minimal improvements to make the ABW more effective.

As per the literature, support was provided to employees in various ways across all three organisations to increase take up of affordances in the long-run by providing ongoing support and resolving complaints and issues promptly (Becker & Joroff, 1995; Brunia et al., 2016; Ekstrand & Hansen, 2016; Koetsveld & Kamperman, 2011; Meyers et al., 2012; Sims et al., 1996). Meetings with Change Champions were organised in B1 and B2, meetings with team leaders and troubleshooting support was provided in B2 and technology workshops and leadership workshops were organised in B3. Additionally, B2 organised a series of scheduled meetings to support the team's neighbourhood representative and team leaders through the transition into the ABW, to resolve ongoing issues and to troubleshoot for solutions together with the workplace change team and other teams within the ABW. Monthly newsletters were distributed to all employees electronically that included behavioural reminders to promote the take up of intended affordances.

We would probably never do that because there was a couple of things where we got feedback on the few pieces of furniture and the style of setting that we would have changed but it was already too late. In an ideal world, you would have one pilot early on for design purposes and then another pilot closer to moving in for workplace change management purpose. The problem is the pilot normally ends up in the middle. It might help with workplace change management but it would not really help with the design..."

Furthermore, B2 developed processes to increase the take up of affordances in the ABW: (i) An induction process for teams that are new to flexible ABW environments; and (ii) A behavioural 'refresher program' for teams whose flexible working behaviours have reversed over time (Becker & Joroff, 1995; Sims et al., 1996). Similarly, the Concierge team in B3 was trained to run inductions for new employees who began at the office after everyone had already moved in, and to deal with minor technology issues to ensure that those issues were addressed in a more timely manner with less business disruptions. To deal with increased space pressure as teams grew over time, both B2 and B3 had developed processes for teams to request more space.

In terms of evaluating the workplace, a post-relocation survey was issued in all three organisations and both B1 and B2 also conducted an observation study (Sims et al., 1996). All three organisations received feedback from the survey and observation studies that the Libraries were underutilised and required repurposing or redesigning (Mosselman et al., 2009). In addition, demands were made in B1 for more Conferencing Pods, quiet areas, private spaces for phone calls, larger tables in small Meeting Rooms, a large internal Meeting Room and secluding the Kitchen to prevent the smell of food from entering the work area. However, only B2 had made physical changes to the Library to repurpose it into a Meeting Room to increase utilisation through higher take up of affordances. B1 was aware of the demand to replace the Library with a collaborative worksetting but did not have the budget to make changes. Approximately one year post-moving in, B3 was in discussions with the Architects to repurpose their Library within a few months. The time lag in repurposing the Library in B3 compared to B2 is attributable to the shorter time frame in which B3's ABW has been occupied and B3's intention to observe utilisation over time after employees have settled in. Besides the pending Library, B3 had also changed one large Meeting Room from one that was quite casual to make it more formal to suit the preference of the new CEO. B3 had also transitioned a few teams from desk phones to digital mobile solutions to enable more mobility and flexibility. The main change made by the workplace change team in B1 was installing larger tables in the small Meeting Room, but they could not afford to install more Conferencing pods. Other physical changes made by B2 were:

- Provided additional whiteboards for more writeable surfaces;
- Changed the chairs in the stand-up Meeting Rooms due to discomfort;

- Converted some Meeting Rooms, Training room and the Library into project rooms for teams to occupy temporarily due to increased demand for project rooms;
- Reduced the number of desk phones and replacing under-utilised collaboration areas and cubicle Desks with open Desks due to low utilisation; and
- Upgraded screens on Neighbourhood Collaboration areas to larger screens.

The several physical changes made in B2 indicate that their ABW is physically evolving with the organisation's needs over time (Bell, 2006; Sims et al., 1996), such as higher space pressure. Higher space pressure was due to the adoption of agile methodology (frequent short meetings conducted with designated visual display required) requiring assigned work area and lots of visual display management, conversion of spaces into project rooms and a lack of Desks in certain areas resulting in employees using the Drop-in Points for longer than intended. This confirms advice in the literature about the need to allocate funds towards making workplace changes post-moving in (Anderson & Ackerman-Anderson, 2010) and that overspend in Phases 1 and 2 would restrict this even further. Unlike the literature's suggestions for a steering committee to manage all ongoing issues (Babapour, 2019a), most issues are managed by the Property team with leadership approval when required as B2's steering committee consisting of leaders within the organisation disassembled post-moving in.

5.4 Difference in employees' cognitive acceptance towards the ABW Implementation Process

As per the discussion in the earlier section, the Change Champions in B1 were more engaged and involved in the ABW Implementation Process compared to B2 and B3. However, more employees in B2 and B3 were involved in the implementation process through the various communication channels and activities organised. Since more employee involvement and engagement should result in more positive cognitive acceptance, the Change Champions in B1 and the employees in B2 and B3 should have more positive cognitive acceptance of the ABW and its implementation process than their counter party. These are discussed in turn.

5.4.1 Change Champions cognitive acceptance of the ABW Implementation Process

Contrary to the ABW Implementation theory that Business-driven strategy implementations result in a higher level of employee engagement to better reflect employees' needs in the ABW design, the Change Champions in B1 (Process-Solution-oriented strategy) were more

engaged than the Change Champions in B3 (Business-driven strategy). The extent of Change Champions involved was previously covered in Section 5.3.1 and Section 5.3.2. There was insufficient evidence gathered from B2 (Business-driven strategy) to form any generalisations about their responses from interviews with them, but the two change champions involved indicated no desire to be engaged and involved in the ABW design (as discussed below). The current ABW Implementation theory also proposes that more employee engagement should result in more positive cognitive acceptance. However, the interviews identified that the Change Champions' cognitive responses in B1 were more negative than B3 even though the Change Champions in B1 were more engaged. The results indicate that engaging Change Champions without incorporating their input (B1) resulted in more negative cognitive responses than non-engagement (B3).

Change Champions cognitive responses

In B1 and B3, the Change Champions wanted more influence over the affordances that were designed into the ABW and to be engaged, not just informed. In B1, one participant thought that the Change Manager did a reasonable job⁷ and two other participants discussed that the workshops helped them understand the workplace better and informed them on the functioning of the ABW⁸. However, there were conflicting cognitive responses on the incorporation of the Change Champions' inputs with some Change Champions discussing that they had some influence on identifying the equipment they needed and arranging the worksettings⁹, whereas, a few other Change Champions felt their input was limited. A few Change Champions discussed that input was limited as they were told which worksettings they were going to receive¹⁰, the change team had a "my way or the highway" attitude as whatever the Change Champions put together in the workshop "was not going to happen anyway"¹¹ and their suggestion to place name tags at the end of the desks to make it easier to find colleagues was never implemented¹². The lack of input made one Change Champion in B1 feel like they were not very involved, and they did not feel a sense of ownership over the

⁷ Participant 11 in B1

⁸ Participants 14 and 44 in B1

⁹ Participants 33, 42 and 44 in B1

¹⁰ Participants 14 and 31 in B1;

¹¹ Participant 44 in B1.

¹² Participants 31 and 33 in B1

workplace describing that it did not feel like “our space”¹³. One Change Champion thought that being a Change Champion was ‘a really hard ask’ as they did not know what they were getting themselves into when they were nominated as Change Champions¹⁴. Two Change Champions thought that the workshops were like a ‘sales process’¹⁵ in which there was a very heavy sale on why employees would love the ABW when they preferred the change team to be more upfront, transparent and admit that the goal of the project was cost-savings¹⁶. They would have preferred if the workshops were geared towards admitting that ABW is more cost-efficient,¹⁷ more focused on what will and will not work for them and how the Change Champions could work together with the workplace change team to make ABW work for their team¹⁸.

Compared to B1, one Change Champion in B3 thought positively of their involvement as they thought the monthly workshops were good preparation as everyone adapted to change differently¹⁹. The sessions prepared them to deal with resistance that did not exist in their team as everyone was really excited to move in²⁰. However, a few other Change Champions had negative cognitive responses towards the ABW Implementation Process. Similar to B1, one Change Champion in B3 expressed that there was no scope for the workplace change team to incorporate any of their feedback or proposals to make any changes to the workplace design as the workplace design was already locked in by then²¹. The Change Champion disagreed with the quantity and size of the Meeting

¹³ Participant 31 in B1: “I kind of felt like from the frontline perspective, we didn’t feel very involved ... we weren’t all that engaged because it wasn’t ‘our space’. It was just, we’ve got this, now use it. Like not in a negative or positive way, but we didn’t have any say in how it (the ABW) was built.”

¹⁴ Participant 33 in B1

¹⁵ Participants 42 and 44 in B1

¹⁶ Participant 31 in B1: “... There was a really heavy sale on why we would love it ... I mean, come on, we’re adults, we’re all sensible people. We know that the main reason why it (ABW) was done (implemented) is because of the cost savings in terms of the number of desks. That’s a fact and we can see that and that is fine. It’s okay. I mean hey, we have to make money, we need to be cost-efficient – that’s okay.”

¹⁷ Participant 31 in B1

¹⁸ Participants 42 and 44 in B1: “... the workshops to me seemed like a sales process to sell it to us as oppose to exploring what is functional for us and what is not. I think it was to convince us to sell it to the staff... At least be upfront and treat people like adults and say there are commercial reasons as to why we are doing this (ABW)... and then we can figure out together how we’re going to make it work.”

¹⁹ Participant 33 in B3

²⁰ Participant 33 in B3

²¹ Participant 21 in B3: “it was really just a download to then deliver to people than actually being involved in the change and design so all the things like strategy and design had already been locked in and there were people that had been involved in the business at that phase that were in the change

Rooms and thought that they did not sufficiently think this through or learn from previous ABW buildings in the parent organisation²². That made the Change Champions feel that their role was only as a communication channel and to stay updated, as opposed to engaged²³. One Change Champion also thought that the monthly meetings were insufficient and they preferred more frequent meetings and to have more people involved since there was a lot of information to be passed on to their teams²⁴. A few non-Change Champions' were highly appreciative of the Change Champions efforts to process the information, condense it and keep them updated. They were a good point of contact for quick questions²⁵ but were thought to be overworked as they still had to juggle their usual workload²⁶. This indicates the effectiveness of Change Champions as an accessible main point of contact for employees.

In B2, only two focus group participants were Change Champions. They recalled several communications they received and described them as very pragmatic²⁷. Another participant recalled that the Change Champion meetings were good as they explained different milestones and transitioning changes from desktop to laptops, removing storage and clean-ups to move to lockers²⁸. Unlike B1 and B3, the Change Champions in B2 had no desire to be involved in designing the affordances within the ABW as they seemed satisfied with their level of involvement.

5.4.2 Employees' cognitive acceptance of the ABW Implementation Process

Whilst the literature recommended involving all employees from Step 2 of the implementation process for higher take up of affordances and cognitive acceptance (Becker, 2004a; Maarleveld, 2008; Paton & McCalman, 2008; Rolfö, 2018; Tagliaro & Ciaramella, 2016b; Thomson, 2006), none of the three case study organisations involved all employees from Step 2. The results support the contention in the literature that more employee involvement resulted in more positive cognitive responses with regards to the implementation process and

ambassador team. There were people in the change ambassador team that would tell them what'd have worked and what wouldn't for whatever reason but there was no way to change it."

²²Participant 21 in B3

²³Participants 21 and 23 in B3

²⁴Participant 21 in B3

²⁵Participants 23 and 24 in B3

²⁶Participant 12 in B3

²⁷Participant 14 in B2

²⁸Participant 41 in B2

the designed affordances. However, employee involvement may not be necessary provided employees felt their needs were sufficiently met and represented. Employees who felt that their needs were not addressed often demanded more employee engagement.

5.4.2.1 Non-Business driven strategies resulted in less employee involvement and more negative cognitive acceptance

Comparing all three organisations, the Change Champions in B1 were the most engaged (with the workplace change team including them in co-designing the ABW) because this was consistent with B1's Process-oriented strategy but their other employees were the least involved and received the least direct communications in the ABW Implementation Process. This can be attributed to B1's Process-oriented strategy as engaging Change Champions was part of their pre-determined implementation process. This led to a range of affective and cognitive responses found with participants requiring more employee engagement to better design the intended affordances especially in Anchor teams (illustrated below) and demand for more communications, running a pilot and reviewing the neighbourhood guidelines` to better communicate the intended affordances²⁹. As B1 had no pilot, the participants expressed a need to view a physical version of the ABW as it was too challenging to conceptualise it³⁰. There was a range of employee involvement including no involvement³¹ as Participant 31 discussed that the workplace change team did not realise that there were approximately 30 business units within the five Neighbourhoods. The engagement and communications were left to the individual business units and some business unit leaders may not have forwarded on the relevant communications resulting in these participants receiving no communications about the intended affordances and the necessary steps to undertake pre-relocation³².

The lack of addressing the Anchors' needs resulted in much discontent in B1 as the workplace change team made changes to the designed affordances that were presented to them pre-moving in but did not inform them. This forced the Anchors to change their work processes and workstyle that reduced their efficiency and information security. They felt that their workplace needs were neglected because they were a minority and lacked senior representation to advocate for them. This is illustrated in the unanticipated changes in the

²⁹Participants 12, 13, 31, 32 and 33 in B1

³⁰Participants 31, 32, 34 and 46 in B1

³¹Participants 31, 32, 33 and 34 in B1

³²Participant 33 in B1

Anchor area below. These indicate that more two-way employee engagement with employees that have specialised needs and/ or having a strong advocate to communicate their needs was crucial. Additionally, any changes made by the project team after consulting with the employees requires re-consultation, or at least communication about the changes.

Unanticipated changes in B1's Anchor area

Specific to B1, the Anchors' affective and cognitive responses were more negative than other employees. They were provided floorplans by the Change Champions two to three months prior to moving in and had communicated to the Property team that different Anchor teams were not supposed to sit together due to compliance risk to ensure that a client's identity is not revealed to another employee that had the same client. However, on Move-in Day, the Anchor teams realised that the Property team did not fulfil what they agreed upon, made changes to their Neighbourhood without informing them and did not incorporate their input. This resulted in all Anchor teams sitting together for no good reason (as they did not work together), were exposed to compliance risk and the number of desks in the same area doubled because they had to fit more desks into the same space. The Anchors described their area as a 'disaster' due to the poorly designed intended affordances. They were quite upset with how their area turned out because they felt that their needs were not reflected in the designed affordances and that they felt neglected as the minority (10% of all employees) describing that the workplace change team only focused on the majority. They thought that a lot of the work was done at senior management level but because the Anchor teams lacked senior representation, their needs were left out. As the Anchor teams were from the Trades and Market department, different teams were previously and traditionally in separate enclosed rooms known as 'Trading rooms' due to the noise generated and to protect the details of their clients and their transactions. As their Neighbourhood in the ABW had no enclosures, they felt amazed as this was the only 'Trading room' in a bank that they knew of which was 'open and unsecured' and thought that it was in a very poor workplace condition that did not suit their activities. This resulted in their conclusion that relocating everyone to a 'one-size-fits-all' ABW office was excessively cost-driven³³.

³³Participants 12 and 13 in B1

Due to the changes in plans of the Anchor area in B1, the Anchors expressed that they did not have enough space to spread out their paper documents and have spread this across their filing cabinet tops even though it went against the workplace guidelines. They explained that the proximity of their storage caused inefficiencies as it was not very close to them and they had to access these documents several times daily. These team had initially requested a bigger desk because they have their own document scanners. However, the Property team said they would provide them with shelves but the shelves have not arrived after a year. Additionally, the Anchor participant discussed that they required a whiteboard to plan their workflow but their whiteboard broke requiring them to use another whiteboard a distance away at another team's neighbourhood. In terms of the team's workflow progress, they described that this took them back to the way they worked five years ago, indicating its inefficiency. The participant discussed that information about the team's needs for a whiteboard and storage were provided to the workplace change team but was not considered³⁴. Another Anchor was unsure as to how B1 complied with Trading Room guidelines as the open plan resulted in employees in close proximity to one another without any barriers separating them from others. Traditional Trading Rooms typically had sizeable Desks as the Anchors had several monitors (four to eight monitors were typical) and Cubicles to manage noise. The participant described that it was "... probably the worst open plan environment I've ever worked in in 40 years of banking ..." ³⁵. These resulted in the Anchors in B1 wanting to be engaged directly and for their input to be incorporated in better designing the intended affordances in their work area.

Similar to B1, the Anchors in B3 were also discontented with their workplace primarily due to the design of their Desks (discussed further in Chapter 6). This indicates that the ABW Implementation Process has to better consider the designed affordances for the worksettings and area occupied by the Anchors as they have different needs from non-Anchors due to the large amount of time they spend at their Desks.

In B3, the Anchors noted that their desks were significantly smaller than the general desks and the cubicle barriers made them feel like a 'caged chicken' and "... RSPCA (Royal

³⁴Participant 12 in B1

³⁵Participant 13 in B1

Society for the Prevention of Cruelty to Animals) might come shut us down ...”³⁶. One participant described that some Anchors have obtained stickers from the Concierge stating their desks are specially reserved to prevent others from using their Desks to prevent displacing their team members³⁷.

Contrary to B1, even though the Anchors in B3 expressed discontent over some intended affordances in their work area, as discussed in Section 5.4.1, they were content with their level of involvement and did not think that all employees needed as much involvement as the Change Champions³⁸. These indicate that the Anchors in B1 reacted more negatively to the ABW compared to B3 as the Anchors in B1 desired more employee engagement and to get what they thought they needed. Nevertheless, the differing needs in low mobility teams must be considered separately in the implementation process as they may have differing needs to be designed into the ABW affordances without neglect. For example, call centre teams required a noise-management and mobile technology solution compared to paper-reliant teams that required technology, business process and storage solutions.

Additionally, participants in B1 attributed their poor knowledge and interaction about other teams in the ABW and their feelings of being restricted to their own Neighbourhood to the ABW Implementation Process³⁹. This indicates a low take up of social affordances and intended affordances in other Neighbourhoods. Their cognitive responses were that the workplace change team should have reiterations pre- and post-moving in that they were all working together and introductions to all teams because it was not ‘human nature’ to introduce themselves to everyone else. Compared to their old, smaller workplace, they felt less united and more isolated in the ABW as they used to see their colleagues on most days and had informal conversations with them but described that they may not see each other for several days in the ABW because their colleagues may not be in, or may be in other Neighbourhoods. There were also discussions around the compulsory cost of paying for the ‘shared’ alcohol for social events as some teams did not want to participate but others felt that those teams should just absorb those costs⁴⁰. This potentially indicates that business units are more

³⁶Participants 42 and 43 in B3

³⁷Participant 43 in B3

³⁸Participants 12, 42 and 43 in B3

³⁹Participants 21, 22, 23, 42 and 43 in B1

⁴⁰Participants 12, 31 and 33 in B1

outcome-oriented and competing amongst themselves (Parker, 2014) that may have adverse effects on both the take up of intended affordances and inter-team collaboration.

5.4.2.2 Business-driven strategies resulted in more employee involvement and more positive cognitive acceptance

Compared to B1, most participants in B2 and B3 were content with their level of employee involvement to learn about the intended affordances and to prepare themselves to relocate. The affective and cognitive responses from participants in B3 were positive about the implementation process because they felt that it helped people who have not experienced a big workplace change, taught them about the affordances within the ABW and that there was no 'unknown' by the time they were supposed to move⁴¹. They described that the thorough process was informative, removed all concerns and some were excited to quickly finish the process and move-in. Some participants felt that even though they did not have a choice in anything including their involvement, they thought that their involvement was plenty and the project team covered all personality types without excluding anyone⁴². Some cognitive responses from B2 and B3 were highly positive, such as the responses with regards to the Building Tour and the Amazing Race. These indicate that more employee involvement, listening to them and authenticity in employee engagement paid off for B2 and B3 that pursued a Business-driven strategy, in terms of employees' affective and cognitive acceptance.

Building Tour and the Amazing Race

A Building Tour was conducted in B2 and B3. Several participants who attended the building tours had positive feedback about it. Even though the place was not fully completed, the participants in B3 thought that it was good⁴³, reaffirming to look at their future workplace⁴⁴ and that it was 'cool'⁴⁵. Participants in B2 and B3 agreed that these really helped to build their understanding and knowledge on where things were located and the intended affordances before moving in⁴⁶ instead of being disoriented on Day 1,

⁴¹Participants 13, 33, 41 and 64 in B3

⁴²Participants 41, 42, 43 and 44 in B3

⁴³Participants 13, 51, 53, 61, 62, 63 and 64 from B3.

⁴⁴Participant 13 from B3: "It was good to see where we were going to be based. And the furniture, the way it was set up and the technology was pretty much what we were told was going to get. It just reaffirmed what we were told we were going to get."

⁴⁵Participants 51 and 53 from B3.

⁴⁶Participant 24 in B3.

to learn about the workplace guidelines on behavioural expectations⁴⁷ and generated quite a bit of excitement⁴⁸. Some participants' descriptions in B2 were that it was "eyeopening and good" with "instances of awe"⁴⁹ as they learnt about the high-level building concept⁵⁰ and mindset shift about productivity attributable to the flexibility afforded in the ABW⁵¹. This indicates the building tour's success in increasing knowledge of the available intended affordances within the ABW and generated both positive affective and cognitive responses.

In B2, some participants' affective and cognitive responses were highly positive⁵² even though they barely received any briefing about the intended affordances, as they were only relocated into the ABW after most teams had relocated or they began a new role in a different team. In B2, some participants mentioned that they were simply informed that they have been relocated to this building after other departments had already moved in. They arrived at the lobby and were given their access card. The amount of briefing for the employees varied from no briefing to receiving some briefing from their team leader on packing up, the guidelines, emergency exits, room booking system and the different worksettings. Those who received no briefing had to rely on their own initiative to find out about ABW and the available facilities but did not seem to mind finding out themselves as they said it was easy⁵³. Participant 65 in B2 described that the ABW was "... really self-explanatory ... it is not rocket science ..." with their entire focus group agreeing with them. When asked whether their involvement influenced how they used the worksettings, one participant agreed that their little involvement affected the way they used the worksettings⁵⁴, whereas, another participant thought that it was the

⁴⁷Participants 51 and 52 from B2

⁴⁸Participant 63 from B2: "I was pretty excited by the concept of the building... This building by comparison in terms of the working environment, how the workstations were set up were somewhat something like I've never seen before, so we were very very excited."

⁴⁹Participant 62 from B2.

⁵⁰Participant 52 from B2.

⁵¹Participants 62, 63 and 64 from B2: "...it's a very different mindset (in the ABW) and a shift from working at a workstation to being in the hallway, working upstairs at the café. It didn't matter where you were and the concept of productivity changed overnight for me."

⁵²Participant 65 in B2: "... it's really self-explanatory (whole group agrees) ... it's not rocket science ..." ⁵²; Participant 62 from B2: "eyeopening and good" with "instances of awe"; Participant 14 in B2: "The change was as good as a holiday ..."; Participant 63 in B2: "This building by comparison ... something like I've never seen before."

⁵³Participants 11, 13, 21, 22, 33, 34, 62, 63, 64 and 65 in B2

⁵⁴Participant 51 in B2

actual availability of these worksettings that affected their use of the worksettings⁵⁵. This indicates that employees' involvement may not be necessary when employees feel that the intended affordances in the ABW addresses their workplace needs.

On the extreme end, a number of participants in B2 and B3 wanted to minimise the time spent on their workplace involvement and the disruption to their schedules⁵⁶ with some participants in B3 thinking that the levels of employee involvement were excessive and wanted less involvement. The participants who thought that the workplace change management was excessive were often employees that were highly mobile employees in B3 that described it as time consuming and that the level of communications could have been reduced or made optional as some businesses or individuals needed it more than others⁵⁷. This is illustrated in the participants' responses to the Change Readiness Workshop in B3. These emphasise that different teams have varying needs that warrant varying involvement and engagement.

Change Readiness Workshops

These workshops were only conducted in B3 and the participants' cognitive responses varied with a few participants agreeing that it was really good⁵⁸ and interesting⁵⁹ but a few other participants, that were more mobile and flexible, questioned whether it was necessary for the workshops to be compulsory⁶⁰ as they found the workshops irrelevant⁶¹, unnecessary and too long⁶². They thought the workshops should have been optional because only approximately 30% of the total staff were nervous and would have

⁵⁵Participant 52 in B2

⁵⁶Participants 51, 52 and 53 in B2; Participants 11, 12, 13, 61, 62, 63 and 64 in B3

⁵⁷Participants 12, 32, 43, 52, 61, 62, 63 and 64 in B3. Participant 51 in B3: "I did notice that they overly communicated to us 10 times more than anywhere else. Which is not a bad thing but maybe they could come off 20% instead of going overboard. Whilst I don't think they communicated with other workplace changes as much and that's probably why we got bombarded with constant communication."

⁵⁸Participants 12 and 31 in B3

⁵⁹Participant 44 in B3.

⁶⁰Participant 64 in B3: "Honestly, for me, I thought it (change readiness workshop) was overly unnecessary because I don't think the change is that big for me ... are we that unflexible? But then again, there are others who may have really needed it."

⁶¹Participant 32 in B3: "These workshops were probably not as relevant to our guys because we were already pretty mobile, working at another ABW site and so we've already experienced it (ABW)"

⁶²Participants 61, 62, 63 and 64 in B3: "... we (their team) thought the change workshops were good but it was ab it much) ... it was way more than an hour ... I think it would have been good if they kept it to an hour."; Participant 52 in B3: "It was long.. I don't think it was needed to be honest."

found these helpful, whereas, it was “over the top” for the remaining 70%⁶³. However, they agreed that if these were optional, some of the ABW sceptics would not attend on their own, such as the sceptic in their team that found the workshop helpful. They thought that the workshops were more appropriate for others who were less exposed to change and did not normally socialise with others⁶⁴.

One manager reflected and thought the Change Readiness workshop and Technology workshop made a difference for those who did it⁶⁵. One employee thought that the workshops were more suited to managers or leaders who had to change their mindset on trusting employees out-of-sight⁶⁶. Two participants thought that the workshop was conducted too early and could have been held closer to the move date instead of three to four months before the relocation⁶⁷.

5.4.2.3 Factors affecting varying need for employee involvement

Instead of a ‘one-size-fits-all’ workplace change process, participants identified several factors to vary this approach. These were: employees’ involvement in a recent relocation, flexibility and agility of the teams, and allowing the managers to decide if their employees should be involved as their managers should know how the team will react to the change⁶⁸. For instance, Participant 64 in B3 from a highly mobile team thought that it was a lot of unnecessary money spent on the workplace change management and the pilot. The participants’ cognitive acceptance of the ABW pilot in B2 and B3 illustrates how one-size may not fit all based on employees’ mobility profiles.

⁶³Participant 12 in B3: “It was probably over the top for 70% of my staff but 30% of them who were nervous of change, it helped them immensely. There was one guy in particular who is a natural sceptic and came out saying, I’m pretty happy with this arrangement. It did help a lot for those few.”

⁶⁴Participant 43 in B3: “I thought it was interesting in terms of the psychology side of things ... but I’ve worked with different people and different departments ... I think it would have benefitted departments that didn’t necessarily communicate outside of their own little bubbles.”; and Participant 42 in B3: “I thought it (the workshop) benefitted people who were scared of change and who doesn’t cope well with change ... I think that appealed to them ... and to people who don’t normally talk to other.”

⁶⁵Participant 31 in B3: “When I look back, I think the change readiness workshops and the technology workshops made a big difference in the transition because I can see the big difference between those who have not been exposed to those.”

⁶⁶Participant 61 in B3

⁶⁷Participants 41 and 43 in B3

⁶⁸Participants 11, 42 and 63 in B3

Step 5: Analyse the impact

For change management purposes, all the participants in B3 participated in the pilot but only a selected few in B2 participated in the pilot. Those who participated in the pilot had quite positive cognitive responses regarding the pilot as the pilot was a reasonably close representation of the intended affordances within the actual ABW, it helped them practice the guidelines, explore and understand how the flexible working space will function for their team, which was a major concern in the Contact Centres⁶⁹. In B3, the pilot also helped generate excitement about the move as they described the pilot as 'cool', 'nice coffee machine and printer', 'fun', and the 'nicest part of the office' since it was new⁷⁰. One participant in B3 and one workplace change manager in B2 discussed that a few colleagues struggled to go back to their original environment indicating the success of the take up of affordances within the pilot⁷¹ similar to Foley *et al.* (2016).

To address the concerns amongst the Contact Centre teams that were low mobility teams, both organisations invited the Contact Centres to trial the ABW pilot. B2's Contact Centre team discussed that the pilot was good to trial the technology prior to moving in, familiarizing themselves with the intended affordances provided in the various worksettings and practicing the guidelines⁷². One participant noted that they did not experience the collaborative aspect of the ABW in the pilot but experienced it in the actual ABW post-relocation⁷³. On the contrary, B3's Contact Centre team had a chance to browse the pilot area but chose not to work there for a week as the technology was not set up adequately for their call centre. However, they were not concerned because they knew they are allocated a team area and were Anchors⁷⁴.

Whilst most affective and cognitive responses about the pilot space from B3's participants were positive, a few participants from highly mobile teams thought that it was money that could have been better spent elsewhere and did not necessarily helped mentally prepare as they would have still been excited about the move⁷⁵. These highly

⁶⁹Participants 15, 41, 42, 43, 51 and 61 in B2; 11, 24 and 13 in B3

⁷⁰Participants 44, 51, 52, 53, 61 and 64 in B3

⁷¹Participant 31 in B3

⁷²Participants 41, 42 and 43 in B2

⁷³Participant 41 in B2

⁷⁴Participants 12, 41, 43 and 44 in B3

⁷⁵Participants 44, 51, 52, 53, 63, 64 in B3

mobile participants did not think it was significantly different from what they were already doing but understood that some teams that are less mobile may need the pilot to lessen the effect of the transition. These illustrate the difference in cognitive acceptance of the pilot between high mobility and low mobility teams with low mobility teams requiring a pilot more than high mobility teams. However, technology set up is critical for participants to participate in testing the pilot.

It should be noted that these results only relate to mobility profiles. Other profile variables such as collaborative needs and management status were not specifically researched here. Having said that, focus group results did not indicate differences in the responses between management and non-management staff.

5.5 ABW Implementation issues unrelated to ABW Implementation strategies

In addition to the differences in affective and cognitive responses attributable to the different ABW implementation strategies, there were other issues identified in the ABW Implementation Process independent of the strategy pursued. This subsection discusses some of them. These ranged from pre-moving in concerns, unexpected employees showing up on Move-in Day, teething pain post-moving in, unsustainable paper reduction and employees' desire for feedback from the post-moving in evaluations.

5.5.1 Pre-moving in concerns

There was several pre-moving in concerns within the three organisations ranging from their fears of not being able to find a Desk, having one monitor instead of two and concerns about the office size, however, less concerns were noted amongst high mobility teams. Two illustrations are presented:

Concerns about inability to find a Desk

Unallocated seating and sharing desks were major concerns raised in the affective and cognitive responses from all three organisations. The main concern was the inability to find a Desk to take up their intended affordance, or a Desk with their colleagues to work more efficiently since Desks were on a 'first come first serve' basis⁷⁶. For example, one

⁷⁶Participants 11 and 21 in B1; Participants 52, 53, 61, 62, 63, 64 and 65 in B2; Participants 11 and 52 in B3

team that was highly concerned in B2 was the Contact Centre team as they were typically desk-bound due to their requirement to be on their landline phones and sat together so that they could ask each other questions quickly⁷⁷. This issue was resolved post-moving in as teams within the Neighbourhood divided up the Neighbourhood and allocated them to teams.

In general, participants were aware of the different digital communication channels but preferred face-to-face communication and sitting alongside their colleagues as it was more convenient (low communication barrier) and minimised time wasted on locating colleagues⁷⁸ (Kim et al., 2016; Rolfö et al., 2018). Their preference caused concerns due to the Unassigned seating guideline as the worksetting that they may have wanted may not be available at a preferred location. Specifically, in B1, one participant described that they were anxious due to the uncertainty around Unassigned seating as their managers wanted their associates to sit with them⁷⁹. These concerns were alleviated in B1 and B3 post-moving in when they realised that the ABW had neighbourhood allocations indicating a short-coming of the ABW Implementation Process as the participants did not receive communications on Neighbourhoods prior to moving in. Some participants in B1 admitted that their concerns were ‘all a bit dramatic’ and there has not been a day in which they were not able to find a seat⁸⁰. It was not clear whether the participants’ non-receipt of communications on Neighbourhoods was due to the Change team not communicating this or a shortcoming of the communication channels but ensuring that all participants are aware of the Neighbourhood allocations in advance would have alleviated employees’ pre-moving in concerns. Whilst neighbourhood allocation in B3 alleviated some concerns, one team realised that they could not sit at an area their manager liked because that area was already allocated to another team⁸¹.

Fewer concerns amongst high mobility teams

Additionally, participants in B2 and B3 who had less concerns about moving into the ABW were employees that had previously worked in an ABW, were from high mobility

⁷⁷Participant 53 in B2

⁷⁸Participants 31 and 33 in B1; Participants 41 and 53 in B3; Participants 61, 62, 63, 64 and 65 in B2

⁷⁹Participant 21 in B1

⁸⁰Participants 41, 42, 43, 44, 45 and 46 in B1

⁸¹Participants 11, 12 and 53 in B3

teams and had low paper-reliance⁸². These participants from high mobility teams just wanted to “get on with it (ABW relocation)” and minimise the time they spent on employee engagement to minimise work schedule interruptions⁸³. They were more excited than concerned⁸⁴ as one participant in B2 described that the relocation into the ABW was “... as good as a holiday”⁸⁵. Thus, high mobility team participants had more positive affective and cognitive responses towards the workplace change.

5.5.2 Unexpected employees showing up on Move-in Day

On Move-in Day, several support channels were in place and there was little downtime across the three case study organisations. However, one issue unidentified in the literature is taking measures to prevent employees that typically do not work in the office from coming in on Move-in Day resulting in high space pressure affecting employees’ take up of intended affordances on the day. In B3, this was the only negative cognitive response on Move-in Day as a number of employees who normally did not come into the headquarters office came in out of curiosity. This resulted in some participants having to ‘fight for a desk’ as there were no more Desks available at their Neighbourhood (due to staggered employee arrival times organised by the Workplace Change team) and their team had to figure out what they were going to do with some team members sitting elsewhere⁸⁶.

5.5.3 Teething pain post-relocation

Post-relocation into the ABW, there were some teething pains, such as missing items that employees left behind that were then removed by the Cleaners at the end of the day due to non-compliance with ABW guidelines, and difficulty in searching for colleagues. To reduce the time spent searching for colleagues, some Neighbourhoods in B1 and B2 further subdivided their own Neighbourhoods into team areas indicating a need for team ownership of space to provide teams and their employees with space security. Non-subdivided Neighbourhoods in B2 resulted in desk reserving issues when space pressure increased and limited the affordances that employees wanted to take up, as discussed in Chapter 7.

⁸²Participants 31 and 32 in B2; Participants 11, 12, 52, 53, 61, 62, 63 and 64 in B3

⁸³Participants 51, 52 and 53 in B2

⁸⁴Participants 14, 41, 51, 52, 53, 62, 63 and 64 in B2

⁸⁵Participant 14 in B2

⁸⁶Participants 31, 41, 43, 44, 51 and 53 in B3

Some participants in B3 expressed that employees left cups and mugs at the Desks after work and the organisation resolved to leave them there instead of bringing them to the Kitchen⁸⁷. However, one participant discussed going around to remove them for their area⁸⁸. A similar issue was described in B1 indicating that the Unassigned seating and lack of Desk ownership was also translated into a lack of responsibility for shared items that employees were temporarily using, potentially resulting in more work to manage the facilities. Whilst similar issues may have occurred in territorial offices, it may be less of an issue because Desks were not shared.

5.5.4 Unsustainable paper reduction

With regards to reducing paper consumption, a few paper-reliant participants from low mobility teams had more negative affective and cognitive responses than high mobility teams about keeping paper consumption low and looking for information in the digitised documents⁸⁹. The participants from low mobility teams were highly paper reliant due to the processes within the financial institution, whereas a few others outside of the low mobility teams were reliant on paper for reasons identified below.

One participant in B3 thought that the Paper Reduction Program had to be done regularly to maintain a low level of storage⁹⁰. Several of the participants in B3 thought that the Paper Reduction Program in Phase 2 of the ABW Implementation Process did not sufficiently leverage on the available imaging and indexing tools. This created issues in looking for the digitised material and the support for them to successfully stay digital was unsustainable. This resulted in some business disruption as employees were inefficiently scrambling around trying to work and source data. For example, employees may only need one or two pages of the digitised document but had to go through more than 50 pages because several documents were collated and they felt lost in the collated documents⁹¹. Other ongoing technology-related issues that employees had in reducing paper consumption in B3 were that some employees:

⁸⁷Participants 41, 42, 43, 44, 51 and 53 in B3

⁸⁸Participant 41 in B3

⁸⁹Participants 31 and 24 in B3

⁹⁰Participant 12 in B3

⁹¹Participants 21, 22 and 23 in B3

- Required two monitors instead of one laptop and one monitor to completely get rid of paper⁹²; and
- Were unaware of any tool that allowed them to insert a few scanned pages into an existing digital document resulting in them printing out the entire document to insert a signed page, rescan the entire document and throw out the physical copy⁹³.

One participant in B3 noted that several employees have reverted to their old practices and failed to take up the intended affordances within the ABW due to the digitisation issues they faced. The participant thought that the organisation was “... pretending to be more technology savvy ...” than they were as a large portion of the bank’s work was still paper-based⁹⁴.

Several participants in B1 and B3 agreed that paper usage has reduced significantly in the ABW⁹⁵, whilst some thought that the piles of papers were moved from filing cabinets to employees’ lockers⁹⁶. The issue of insufficient storage and non-compliance with the Paper Reduction and Minimisation guideline is discussed in Section 7.5.1.3 in more depth. These issues indicate a need for ongoing initiatives organised by the Workplace Change Management team to sustain low paper consumption, such as educating employees on available technology tools, updating technology tools, reviewing business processes and practices and additional storage for exceptional circumstances. These initiatives are crucial as they affects employees’ switching behaviour (Gorgievski et al., 2010) and the intended affordances they take up.

5.5.5 Post-moving in evaluations feedback desired from employees

With regards to post-moving in evaluations, all three organisations had various channels of obtaining feedback. Some participants in B3 and B1 received the post-workplace change surveys and reflected that they wanted to receive the results because they wanted a response to the concerns they raised. The lack of response made the survey participants feel like the survey lacked a sense of purpose⁹⁷. Additionally, the project team in B1 left a whiteboard for feedback but one participant noted that the workplace change team did not address any of the

⁹²Participant 33 in B3

⁹³Participants 43, 51, 21, 22 and 23 in B3

⁹⁴Participant 51 in B3

⁹⁵Participants 32 and 33 in B1; 41, 42, 44, 51, 61, 62, 63 and 64 in B3

⁹⁶Participant 31 in B1; and Participant 51 in B3

⁹⁷Participants 61, 62, 63 and 64 in B3; Participants 12 and 33 in B1

issues listed⁹⁸. These cognitive responses indicate that the participants wanted feedback from all types of evaluations that the organisation undertook.

This corresponds with some participants in B1 indicating 'survey bias' as evaluation respondents generally had something to say and wanted to be heard⁹⁹. A few other participants in B1 also discussed that feedback after one year post-relocation was more relevant instead of the 30, 60 or 90 days that the workplace change team had set as these were too close to the actual move when they were still adapting to the change¹⁰⁰. One focus group discussed that when they first received the survey, it was their first time hearing the workplace concept name and there were lots of discussion on what it was referring to¹⁰¹. This indicates inconsistent knowledge across the organisation about the ABW. It is not uncommon in workplace change projects like these that project teams move on to the next project a few months post-moving in and downplay the one they had finished as the management of the workplace is handed over to those in charge of managing the workplace, such as the Concierge and Facilities Managers.

During B1's own observation study, one participant recalled explaining to the observer that they needed larger Meeting Rooms but the observer responded that they could use the collaboration area. This made the participant feel like their needs were not understood as they needed a larger space with audio and visual privacy and that the observation study conducted was for the Workplace Change Team's benefit, as oppose to improving the ABW for the occupants¹⁰².

5.6 Summary

This chapter reports the investigation on the differences in the ABW Implementation Process and employees' cognitive responses to the ABW Implementation Process attributable to the different implementation strategies pursued. This chapter defragments the fragmented existing knowledge identified in the Literature Review (Chapter 2) regarding the role of the ABW Implementation strategy in the ABW Implementation Process and employees' cognitive acceptance of the ABW Implementation Process. The current literature is fragmented in these

⁹⁸Participant 22 in B1

⁹⁹Participants 11, 12, 13 and 14 in B1

¹⁰⁰Participant 13 in B1

¹⁰¹Participants 31, 32, 33 and 34 in B1

¹⁰²Participant 33 in B1

as some emphasises or assumes the importance of the Implementation Process in fostering positive employee acceptance and outcomes but there are limited in-depth evidence-based studies on ABW Implementation Processes and the role of the ABW Implementation strategy in that acceptance and those outcomes. This chapter contributes theoretically by providing in-depth results in three organisations on the link that is currently lacking in the existing ABW literature between the ABW Throughput and employees' cognitive acceptance of the ABW Throughput. This research shows that there are both positive and negative employees' cognitive acceptance that is a more nuanced approach and a more accurate representation of employees' acceptance. These are only possible through holistic comprehensive studies that are one of the most challenging research areas in ABW offices (Rasila et al., 2014). By addressing Theoretical Proposition 1, the results from this study also provided support that validated or invalidated some aspects of the ABW Implementation Theory in the literature as summarised below. To recap, Theoretical Proposition 1:

Theoretical Proposition 1: Business-driven implementation strategy is the superior implementation strategy that will result in more positive cognitive responses towards the ABW Implementation Process as it focuses more on employees' needs and the affordances that should be designed into the ABW.

The organisations that pursued a Business-driven implementation strategy were B2 and B3, whereas, B1 pursued a Process-Solution-oriented strategy. The ability of an organisation to pursue more than one strategy had previously not been identified in the literature. B1 had a predetermined implementation process to roll out their ABW across Australia and New Zealand (Process-oriented strategy) and utilised their pre-designed mobile worksettings developed by the organisation over the years to meet the range of affordances employees take up within their ABW (Solution-oriented strategy). B1 designed their worksettings to provide the organisation and its employees with more flexibility to reconfigure the floorplan at minimal or zero cost. However, the participants reported that the take up of the affordances to mobilise the furniture decreased over time and they no longer mobilise the furniture except for some stools¹⁰³.

The results indicate that organisations that pursued a Business-driven implementation strategy (B2 and B3) followed the recommended implementation process in the literature more closely

¹⁰³ Participant 21, 22 and 23 in B1

than those who pursued a Process-Solution-oriented strategy (B1). The organisations that pursued a Business-driven implementation strategy conducted each step more extensively resulting in the intended affordances being designed to better reflect their needs. This resulted in more positive affective and cognitive acceptance with regards to the ABW Implementation Process in the organisations that pursued the Business-driven implementation strategy as the organisations involved the employees more in Phase 2. This provides support for Theoretical Proposition 1.

Contrary to the ABW Implementation Theory that all employees should be engaged from the start, not all employees desired to be engaged or involved from the start if their needs were adequately represented and met in the ABW implementation, such as in high mobility teams in which the employees wanted less involvement in some instances.

The organisation pursuing a Process-Solution-oriented strategy engaged their Change Champions more indicating that their Change Champion affective and cognitive responses should be more positive as per the ABW Implementation Theory. Despite the higher level of engagement, the Change Champion responses were more negative than the Change Champion that had no engagement (only involvement) because the Change Champions did not think that their input was incorporated into the intended affordances designed into the ABW. Change Champions desired to be engaged but they wanted their input to be included in the workplace design. Excluding these resulted in more negative cognitive acceptance than non-engagement.

The results also demonstrated that low mobility teams had varying needs and desired for more employee engagement and involvement (pre- and post-moving in) than high mobility teams especially when they thought their needs were not adequately reflected in the design of the intended affordances into the ABW. This indicates that ABW is not a one-size-fits-all office as the less varied activity profile and high paper-reliance teams may require different solutions related to their Desk design, technology, storage and redesigning their business processes.

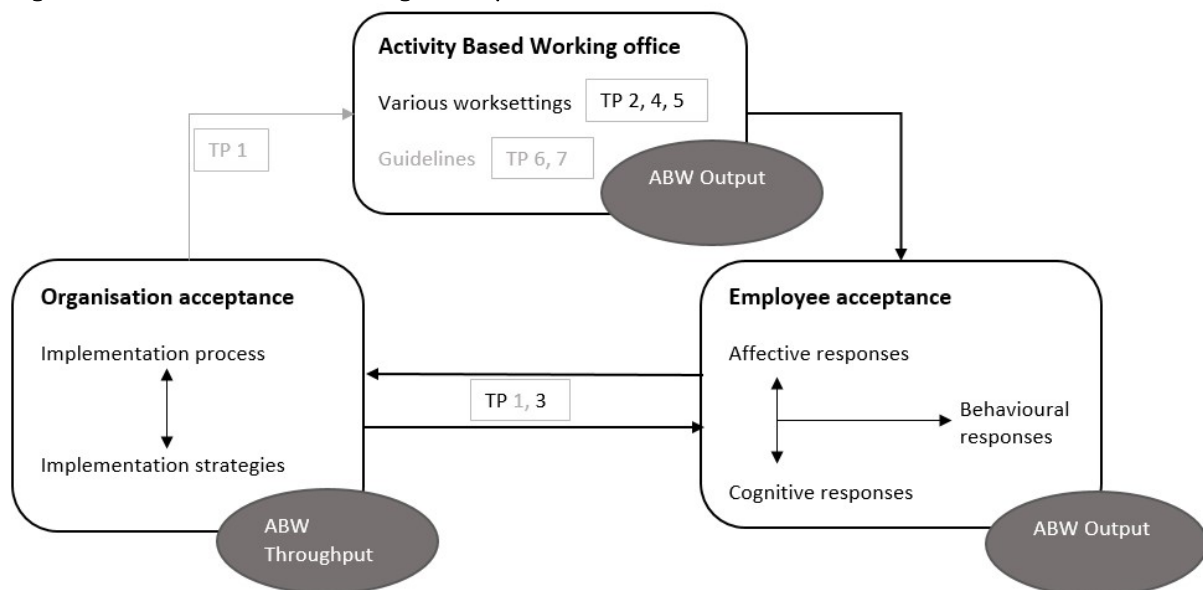
The following chapters will delve into more detail on employees' acceptance of the ABW in terms of worksetting varieties and workplace guidelines.

6 ABW Outputs - Employees Acceptance of the Various ABW worksettings

6.1 Introduction

Even though ABW is one office concept, it can be interpreted very differently by the Architects in its design affecting employees' acceptance (Bodin Danielsson & Bodin, 2008; Rolfö & Babapour, 2017). Designing the ABW's architectural (layout and design) and functional features (activities supported and how work is organised) is complex because employees have contradicting activity needs (Bodin Danielsson et al., 2014; Hua et al., 2010; Wohlers & Hertel, 2017). This chapter deals with employees' acceptance of the architectural features of the ABW and the role of the ABW Implementation Process post-moving into the ABW, as illustrated in Figure 6.1.

Figure 6.1: Theoretical Positioning of Chapter 6



Four Theoretical Propositions are addressed in this chapter:

Theoretical Proposition 2 (TP 2): Worksettings and features that generate positive affective responses translates into employees' behavioural take up of affordances resulting in higher demand and higher utilisation; and vice versa. (addressed in Section 6.2.1 to 6.2.3)

Theoretical Proposition 3 (TP 3): Post-moving into the ABW, ongoing maintenance and workplace management are often overlooked but are critical to sustain employees' affective

responses and behavioural take up of affordances within the workplace. (addressed in Section 6.2.4)

Theoretical Proposition 4 (TP 4): The intended affordances designed for by the Architects should have more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for. (addressed in Section 6.3.1)

Theoretical Proposition 5 (TP 5): The emergent affordances that have positive cognitive and behavioural responses are affordances that require few supporting worksetting features; and vice versa. (addressed in Section 6.3.2)

This chapter addresses Research Gap 2 that identifies that there is no in-depth investigation on the suitability between the intended affordances designed into the variety of ABW worksettings and the employees' activity needs that then affects the affordances employees take up. Employees' inconsistent affordance take up was attributable to the suitability of worksettings that affected employees' switching behaviour and that several activities lacked the support of suitable worksettings. These provide the basis to investigate employees' acceptance of the worksetting features and worksetting variety and take up of affordances.

The first half of the chapter deals with employees' affective and behavioural acceptance towards the individual worksetting and its features, whereas, the second half deals with employees' cognitive and behavioural acceptance towards the affordances offered at the various worksettings - intended affordances (affordances that were designed for by the Architects) and emergent affordances (affordances that were not designed for). Illustrations from specific worksettings and their features are drawn from the comprehensive detailed results, gathered in Stage 2 of the data collection process (Focus Group Interviews and Observation Study) that were analysed (using Contents Analysis and Simple Statistical Analysis) detailed in Chapter 4, and are presented in the subsequent discussions.

6.2 Employees' Affective and Behavioural Acceptance of the various worksettings

Across all three organisations, nine worksettings were identified and eight features were raised as influential on participants' affective responses towards the worksettings. The focus of the worksettings are on the Internal work area that is exclusive to employees instead of the external area that are accessible by clients (Bodin Danielsson, 2013). A detailed description of

each worksetting and their features is attached in Appendix D: Worksetting varieties and features defined and summarised in Table 6.1 below.

Table 6.1: Features of the various worksettings in all three organisations

Features	Worksettings								
	<i>Meeting Rooms</i>	<i>Outside Neighbourhood non-confidential worksetting</i>	<i>Study Booth</i>	<i>Desks</i>	<i>Conferencing Pods</i>	<i>Neighbourhood Collaboration worksettings</i>	<i>Library</i>	<i>Drop-in points</i>	<i>Kitchen area</i>
Enclosures									
No enclosures		B1		All		B1		B2	All
Floor to ceiling (one enclosure)		B3				B2N,	B1		
Floor to ceiling (two enclosures)						B2E			
Floor to ceiling (three enclosures)		B2			B1				
Enclosed room- wall and glass panels	All		B2, B3				B3		
Floor to standing height		B2		B2, B3	B3	B2NT			B3
Floor to shoulder height				B2, B3			B1		
Chairs									
Casual non-ergonomic couch, stool or chair	sB2	All			B1	B1, B2N, B2E	B1, B3	B2	All
Formal ergonomic	All		B2, B3	All	B3	B2NT	B1, B3		
No chairs- stand up						B3			
Desk									
Adjustable height standard size				All					
Non-adjustable standard size desk	All	B2, B3	B2, B3	B2	B1, B3	B2NT, B2E	B3	B2	All
Angle-adjustable whiteboard desk		B1				B1			
Adjustable small desks							B1		
Non-adjustable small desks	sB2	B1, B3				B2N			

Table 6.1 (Continued...)

	Worksettings								
Features	<i>Meeting Rooms</i>	<i>Outside Neighbourhood non-confidential worksetting</i>	<i>Study Booth</i>	<i>Desks</i>	<i>Conferencing Pods</i>	<i>Neighbourhood Collaboration worksettings</i>	<i>Library</i>	<i>Drop-in points</i>	<i>Kitchen area</i>
Location									
Along major circulation routes	All	All	B2, B3		B1	B1, B2NT, B2E	B1	B2	All
Along minor circulation routes	B2, B3	B3	B3	All	B3	B2N, B2NT, B3			
Along window periphery	B2, B3	B3		All			B3		
Technology available									
Monitor			B2, B3	All	B3		B1		
TV display screen	All	sB3			B1	B2NT			
Projector screen	All					B2N			B3
No display screen	sB1	B1, B2				B1, B2E	B3	B2	
Audio and video conference	B3; sB1, sB2		B3		B1, B3				
Whiteboards	All	B1, B3		B3		B1, B2N			
Pin up boards	All					B2N			
Room booking panels	B2, B3								
Room booking system- Outlook	All		B2, B3		B3	B2NT			
Power cord						B2 All		B2	

Table 6.1 (Continued...)

	Worksettings								
Features	<i>Meeting Rooms</i>	<i>Outside Neighbourhood non-confidential worksetting</i>	<i>Study Booth</i>	<i>Desks</i>	<i>Conferencing Pods</i>	<i>Neighbourhood Collaboration worksettings</i>	<i>Library</i>	<i>Drop-in points</i>	<i>Kitchen area</i>
Lighting									
Normal ceiling lighting	All	B1, B3	B2, B3	All	B3	B1, B2N, B2NT	B1, B3	B2	All
Worksetting lighting		B2			B1, B3	B2E			
Size									
Small (less than 4)	All	B2, B3	B2, B3		B3				
Medium (4-8)	B2, B3	All			B1	B1, B2N, B2NT, B2E	B1, B3		
Large (more than 8)	All	B1, B3						B2	All
Flexibility									
Reconfigurable		B1		B1	B1	B1	B1		B3
Not applicable (organisation does not have that worksetting)			B1		B2		B2	B1, B3	

Legend:

E	The Edge
N	Nests
NT	Network Table
s	Refers to only some worksettings with features that may differ from the rest

The average affective response score out of 5 (1: Very negative, 2: Negative; 3: Neutral; 4: Positive; 5: Very Positive) for each worksetting and the worksetting features that affected participants' affective responses (identified with a 'Y') is summarised in Table 6.2 on the next

page. A detailed description of the data collection process for this is described in Section 4.8.2.1.

Table 6.2: Summary of affective response scores and features described per worksetting

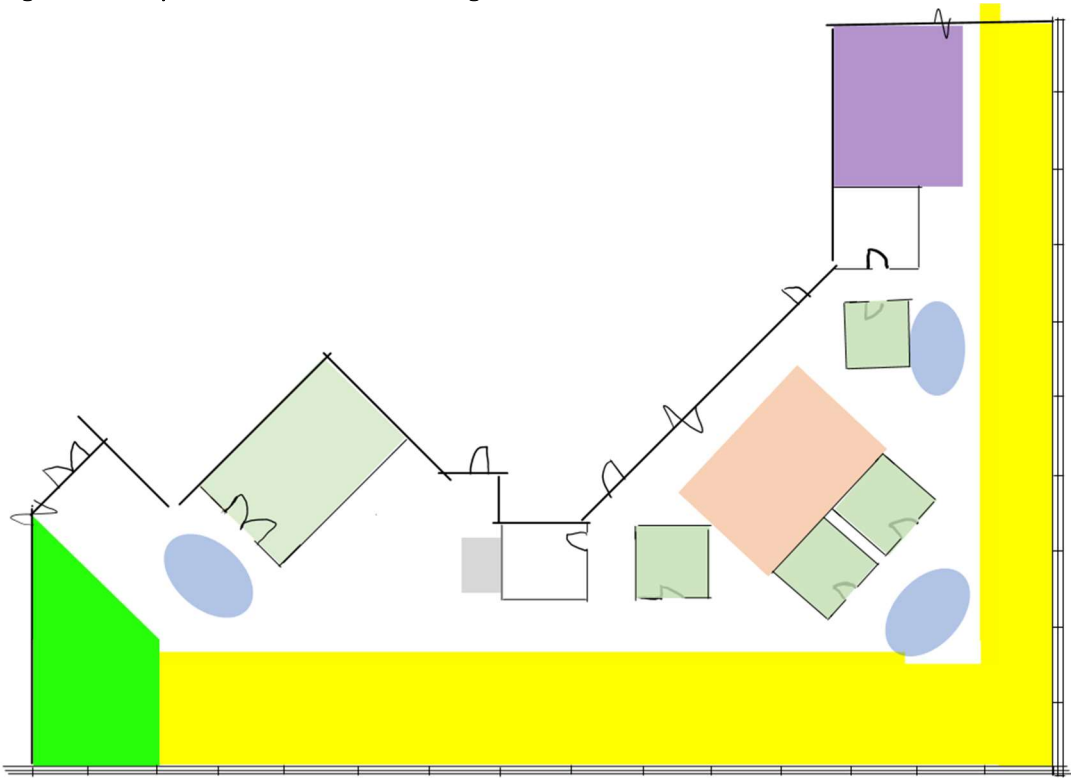
		Worksettings								
		<i>Meeting Rooms</i>	<i>Outside Neighbourhood non-confidential worksetting</i>	<i>Study Booth</i>	<i>Desks</i>	<i>Conferencing Pods</i>	<i>Neighbourhood Collaboration worksettings</i>	<i>Library</i>	<i>Drop-in points</i>	<i>Kitchen area</i>
Affective response score	B1	4.1 (9)	4.2 (8)	NA	3.8 (11)	3.9 (12)	3.7 (11)	3.0 (11)	NA	3.1 (9)
		3.7 (15)	3.5 (19)	3.7 (20)	3.5 Cub (19) 4.2 (21)	NA	3.8 E (19) 3.7 N (21) 3.2 NT (21)	NA	2.2 (20)	4.3 (19)
	B2									
	B3	4.2 (17)	3.8 (15)	3.2 (13)	3.8 (19)	4.5 (6)	4.1 (10)	5.0 (6)	NA	4.6 (11)
Features described	Enclosure/Openness	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Chairs		Y		Y	Y	Y	Y	Y	Y
	Desk	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Location		Y		Y	Y	Y		Y	Y
	Technology	Y	Y	Y	Y	Y	Y	Y		
	Lighting			Y	Y	Y				
	Size	Y	Y	Y	Y				Y	Y
	Flexibility									
	Availability*	Y		Y	Y	Y	Y			
	Noise*				Y					
	Ventilation*			Y						

Legend:

*	Additional features brought up during the Focus Group Interview
Cub	Cubicle
E	The Edge
N	Nests
NT	Network Table
()	Number of respondents
Y	Worksetting feature identified by participant that affected their affective response

Figure 6.2, 6.3 and 6.4 provides an indication of how the 9 types of worksettings are laid out across the three organisations, B1, B2 and B3 respectively.

Figure 6.2: Layout of various worksettings in B1



Legend:

Colour	Worksetting type
	Outside Neighbourhood Non-collaborative worksetting
	Desks
	Kitchen
	Library
	Meeting Rooms
	Neighbourhood Collaboration Areas
	Conferencing Pod
	Focus Room

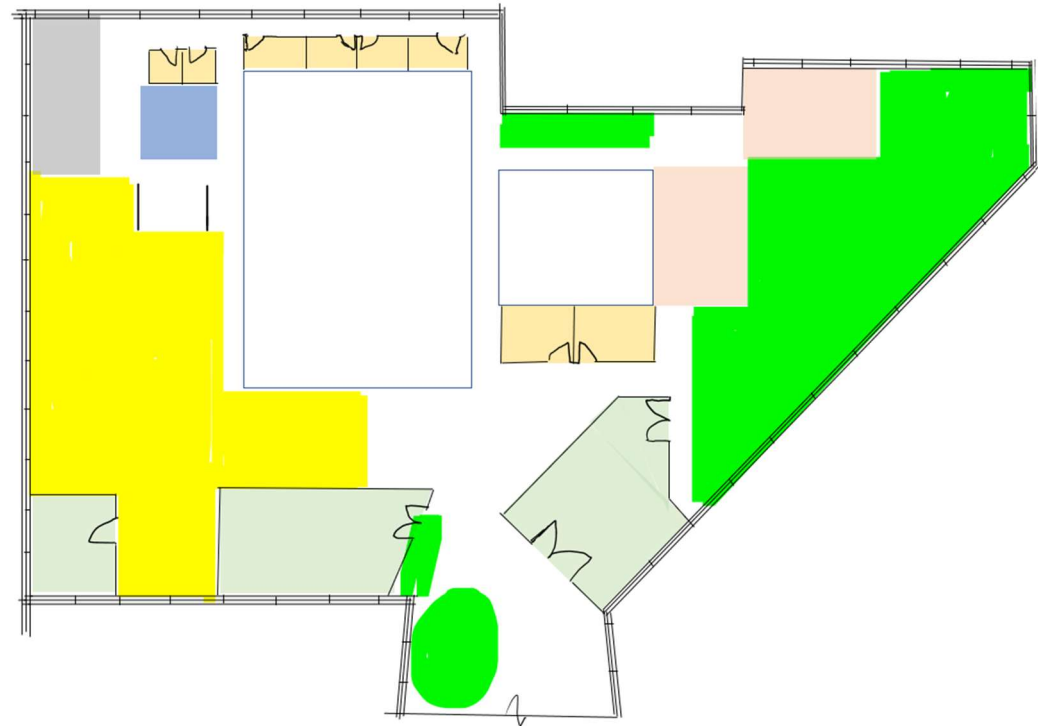
Figure 6.3: Layout of various worksettings in B2



Legend:

Colour	Worksetting type
Green	Outside Neighbourhood Non-collaborative worksetting
Yellow	Desks
Orange	Kitchen
Purple	Library
Light Green	Meeting Rooms
Blue	Neighbourhood Collaboration Areas
Grey	Conferencing Pod
Light Orange	Focus Room

Figure 6.4: Layout of various worksettings in B3



Legend:

Colour	Worksetting type
Green	Outside Neighbourhood Non-collaborative worksetting
Yellow	Desks
Orange	Kitchen
Purple	Library
Light Green	Meeting Rooms
Blue	Neighbourhood Collaboration Areas
Grey	Conferencing Pod
Yellow	Focus Room

From an analysis of the detailed employees’ affective responses towards the various worksettings, the following two sections discusses employees’ positive and negative affective responses towards the worksettings and their features (addressing Theoretical Proposition 2), a few stand out worksetting features contributing to employees’ affective responses and the maintenance of employees’ affective responses (addressing Theoretical Proposition 3). As an in-depth data collection process was employed, the following sections only draw on illustrations for each point of discussion.

6.2.1 Positive affective responses towards the worksetting and worksetting features

The positive affective responses from the three cases provides partial support for Theoretical Proposition 2:

Theoretical Proposition 2: Worksettings and features that generate positive affective responses translates into employees' behavioural take up of affordances resulting in higher demand and higher utilisation; and vice versa.

This section begins with the positive affective response results that support the Theoretical Proposition followed by the effect of higher demand for these worksettings and discusses the evidence that did not support the Theoretical Proposition.

Worksettings generating positive affective responses (where 5 is very positive and 1 is very negative on the 1 – 5 Likert scale) tend to have a higher take up of affordances resulting in these worksettings being in demand and facing availability issues such as: Meeting Rooms, Study Booth (B2), Desks, Conferencing Pods (B1) (Mosselman et al., 2009). The worksettings were either worksettings previously available in the assigned workplace office (Meeting Rooms and Desks) or had high level of enclosures that afforded more audio and visual privacy than other open worksettings (Meeting Rooms, Study Booth and Conferencing Pods). This aligns with previous research that found links between privacy with opportunities to concentrate (Haapakangas et al., 2018; Rolfö et al., 2018), retreat from others, control of information flow and control of interactions (Keeling et al., 2015).

Employees' prior workplace experience in assigned offices plays a significant role in the worksettings that they take up within the ABW. Their previous exposure in assigned offices had habituated employees to only seek enclosed, formal rooms for meetings and to take up a wide range of affordances at the few worksetting types because that was all they had and/ or to only stay within their team area as it was unacceptable to go to other team areas. The challenge is to re-educate them to take up affordances at the other six variety of worksettings that were previously not available at the previous workplace. This is illustrated in the participants' responses that there were insufficient Meeting Rooms in the ABW as the affordances were highly taken up. Meeting Room unavailability was a big source of frustration

for all three organisations¹⁰⁴. The observation results also reflect that the Meeting Rooms in B2 are the highest weighted average Occupancy rate at 59.43% followed by B1 (46.82%) and B3 (43.31%).

Meeting Rooms - Availability

Participants identified that the lack of Meeting Rooms was due to higher demand at certain times and no-shows as some users cancelled the meeting without cancelling the room¹⁰⁵. As summarised by Participant 12 in B1, the issue was the way rooms were used. In an attempt to accommodate the lack of Meeting Rooms in B1, the Concierge has tried to be more flexible to allow employees to use the Customer Suites when the internal rooms were fully occupied¹⁰⁶. The lack of rooms also resulted in back-to-back bookings¹⁰⁷ and poor *Meeting Room etiquette* as users went past their booking time resulting in time lost for the next users¹⁰⁸. Some participants in B2 explained that even though there were some Meeting Room 'no-shows' they will not go into those Meeting Rooms unless it was really urgent as they did not want to risk getting 'kicked out'. Since rooms were often booked out quickly, the participants discussed having to book the Meeting Rooms one to two weeks in advance and it depended on room size as some sizes were more highly demanded¹⁰⁹.

The additional space pressure in B2 were due to some Meeting Rooms being taken off-line and reserved as project rooms for teams for months¹¹⁰. Two participants thought that these Meeting Rooms had lost their sense of purpose and removed the general affordance of flexibility in Meeting Rooms to accommodate urgent ad-hoc meetings¹¹¹.

Participant 41 in B2 described that some employees went to the extent of contacting those who have booked it asking if they could have their Meeting Room booking slot because they really needed it. On a positive side, the participants in B2 reflected that the

¹⁰⁴Participants 11, 12, 14, 21, 22, 23, 31, 32, 33, 34, 41, 42, 43, 44, 45 and 46 in B1; Participants 11, 12, 13, 14 and 15 in B2; Participants 11, 12, 13, 21, 31, 34, 41, 62 and 63 in B3

¹⁰⁵Participants 11, 12, 14, 21, 22, 23, 31, 32, 33, 34, 41, 42, 43, 44, 45 and 46 in B1; Participants 13 and 43 in B3

¹⁰⁶Participants 12, 14 and 42 in B1

¹⁰⁷Participant 12 in B1: "...I don't think we're meant to be permanently booking out (Meeting Rooms)..."

¹⁰⁸Participant 21 in B1; 64 in B3

¹⁰⁹Participants 11, 12, 13, 14, 15, 21, 22, 51, 52, 53, 61, 62, 63, 64 and 65 in B2

¹¹⁰Participants 15, 31, 32, 33, 34 and 53 in B2

¹¹¹Participants 13 and 23 in B2

lack of Meeting Rooms has pushed them to use the other spaces that they never realised could be used in those ways indicating that they are taking on more affordance of other worksettings¹¹² and more mobility around the building¹¹³.

The worksettings with high levels of enclosures that afforded privacy and tended to be in-demand as their affordances were taken up by employees resulting in some availability issues. This is illustrated using the Conferencing Pods that had an affective rating score of 4.5 in B3 and 3.9 in B1.

Conferencing Pods - Availability

Conferencing Pods were quoted as the favourite worksetting by a few participants in B1¹¹⁴ but those who rated it less than 4.0 indicated that availability was an issue¹¹⁵.

Conferencing Pods has not been recognised as a type of worksetting in the existing literature indicating its newness. Further description on Conferencing Pods can be found in Appendix D. However, the responses collated indicated a strong need for both the individual and small group Conferencing Pods to reduce space pressure on Meeting Rooms with conferencing technology. Conferencing Pods are semi-enclosed worksettings specifically designed with features to support video and audio conferencing that were available in B1 and B3. The Conferencing Pods in B3 had three sides of floor-to-standing height enclosure for long-term individual use by one team, whilst the Conferencing Pods in B1 resembled a small house without a door for short-term use accommodating up to six individuals to be shared by all Neighbourhoods.

The observation results indicate that the Conferencing Pods in B3 were more highly occupied (15.5% higher) and utilised (44.1% higher) than the Conferencing Pods in B1. However, availability was only an issue in B1 as participants described that it was very popular resulting in unavailability when required¹¹⁶ although the Occupancy rate was only 36.1% during the observation period. This inconsistency may be attributable to the fact that observations were only conducted on an hourly basis and that ad-hoc activities are often conducted for short periods and not captured. Even though availability was not

¹¹²Participants 11, 12, 13 and 14 in B2

¹¹³Participants 41 and 43 in B2

¹¹⁴Participants 21, 31, 42 and 46 in B1

¹¹⁵Participant 43 in B1

¹¹⁶Participants 41, 42, 44 and 46 in B1

an issue in B3, the Conferencing Pods in B3 are also discussed here to illustrate a need for both individual and group Conferencing Pods.

As availability was described as an issue in B1, several participants wanted more Conferencing Pods instead of the Library as the Conferencing Pods were non-required booking, available on an ad-hoc basis, convenient and supported several affordances¹¹⁷. Participants in both organisations attributed their positive affective responses to the semi-enclosed and semi-private nature of the Conferencing Pods. More participants in B3 were contented with the audio privacy afforded by the worksetting as they were in a secluded area compared to those in B1's Conferencing Pods that were more enclosed but along major circulation routes. Participants in B3 were content with the soundproofing and thought that it was 'noise-blocking' and quiet resulting in them feeling private, secure, safe and focused without feeling claustrophobic¹¹⁸. They did not feel 'boxed up' unlike the Study Booth and enjoyed the general affordance of flexibility to accommodate a few people for quick discussions¹¹⁹, as observed during the observation period. Additionally, the plain background of the enclosure was highly appropriate for Video conferencing instead of having people walking around in the background¹²⁰. Whilst most participants in B1 felt relaxed and comfortable in the Conferencing Pods, there were mixed responses about the openness of the Conferencing Pods as some participants described them as quite open and needed a door to fully enclose it whilst others thought they were too enclosed¹²¹. This may reflect the variability of perceptions when various people are involved as some people may be more sensitive to claustrophobia than others.

Effect of high demand on required booking and non-required booking worksettings

The effect of high demand on the worksettings differed depending on whether they required booking or not. These affected worksetting availability and the opportunity to take up the affordances. The lack of available worksettings was a big source of frustration as illustrated in the earlier discussion on Meeting Room availability. Bookable worksettings may be booked out

¹¹⁷Participants 11, 12, 13, 14, 32, 33, 41, 42, 43, 44, 45 and 46 in B1

¹¹⁸Participants 11, 13, 24, 32, 52 and 53 in B3

¹¹⁹Participants 23 and 32 in B3

¹²⁰Participant 13 in B3

¹²¹Participants 21, 31, 34 and 41 in B1

days or weeks in advance and prevented others from using them on an ad-hoc basis as they are unavailable¹²². The booked out and unavailable worksettings that required booking compromises the intended general affordance of flexibility and ease of switching worksettings afforded implicit in ABW as employees are unable to take up their intended affordance. As discussed earlier, Meeting Rooms may be booked one to two weeks in advance¹²³.

On the contrary, non-required booking worksettings that are in-demand led to unexpected behaviour that points towards individual and team territoriality, some of which went against guidelines that are further discussed in Chapter 7 (Kim & de Dear, 2013). This unexpected behaviour was most evident in Desks as illustrated below.

Desks – Unexpected behaviour

Availability was only an issue in B2 as participants who arrived later were unable to find a Desk¹²⁴ and employees were coming as early as 7:10am (Babapour, 2019b; Brunia & Hartjes-Gosselink, 2009; Foley et al., 2016; Kim et al., 2016; Rolfö et al., 2018; Tagliaro & Ciaramella, 2016b) to reserve seats for themselves and/ or their whole team¹²⁵ (Kim et al., 2016) and to have more choices¹²⁶. Some participants highlighted that coming early does not secure their Desk because the 'usual' team occupying that space asked them to leave indicating team territoriality¹²⁷. The participants also highlighted that space pressure was higher earlier in the week (Rolfö, 2018)¹²⁸. Dependent on the team and the area, some semi-enclosed Desks (Cubicles) in B2 were often unavailable as they were assigned to individuals as Anchor desks whilst others were occupied very early in the day indicating a high demand¹²⁹. The high demand was also reflected in the higher utilisation and reservation rate for Cubicles over the open Desks.

The observation data supports the participants' discussion that Desk availability due to space pressure was more of an issue in B2 followed by B1 and B3 that had an Occupancy rate of 81.4%, 78.9% and 73.4% respectively. This was attributable to several reasons

¹²²Participants 13 and 23 in B2

¹²³Participants 11, 12, 13, 14, 15, 21, 22, 51, 52, 53, 61, 62, 63, 64 and 65 in B2

¹²⁴Participants 11 and 12 in B2

¹²⁵Participant 63 in B2

¹²⁶Participants 12 and 14 in B2; 21 in B3

¹²⁷Participants 63 and 64 in B2

¹²⁸Participant 21 in B3

¹²⁹Participants 12, 13, 14, 21, 22, 23, 32, 33, 34, 41, 42, 51, 52, 53 and 63 in B2

that are summarised in Section 6.2.4. The desk reservation rate for all three organisations was above 25% peaking at 32.03% in B2 indicating that, on average, only 18.56% of the Desks are available in B2. This indicates very low space wastage in all case studies (Koetsveld & Kamperman, 2011). However, the observation data supports the participants' woes about unavailable Desks if they arrived later as there were fewer available Desks in B2 from 10:00am to 3:00pm. As anticipated, the utilisation rate was the highest in the low mobility teams within the three organisations as low mobility teams had an activity profile that was more centred around the Desks.

On a positive note in terms of take up of affordances, unavailable worksettings pushed employees to take up the same affordance at other worksettings that were not their first preference. For example, the Neighbourhood Collaboration Areas¹³⁰ and Drop-in Points¹³¹ were often described as not being participants' first worksetting preference due to their openness and positioning on the floorplan that made participants feel uncomfortable and exposed.

Positive affective responses do not always translate to take up of affordances

Contrary to the Theoretical Proposition put forward, the case study results also found that positive affective responses to a worksetting and its features does not always translate to employees' take up of their affordances resulting in low demand and low utilisation. This was predominantly found in two instances, the Library and the Outside Neighbourhood Non-confidential worksettings, that are discussed in turn.

Library – low take up of affordances despite positive affective responses

The *Library* in B3 had highly positive affective responses (scored 5.0) and was identified as a favourite by a few participants¹³² but had a low Utilisation rate¹³³ of 4.94%. The positive affective responses of the Library in B3 were attributable to the enclosed room in which participants enjoyed the quietness and view that made them feel calm, happier, focused, relaxed and allowed them to brainstorm without distractions¹³⁴. Even though

¹³⁰Participants 12, 13, 14, 21, 22, 31, 34, 41, 42, 51, 52, 53, 61, 63, 64 and 65 in B2

¹³¹Participants 13, 14, 15 and 52 in B2

¹³²Participants 11 and 34 in B3

¹³³Participants 11, 12, 13, 21, 22, 23, 24, 31, 32, 41 and 43 in B3

¹³⁴Participants 11, 13, 31, 33, 34, 53, 61, 63 and 64 in B3

participants liked its concept and those that took up the affordances thought positively about them, employees' affective responses does not translate into use or take up of affordances. Low utilisation of the Library was an issue in all three organisations of which B2 had already repurposed their Library and B3 had plans to make changes to theirs. Participants in B1 proposed replacing the Library with more Outside Neighbourhood Collaboration Areas¹³⁵ or Study Booths for one person¹³⁶, whilst the participants in B3 proposed replacing it with a required booking games room with Table Tennis, Futsal and board games¹³⁷. This indicates that funds have to be allocated either from the project capital budgets or operating expenditure budgets to make changes to worksettings post-relocation (Babapour, 2019b). Some participants in B3 that did not know where the Library was and had never been there indicated that the Library may have been too far¹³⁸ from their typical work location in the building. The discussion in Section 7.5.1.1.2 indicated that the Library etiquette restricted the affordances that participants wanted to take up resulting in participants' non-take up of affordances at the Library. Over time, the Technology-free Library etiquette in B3 was changed to allow technology to avoid printing and paper wastage¹³⁹.

Employees' affective responses towards the worksetting features also clearly indicated that there was a limit to the distance they will walk when changing worksettings to suit changed work activities. This is best illustrated in the Outside Neighbourhood Non-confidential worksettings (ONN). The empirical evidence gathered supports the benefits and downsides of locating in a central area (B2 and B3) or locating the worksettings in a secluded area (B1 and B3) (van Meel, Martens, & van Ree, 2010).

Outside Neighbourhood Non-confidential worksettings (ONN) – low take up of affordances despite positive affective responses

The advantages of locating these ONN in a central area in B2 and B3 is that they were accessible by all employees. However, since they are typically directly adjacent or close to the circulation routes, the foot traffic and people on phones generated a fair bit of

¹³⁵Participants 12, 14 and 33 in B1

¹³⁶Participants 33 and 44 in B1

¹³⁷Participants 51 and 52 in B3

¹³⁸Participants 21, 22, 23, 24 and 43 in B3

¹³⁹Participants 31 and 34 in B3

noise especially during lunch. This was a distraction to the participants, and they felt uncomfortable and unproductive¹⁴⁰. On the contrary, the advantages of locating these worksettings towards a more secluded area was that it was less noisy and distracting for the users, as found in B1 and B3. This made them more conducive for quiet discussions¹⁴¹ but those that thought they were 'too far' away did not take up the affordances or use them¹⁴² even if they could not find another meeting space¹⁴³. However, in B1, the distance caused teams that were not sitting directly adjacent to the area to feel disadvantaged and that the space did not belong to them. They viewed the ONN as a 'luxury' that belonged to the team next to it even though this was intended to be shared¹⁴⁴. Users were also conscious that their noise would be very distracting for those teams in the neighbourhood next to it¹⁴⁵.

This indicates that the distribution of worksettings and their accessibility to employees and teams with matching activity profiles must be considered in the ABW design process when deciding on which worksettings should be within the Neighbourhood and outside the Neighbourhood to maximise the intended affordances taken up in the ABW.

6.2.2 Negative affective responses towards the worksetting and worksetting features

These results partially support Theoretical Proposition 2 that employees' negative affective responses resulted in less take up of affordances at the worksetting and lower utilisation. It is key to point out that the results presented here are predominantly worksettings with mixed affective responses that consist of more negative affective responses than other worksettings. There was only one worksetting in the three ABWs studied that unanimously had negative affective responses that is discussed in Section 6.2.3. This section begins with a discussion on negative affective responses that supports the Theoretical Proposition followed by the results that did not support the Theoretical Proposition.

¹⁴⁰Participants 11, 12, 13, 14, 23, 51, 52 and 53 in B2; Participants 21, 22, 33, 34, 51, 53, 61, 62, 63 and 64 in B3

¹⁴¹Participants 13, 31, 34 and 41 in B3

¹⁴²Participants 11, 12, 21 and 23 in B3

¹⁴³Participants 12, 13, 21, 22 and 23 in B1

¹⁴⁴Participants 41, 42, 43, 44, 45 and 46 in B1

¹⁴⁵Participant 23 in B1

In general, worksettings with more negative affective responses tend to be in lower-demand and availability was not an issue. This supports Theoretical Proposition 2 and is illustrated here through B2's Neighbourhood Collaboration Worksetting.

Of the three types of *Neighbourhood Collaboration Worksetting* in B2, The Network Table scored the lowest at 3.24 and had more negative affective responses than the other two that scored above 3.7. It was identified with having higher availability and accessibility on an ad-hoc basis compared to the other two types of Neighbourhood Collaboration Worksettings. Despite the negative affective responses, its availability contributed to participants feeling comfortable, secure and at ease¹⁴⁶. However, the Utilisation rate and Occupancy rate from the observation results do not provide support that The Network Table (fuller worksetting description available in Appendix D) had the highest availability as it was observed that it was quite highly occupied as they were used as a space overflow to the Desks with a few employees working long hours there.

Neighbourhood Collaboration Worksetting - Availability

The Network Table was similar to the other two types of Neighbourhood Collaboration Worksettings B2, in terms of its level of enclosure and openness, but its lower score is attributable to its location along the major circulation routes that resulted in more distraction and noise as users struggled to hear one another¹⁴⁷. The positioning of the Neighbourhood Collaboration Worksettings also caused concerns that they will distract those using Desks surrounding B2's Neighbourhood Collaboration worksettings¹⁴⁸. The positioning and design of the Neighbourhood Collaboration Worksettings were described as a mismatch as it was positioned conveniently for employees to quickly retreat to them but its close proximity to Desks implied that users had to consciously monitor their volume to avoid distracting others, risk getting glared at, or confronted by the Desk users¹⁴⁹. This explains one participant's paradoxical feedback describing them as feeling physically open but confined, awkward and uncomfortable¹⁵⁰. Participants in B2

¹⁴⁶Participants 14 and 64 in B2-TC; 11, 12, 31, 32, 51 and 61 in B2-CT; 51, 52 and 62 in B2-H;

¹⁴⁷Participant 34 in B2-CT

¹⁴⁸Participants 31, 32, 34 and 62 in B2-CT; 21, 31, 32, 33, 34, 41, 42 and 43 in B2-H; 11, 12, 13, 14, 15, 52 and 53 in B2-TC

¹⁴⁹Participants 22 and 33 in B2-CT; 11, 12, 13, 14, 15, 31, 32, 33 and 34 in B2-H

¹⁵⁰ Participant 62 in B2

suggested positioning the Neighbourhood Collaboration Worksettings towards the Atrium where the heart of the 'buzz' is¹⁵¹.

Noise levels from Neighbourhood Collaboration Worksettings were more of an issue for Desk users in Contact Centre teams as the customers on the phone struggled to hear the employees resulting in more negative responses towards The Network Tables.

Participants in the Contact Centre described it as an 'eyesore', 'a wasted space', a dining table with a TV that was irrelevant to their role and used whiteboards to enclose it¹⁵².

However, two participants from other teams described The Network Table as their favourite due to its ability to fit many people and 'inclusive' nature¹⁵³.

This indicates that a mismatch of worksettings with the activities that the team conducts, like the Contact Centre, generates more negative affective responses, lower take up of affordances and lower utilisation. This should be accounted for in the ABW design process to ensure that the variety of worksettings provided to the teams are an accurate reflection of their activity needs.

The case study results that did not provide support for the Theoretical Proposition 2 nevertheless revealed that even though employees may have negative affective responses towards certain worksettings, those who took up the affordances at those worksettings often lacked choices. There were three reasons why they lacked alternatives: 1) Space pressure; 2) Employees' activity needs; and 3) Employees' mobility profile. These are discussed in turn.

Firstly, when Space pressure was high resulting in a lack of alternatives for employees, employees took on affordances at worksettings that they had negative affective responses towards. From averaging the Occupancy rate of all worksettings, the observation results indicated that on average, the worksettings in B2 (59.30%) are much more highly occupied than in B1 (36.89%) and B3 (36.98%) which aligns with the participants' responses that space pressure was a real issue in B2. In B1 and B2, when they could not find Desks available within their Neighbourhood, they took up affordances within the Library and Drop-in Points

¹⁵¹ Participants 11, 12, 13, 14 and 15 in B2

¹⁵² Participants 62 and 63 in B2-CT

¹⁵³ Participants 41 and 43 in B2-CT

respectively. This aligned with the Architects' intentions for the Library in B1¹⁵⁴ and the Drop-in Points in B2 to act as an overflow of space¹⁵⁵.

Drop-in Points – features contributing to negative affective response

The lowest scoring worksetting, the Drop-in Points in B2 with an affective response score of 2.2, were not the worksetting with the lowest Utilisation (35.25%) and Occupancy rate (43.55%) in B2. Its low score was predominantly attributable to the positioning of the Drop-in Points that were next to major circulation routes with high foot traffic and noise caused users to also feel distracted, frustrated, vulnerable and exposed to frequent interruptions from others striking up a conversation with them when they are working¹⁵⁶. However, its Utilisation and Occupancy rate were attributable to employees using them when there were Desk shortages within their Neighbourhoods¹⁵⁷. Thus, participants named it the 'Bum Zone' in which employees get 'bummed to' if they cannot find a seat elsewhere, indicating that it was the least preferred worksetting¹⁵⁸.

Secondly, the results indicate that worksettings with more negative affective responses than others still had their affordances taken up because there were no other available alternative worksettings more suited to their activity needs. This was illustrated in employees' take up of the affordances offered in the Study Booth.

Study Booth – affordances taken up despite negative affective responses

Even though the Study Booth did not score very poorly in the organisations that had them (3.7 in B2 and 3.2 in B3), there were much negative affective responses towards them. However, a clear need for them was expressed through several participants' take up of the affordances offered such that some participants in B2 reported an availability issue¹⁵⁹ and participants in B1 that did not have Study Booths expressed a need for them

¹⁵⁴ Participants 12 and 23 in B1

¹⁵⁵ Participants 31, 32, 33, 34, 61, 62, 63, 64 and 65 in B2

¹⁵⁶ Participants 12, 13, 14, 21, 22, 31, 34, 41, 42, 51, 52, 53, 61, 63, 64 and 65 in B2

¹⁵⁷ Participants 12, 13, 15, 31, 32, 33, 34, 51, 52, 63, 64 and 65 in B2

¹⁵⁸ Participants 31, 32, 33, 34, 61, 62, 63, 64 and 65 in B2

¹⁵⁹ Participants 14, 21, 22, 23 and 32 in B2; Participants 11, 13 and 53 in B3

as alternative individual rooms for private confidential conversations to reduce the space pressure on Meeting Rooms and for quiet individual working¹⁶⁰.

Employees in B2 and B3 had mixed affective responses towards the openness they perceived that was attributed to its enclosure, positioning, size, the audio and visual privacy it afforded. Those that thought the enclosures of the Study Booth afforded sufficient audio and visual privacy rated it at least a 4.0 expressing that they felt happy, focused, confident conducting various confidential and non-confidential activities in a safe space, productive, 'be in their zone' and closed off¹⁶¹. Those who thought the Study Booth had insufficient privacy rated it starting from 2.0 as they felt exposed like 'fishes in a fishbowl', watched from behind, uncomfortable and that they have been shocked from people approaching them from behind¹⁶². This was also attributable to the Study Booth's positioning along the major circulation routes as illustrated in the indicative floorplans in Section 6.2. Similar to the Meeting Rooms, some participants in B3 expressed that the soundproofing of the Study Booths was insufficient as they could hear others next door and found this distracting when they needed some quiet time¹⁶³. They described that it was soundproofed from inside to outside but not soundproofed with adjacent rooms sharing a wall as they could hear everything from adjacent rooms¹⁶⁴. One participant in B3 had paradoxical feelings that the Study Booth made them feel isolated from their team but exposed due to the foot traffic and glass panel. Collectively, the size of the Study Booth and its enclosure contributed to several negative affective responses and scores from the participants, such as feeling 'restricted and confined', 'enclosed', 'claustrophobic', 'disconnected', 'isolated' and 'dizzy'¹⁶⁵.

Despite the negative affective responses, the affordances offered by the Study Booth was still taken up as both organisations reported that some employees used the Study Booth like their own office for the whole day¹⁶⁶. Study Booth availability was only

¹⁶⁰Participants 21, 41, 42, 43, 44, 45 and 46 in B1; Participants 11, 12, 13, 14, 15, 21, 22, 51, 52, 53, 61, 62, 63, 64 and 65 in B2

¹⁶¹Participants 12, 21, 22, 23, 31, 32, 34, 41, 42, 51, 53, 63 and 65 in B2; Participants 11, 12, 13, 31, 33, 34, 51, 53, 62, 63 and 64 in B3

¹⁶²Participants 13, 14, 15, 43, 61, 62 and 64 in B2

¹⁶³Participants 41 and 42 in B3

¹⁶⁴Participants 44, 51, 52 and 53 in B3

¹⁶⁵Participants 13, 21, 52 and 61 in B2; Participants 24, 32 and 42 in B3

¹⁶⁶Participants 14, 21, 22, 23 and 32 in B2; Participants 11, 13 and 53 in B3

reported as an issue in B2¹⁶⁷ (Occupancy rate of 70.59%) as it was highly in demand and was only available 29.61% on average unlike B3 (Occupancy rate of 41.27%). In addition to the affordances taken up by participants due to their activity needs, the few other reasons explaining the high Occupancy rate of the Study Booth was the reservation rate of 26.98%, in which some users reserved them for long periods without being present and it was used as a 'space overflow' when they ran out of Meeting Rooms¹⁶⁸. One participant admitted to arriving early to 'claim' a Study Booth as an office when they really needed to focus on their work¹⁶⁹. The results regarding take up of affordances and negative affective affordances indicate that very careful design at a detailed level is required to minimise the negative affective responses and to support the affordances' benefits to employees.

Thirdly, the results indicate that low mobility profile employees or Anchors, who were bound to their Desk as a result of their job, did not have a choice but to take up affordances at their Desk that they reacted negatively to. This is illustrated in the Desks allocated to Anchors as the Anchors in B1 and B3 discussed their discontentment with the size of the Desks, the level of enclosure and the noise generated but still took up the affordances at the Desk as they were Desk-bound for reasons, such as technology or high task inter-dependency. This provides further evidence in addition to Section 5.4.2.1 to reiterate the importance of acknowledging and addressing the specific requirements of a team, especially low mobility teams.

Desks - Anchors

The Anchor teams in B1 and B3 thought that the *Desks* were too small (smaller than the Open Desks in B3) and had three enclosures like Cubicles in B3. The Anchors in B1 discussed that even though they were consulted about their needs during the design phase, they strongly felt that their needs were only considered after the needs of the majority were designed for and wished it was the other way around¹⁷⁰. The affective responses from the Anchors in B3's Contact Centre was unanimously negative as their Desk phone anchored them to their Cubicle Desk and they could not use other worksettings. They described the Cubicle enclosure as excessive as they felt isolated like

¹⁶⁷Participants 21, 22 and 23 in B2

¹⁶⁸Participants 32, 52 and 53 in B2

¹⁶⁹Participant 42 in B2

¹⁷⁰Participants 12 and 13 in B1

‘a battle hen’ (*sic*) and ‘RSPCA might come and shut us down’¹⁷¹; and that the enclosures were a communication barrier requiring them to stand up to talk to a colleague¹⁷². These enclosures were initially requested by the team to provide some audio isolation as they take phone calls, but the enclosures were higher than expected indicating a miscommunication or misinterpretation during the design process¹⁷³. As the Anchors in B3 had smaller Desks than the Open Desks, it exacerbated the confined feeling caused by the Cubicle enclosure, as discussed earlier¹⁷⁴.

Similarly, in B1, smaller Desk size was an issue in the Anchor teams. Prior to moving into the ABW, each Anchor employee had a printer, scanner and shredder per person but have now reduced this due to the inadequate Desk size to only one scanner per person that was placed on the Desk and they had a lot of documentation. As the Anchors in B1 were from the Trades and Market team, they were often on the phone and generated high noise levels and were confronted several times by other teams. Due to their noise-generating activities, the Anchors in B1 and B3 thought that their Desks were in too close proximity to one another¹⁷⁵. These participants explained that they were traditionally placed in an enclosed ‘Trading Room’ as their work involved ad-hoc loud conversations, required confidentiality due to compliance risk (to ensure a client’s identity is not revealed as another employee may have the same client), intercom on speakers with colleagues from other cities and turning the TV up to stay updated with the finance news. Whilst participants have adapted to reduce shouting, the Ad-hoc Meetings at their Desks can still get quite loud. Other adaptations include participants changing their work schedule to take conference calls outside of office hours at their desks, muting the TV, no longer used the intercom and stepping away from the Desk to reduce noise. They discussed that there is now less team interaction and whilst the space is functional, it is no longer fully functional as a traditional Trading Room¹⁷⁶.

These results provides further support that a ‘One-size-fits-all’ workplace will not necessarily accommodate or provide suitable affordances for specific needs. Whilst the

¹⁷¹Participant 42 in B3

¹⁷²Participants 41, 43 and 44 in B3

¹⁷³Participant 41 in B3

¹⁷⁴Participants 11 and 43 in B3

¹⁷⁵Participants 12 and 13 in B1; Participants 12, 13, 41, 42, 43 and 44 in B3

¹⁷⁶Participants 12 and 13 in B1

case studies attempted to deal with this by providing low mobility teams with similar physical features and different workplace guidelines, the results indicates a need to also provide low mobility teams with different physical workplace features that are better suited to their needs.

6.2.3 Stand out worksetting features contributing to different affective responses

Analysing the nine worksetting features identified by the participants, a few stood out more than others in their effect on employees' affective responses and take up of affordances. The worksetting features that stood out were those that contributed towards the Openness perceived by the employees, the size of certain worksettings, ergonomics and chairs. Some worksetting features appeared to be more challenging to design than others as some worksetting features were interrelated. Worksetting features that did not stand out as much, such as Lighting, simply had to be adequate for the activities accommodated and were not quoted as a deterrent from taking up affordances at those worksettings.

From the employees' discussion on features contributing to their affective responses, it was found that the openness perceived by employees determined the level of audio and visual privacy afforded and the noise levels that then affected the affordances taken up. This aligns with De Croon et al.'s (2005) finding that employees' cognition of the workplace is impacted by workplace openness and psychological privacy. Openness was attributed to these worksetting features: Enclosure (level of enclosure and material used to determine its transparency and soundproofing), Size of the worksetting (number of people it accommodated and how confined they felt) and Positioning (high vs low foot traffic area). This was exemplified in the Study Booths as discussed earlier. This aligned with Keeling, Clements-Croome and Roesch's (2015) finding that privacy was attributed to the ability to retreat from people, to control of information flow and to control interactions that predominantly points to Location and Enclosure. Whilst worksetting size and the crowdedness of the worksetting was found to have no effect on privacy in Keeling, Clements-Croome and Roesch's (2015) study, participants described that size and crowdedness of a worksetting made them feel more confined (less open) and uncomfortable when there were more individuals within the same worksetting. Since the worksetting features have collective impact, they have to be considered collectively. A mismatch of location, size and enclosure with the activities the worksetting was intended to support was a deterrent to employees take up of affordances at the worksetting. Additionally,

the same feature can be perceived very differently by employees which poses as a challenge for designers.

With regards to the size of worksettings, it was found that larger worksettings had the general affordance of flexibility to accommodate both individual or group take up of affordances but employees preferred worksettings suited to their group size. This is illustrated in the various sizes of Meeting Rooms.

Meeting Rooms - Sizes

Large Meeting Rooms were described as inappropriate and less conducive for small meetings as users felt distant and disconnected and thought this was underutilisation¹⁷⁷. Participant 21 in B1 described that their large Meeting Room was 'too large' for Video Conferences because the large long tables seated them too far from the camera and the screen. The size of Meeting Rooms was brought up as an issue in all three organisations as participants demanded more medium-sized Meeting Rooms (none in the internal area in B1)¹⁷⁸. Even though the Architects in B1 expressed that there were medium-sized rooms available to employees, these were the Client Suites which participants were not allowed to use for internal meetings. This indicates that these should be excluded when planning the provision of Meeting Rooms numbers and size in the internal work area. Inadequate medium-sized Meeting Rooms were reported to a higher extent in B1 and B3 than in B2 as reflected in their observation results where the Meeting Rooms in B1 and B3 were at least 26% underutilised (not used in full capacity that it is designed to accommodate) on average when in use compared to B2's (8.29%). This reflects that the size of Meeting Rooms in B2 are a better reflection of the size of meetings that occurred in the workplace

Ergonomics and chairs were also referred to in employees' take up of the affordances. Although, there was a preference for more ergonomic features at long-term worksettings to be built into them with the stand-up desks described as a 'hot' commodity (B3) and employees intentionally did not take up affordances at worksettings that lacked of ergonomic features, such as the Cubicle Desks and Study Booth (B2)¹⁷⁹. Certain worksetting features such as

¹⁷⁷Participants 22 and 23 in B1; Participants 21, 23 and 32 in B3

¹⁷⁸Participants 14, 31, 32, 33 and 34 in B1; Participant 23 in B2; Participants 21 and 23 in B3

¹⁷⁹Participants 14, 15, 21, 22, 31, 32, 34, 51, 52, 53 and 61 in B2; 21, 24, 42 and 63 in B3

inappropriate chairs at the Neighbourhood Collaboration Worksetting for women wearing skirts¹⁸⁰ or bench chairs requiring employees to slide across¹⁸¹ that were a challenge for employees with restricted movements due to an injury were also a deterrent for employees' take up of affordances.

6.2.4 Maintaining employees' affective responses

The results from this study support Theoretical Proposition 3 put forward:

Theoretical Proposition 3: Post-moving into the ABW, ongoing maintenance and workplace management are often overlooked but are critical to sustain employees' affective responses and behavioural take up of affordances within the workplace.

Managing ABW offices involves ongoing maintenance of certain features with more active management to be paid towards: Technology, Whiteboards, Meeting-room no-shows, guidelines and space pressure that ongoingly affect employees' affective responses and behaviour. The following discussion puts forward illustrations from the results that supported Theoretical Proposition 3. As described by Anderson and Ackerman-Anderson (2010), the downstream phase post-moving into the ABW tends to be overlooked due to overspending on the first two phases of the Implementation Process.

Technology

Inherent in the concept of ABW that supports switching behaviour, technology has to work seamlessly with minimal fault and be easy to set up to encourage switching behaviour. Participants relied strongly on the Technology provided resulting in faulty technology generating negative affective responses and which affected their take up of affordances. This is illustrated in the Technology fitted into the Meeting Rooms and Desks. There are three key forms of technology within the Meeting Rooms: Visual Display, its Booking System and Room Booking Panels.

Meeting Room - Visual Display

When the Visual Display technology worked seamlessly, participants felt happy, involved, in control, empowered, supported, collaborative, brilliant, productive and connected

¹⁸⁰Participants 31 and 34 in B1

¹⁸¹Participants 12 and 14 in B1

with others at external offices¹⁸². However, dysfunctional technology was the largest source of frustration for some participants in B2 and B3 with participants commenting that they encountered technology issues up to 50% and 30% of the time respectively¹⁸³. Even though the Concierge resolved these issues promptly in B3, one participant found it time consuming and going over time due to technology failures was not an option due to the booked-out rooms¹⁸⁴.

Meeting Room - Booking System

The Meeting Room Booking System was more of an issue in B2 than B3 as only one participant had issues receiving booking confirmations in B3¹⁸⁵. The Booking System in B2 received strong criticism with participants describing it as 'horrendous' and 'a shambles' earlier when they moved in but participants agreed that it had improved over time¹⁸⁶. Their main criticisms were that the Booking System did not display the room's type of technology or fitouts resulting in shock when participants arrived only to find that they could not conduct their intended activity¹⁸⁷. Triple booking of the same room resulting in confrontation and employees with higher rank emphasising that their meeting was of higher priority¹⁸⁸.

Meeting Room - Booking Panels

Dysfunctional Room Booking Panels were more of an issue in B3 than B2 as they were often out of order. This was observed by the researcher and the participants verified that it was a norm as it took a long time for them to be repaired. These affected their ability to take up the affordance to book Meeting Rooms conveniently for immediate room bookings and to identify if they were in the right room¹⁸⁹. Participant 51 in B3 discussed that sometimes the room booking panel indicated that the room was available but when they attempted to book it, they received an email from Concierge that it was

¹⁸²Participants 32, 33 and 34 in B1; Participants 12, 13, 14, 21, 32, 51, 52, 61, 62, 63, 64 and 65 in B2; Participants 11, 13, 23, 31, 32, 33, 34, 52 and 53 in B3

¹⁸³Participants 52 and 53 in B2; Participants 41, 61, 62, 63 and 64 in B3

¹⁸⁴Participant 63 in B3

¹⁸⁵Participant 53 in B3

¹⁸⁶Participants 21, 22, 23 and 63 in B2

¹⁸⁷Participants 21, 22, 23, 31, 32, 33 and 34 in B2

¹⁸⁸Participant 23 in B2

¹⁸⁹Participants 11, 13, 43, 52 and 53 in B3

unavailable. These made them feel disappointed and annoyed that even though they had great technology, it did not work and they could not take up those affordances offered by the Room booking panel¹⁹⁰.

Employees' affective responses towards the technology at the Desks in B2 were similar to those towards the Meeting Room's Visual Display in which they were highly positive when functional and highly frustrating when dysfunctional. However, the technology at Desks provides an insight that dysfunctional technology took a while to fix and the worksetting remains non-functional as a worksetting until someone logs a repair job for it to be fixed. However, not everyone that came across worksettings with dysfunctional technology logged a job as they did not know who to log a job with or did not want to log a job to avoid wasting more time. The lack of proactiveness in logging repair jobs for dysfunctional technology may be attributable to the lack of individual ownership over the worksettings resulting in a lack of responsibility. Participants expected the jobs logged to be fixed right away but they typically took several days¹⁹¹.

These show that proactive management of the technology within the ABW has to be undertaken to maintain employees' positive affective responses or reduce their negative affective responses over time towards the worksetting and their take up of affordances. This indicates a need for regular checks to capture unreported faults and prevent them, setting up a simple system for employees to log jobs and fixing them in a timely manner.

Whiteboards

The results of this research show that occupied whiteboards within the Outside Neighbourhood Non-confidential (ONN) worksettings and Neighbourhood Collaboration Areas displaced others requiring the worksettings' Visual Display contributed to negative affective responses for these worksettings. This is illustrated bellow using the whiteboards at the ONN.

Outside Neighbourhood Non-confidential worksetting (ONN) - Whiteboards

In both B1 and B3, participants expressed discontent over whiteboards that had writing on them that was not erased as it prevented them from taking up the affordances that they wanted to at the worksetting. Non-removal of whiteboard writing and low

¹⁹⁰Participants 51, 53, 61 and 64 in B3

¹⁹¹Participants 52 and 53 in B2

utilisation was observed throughout the whole observation period of which low utilisation may be attributable to the non-removal of whiteboard writing. Some whiteboards in B3 were 'reserved' with approval from the Concierge but participants explained that these Outside Neighbourhood Non-confidential (ONN) worksettings no longer served their purpose as the whiteboard could not be used for collaboration and it immediately turned it into a 'booked' space for the period (weeks, months) that the whiteboard is reserved for¹⁹². In B1, the whiteboards were occupied by the team sitting in the area next to them and several employees from other teams felt that this was team territoriality as they felt displaced from a space that was supposed to be shared ('it just does not feel like everyone's area'; have 'claimed the space to themselves because they have written all over the walls'; and they did not want to use another 'Business unit's office space.')¹⁹³.

These indicate that active management of whiteboards within the ABW was required to prevent team territoriality and team personalisation. Additionally, alternative solutions for teams that required Visual Display that they could return to has to be thought of instead of permitting whiteboards reservation for extended periods. Occupied whiteboards displaced others requiring the worksetting for its Visual Display and compromised the general affordance of flexibility within an ABW.

Meeting Room no-show bookings

As discussed earlier, Meeting Room availability was an issue in the case study organisations and part of this was attributable to no-shows as some users cancelled the meeting without cancelling the room¹⁹⁴. This contributed to negative affective responses as employees were displaced from taking up their intended affordances at the Meeting Rooms and this increased the space pressure on Meeting Rooms that were booked out weeks in advance. Therefore, the results indicate that an active management or an effective solution to prevent no-shows of the Meeting Rooms is required to manage employees' affective responses from being displaced

¹⁹²Participants 31 and 41 in B3

¹⁹³Participants 31, 34, 41, 42, 43, 44, 45 and 46 in B1

¹⁹⁴Participants 11, 12, 14, 21, 22, 23, 31, 32, 33, 34, 41, 42, 43, 44, 45 and 46 in B1; Participants 13 and 43 in B3

from Meeting Rooms, increase Meeting Room availability and increase Meeting Room utilisation.

Guidelines

Active management of the workplace guidelines that promotes and restricts employees' take up of affordances may also be required not just to push employees to comply but also to identify guidelines that may need to be reviewed over time and identify strategies to encourage compliance with the guidelines. For example, the Speech guideline in the Library was often not complied with resulting in a non-quiet environment. This may require monitoring and use of visual cues and signage to remind employees about the guidelines to maintain compliance with the Speech guidelines to increase employees' take up of affordances at the Library that will then increase utilisation from employees requiring a quiet working space (Skogland, 2017). Additionally, this includes educating new employees on the workplace guidelines and behavioural refresher programs for teams with high non-compliance levels. As team sizes change, the change in Neighbourhood Zone boundary may be required through a process to request for more space. Further detailed discussion on the workplace guidelines are covered in Chapter 7.

Space Pressure

Space pressure at worksettings that are highly in-demand, such as Desks and Meeting Rooms, was an issue that was more evident in B2 than B1 and B3. The higher space pressure in B2 was attributable to several reasons that have been discussed earlier and in discussions to come:

- More extensive space growth as they had moved in for a longer period (Section 5.3.4);
- Meeting rooms taken off-line (Section 5.3.4 and Section 6.2.1);
- Meeting room no-shows (Section 6.2.4 and Section 7.5.1.3);
- Emergent affordances taken up (Section 6.3.2);
- Individual and Team Territoriality (Section 7.4.1); and
- Non-compliance with guideline to clear worksettings when away for more than two hours (Section 7.5.1.2).

Whilst Desk shortages pushed employees to use other worksettings, such as the Drop-in Points¹⁹⁵, employees used them as long-term worksettings for extended periods, such as the

¹⁹⁵Participants 13, 14, 15 and 52 in B2

whole day, when they were only designed for short-term use of less than two hours. Therefore, the Desks and chairs were non-adjustable and non-ergonomic and were described as uncomfortable and lacking Occupational Health and Safety that resulted in many negative affective responses¹⁹⁶. Ongoing use of these worksettings that were not designed to accommodate these affordances for long periods may result in more Occupational Health and Safety issues within the workforce. This goes against the corporate real estate strategy to improve employees' health and wellbeing at the workplace. In some instances, high space pressure was only during early in the week¹⁹⁷. Therefore, space pressure requires monitoring and short-term alternatives with more ergonomic features and less distractions may be required during periods of high space pressure or during the interim before a long-term strategy is found.

6.3 Employees' Cognitive and Behavioural acceptance of the affordances within the ABW worksettings

This section discusses the participants' cognitive and behavioural acceptance towards the affordances designed for and taken up at each of the nine ABW worksettings to address Theoretical Propositions 4 and 5:

Theoretical Proposition 4 (TP 4): The intended affordances designed for by the Architects should have more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for. (addressed in Section 6.3.1)

Theoretical Proposition 5 (TP 5): The emergent affordances that have positive cognitive and behavioural responses are affordances that require few supporting worksetting features; and vice versa. (addressed in Section 6.3.2).

Participants' cognitive responses are captured in the discussion, their support score, whether they thought the worksetting was suitable, and their intent to continue using them. Participants' behavioural responses were captured in their take up of the affordances, response on frequency of conducting each activity at the worksetting and the observation study.

¹⁹⁶Participants 12, 13, 15, 31, 32, 33, 34, 51, 52, 63, 64 and 65 in B2

¹⁹⁷Participant 21 in B3

In general, participants who take up an affordance at a worksetting and scored it well typically indicated their suitability and intent to continue, whereas, those who scored the worksetting poorly typically did not take on those affordances and had no intent to start as they thought it was less than suitable for the activity. Predominantly, only responses that differ from this generalisation are discussed.

The written data collected on the employees' cognitive and behavioural responses for the affordances taken up at each worksetting is summarised in Table 6.3 and which is discussed in Section 6.3.1. The rows contain the list of 12 activity options (1st column) that were presented to the Architects and employees. Each organisation had a specific sub-row (2nd Column) within each activity to indicate whether that activity was an affordance designed by the Architects or taken up by the employees. Within the columns, there are 9 categories of worksettings identified and within each column, it has 2 sub-columns specifying whether the activity was the Architects' intent for that worksetting to accommodate that activity and the 'Results' column specifies whether the employees took on the particular affordance. Within the employees' results column, the first number indicates the support score out of 5 and the numbers in the bracket represents the number of participants that rated the worksetting.

Table 6.3: A summary of Architects' Designed affordances, Employees' Affordance Take up and the activity support score

		Meeting Rooms		Outside Neighbourhood non-confidential worksetting		Study Booth		Desks		Conferencing Pods		Neighbourhood Collaboration worksettings		Library		Drop-in points		Kitchen area	
		Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results
Ad-hoc Meetings	B1	Y	-	Y	4.3 (7)		NA	Y		Y	4.3 (6)	Y	3.9 (9)		3.4 (9)		NA	Y	
	B2	Y	3.0 (2)	Y	3.3 (14)	Y	3.7 (3)		4.0 (1)		NA	Y	3.7 (17)E 3.4 (17)NT 3.5 (17)N		NA	Y	3.5 (2)	Y	4.17 (6)
	B3	Y	4.6 (5)	Y	4.1 (12)	Y		Y				Y	4.6 (7)				NA	Y	
Audio Video Conference	B1	Y	4.0 (8)	-			NA			Y	4.5 (8)						NA		
	B2	Y	4.3 (12)	-		Y			1.0 (2)		NA		2.5 (2)		NA				
	B3	Y	4.4 (10)	-		Y	3.7 (6)		4.0 (1)	Y	4.3 (3)						NA		
Collaboration and Brainstorming	B1	Y	4.5 (2)	Y	4.3 (7)		NA	Y		Y	4.0 (4)	Y	3.9 (8)				NA	Y	
	B2	Y	4.1 (7)	Y	2.8 (8)		3.7 (3)		3.6 (9)		NA	Y	3.7 (18)E 3.5 (17)NT 3.9 (20)N		NA	Y	3.3 (4)	Y	4.5 (2)
	B3	Y	4.7 (3)	Y	3.7 (12)			Y	5.0 (1)			Y	4.4 (9)				NA	Y	
Confidential Discussion	B1	Y	4.4 (7)	-			NA										NA		
	B2	Y	4.3 (15)	-			4.5 (16)				NA				NA				4.0 (1)
	B3	Y	4.4 (10)	-					2.0 (1)				4.0 (1)				NA		

Table 6.3 (Continued...)

		Meeting Rooms		Outside Neighbourhood non-confidential worksetting		Study Booth		Desks		Conferencing Pods		Neighbourhood Collaboration worksettings		Library		Drop-in points		Kitchen area	
		Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results
Focused Work	B1	-	-	-			NA	Yb	3.7 (3)	Y			4.0 (1)	Y	2.0 (3)		NA		
	B2	-	-	-	4.0 (7)	Y	4.4 (21)	Yb	3.8 (18) 3.9 (20)b		NA				NA		2.6 (5)		
	B3	-	-	-		Y	3.0 (8)	Yb	2.0 (1)		5.0 (2)			Y	5.0 (4)		NA		
Hosting Non-employees	B1	-	-	-			NA										NA		
	B2	-	-	-							NA		3.6 (5)N		NA				3.5 (4)
	B3	-	3.0 (1)	-	2.5 (2)								1.0 (2)				NA		2.5 (2)
Informal Conversation	B1	-	-	Y	4.0 (3)		NA		4.0 (2)		5.0 (2)	Y	4.1 (7)		3.5 (7)		NA	Y	4.1 (7)
	B2	-	4.0 (3)	Y	3.6 (7)				3.3 (3)b		NA	Y	3.8 (11)E 3.8 (4)NT 3.8 (8)N		NA	Y	2.9 (18)	Y	3.7 (19)
	B3	-	-	Y	3.5 (2)							Y	5.0 (2)				NA	Y	4.6 (11)
Learning from Colleagues	B1	Y	4.7 (3)	-			NA	Y	4.1 (10)	Y	3.7 (3)		4.5 (2)				NA		
	B2	Y	2.8 (4)	-			4.8 (4)	Y	4.3 (6) 3.3 (3)b		NA	Y	3.0 (2)E 4.5 (4)NT 4.6 (7)N		NA		3.3 (3)		
	B3	Y	5.0 (1)	-				Y	3.7 (7)				5.0 (1)				NA		

Table 6.3 (Continued...)

		Meeting Rooms		Outside Neighbourhood non-confidential worksetting		Study Booth		Desks		Conferencing Pods		Neighbourhood Collaboration worksettings		Library		Drop-in points		Kitchen area	
		Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results	Architects' Intent	Results
Phone Conversation	B1	-	-	-			NA		4.2 (6)	Y	3.7 (3)		4.0 (2)		4.0 (4)		NA		4.0 (3)
	B2	-	4.3 (3)	-	3.3 (4)	Y	4.5 (14)	Y	3.1 (14) 4.2 (10)b		NA		3.3 (7)E		NA		3.0 (2)		2.8 (6)
	B3	-	-	-	4.0 (5)	Y	4.0 (2)		4.3 (7)	Y	4.3 (4)						NA		
Planned Meeting	B1	Y	4.6 (8)	-			NA			Y	4.2 (9)	Y					NA	Y	
	B2	Y	4.2 (19)	-		Y	3.8 (4)				NA	Y	2.5 (2)E 3.4 (7)NT 3.0 (5)N		NA			Y	3.67 (3)
	B3	Y	4.5 (15)	Y	4.2 (5)	Y			3.0 (2)			Y	4.0 (1)				NA	Y	4.0 (2)
Routine Task	B1	-	-	-			NA	Y	4.6 (9)					Y			NA		
	B2	-	-	-	3.5 (2)		4.7 (7)	Y	4.4 (21) 4.2 (16)b		NA				NA	Y	2.3 (20)		
	B3	-	-	-				Y	4.1 (17)	Y	5.0 (2)						NA		
Relaxing/ Taking a Break	B1	-	-	Y			NA										NA	Y	4.0 (9)
	B2	-	-	Y	4.6 (5)				1.0 (1)		NA	Y	3.9 (7)E 4.4 (8)N		NA		3.1 (7)	Y	4.1 (18)
	B3	-	-	Y	4.5 (4)							Y	4.0 (2)	Y	5.0 (6)		NA	Y	4.5 (6)

Table 6.3 (Continued...)

Legend:

b	For worksettings with barriers or enclosures
NA	Not applicable because the organisation does not have that worksetting
Y	Yes
E	The Edge
NT	Network Table
N	Nest
(X)	Number of participants that rated the worksetting

Figure 6.5: Excerpt from Table 6.3

		Meeting Rooms	
		Architects' Intent	Results
Ad-hoc Meetings	B1	Yes	-
	B2	Yes	3.0 (2)
	B3	Yes	4.6 (5)

Figure 6.5 is an example that has been selected to illustrate how to read Table 6.3 as it conveys that all the Architects for the three organisations intended for the Meeting Rooms to accommodate Ad-hoc Meetings ('Yes') but only the participants in B2 and B3 took up this affordance. Within B2, the two participants' average score for the Meeting Rooms was 3.0 for its level of support for Ad-hoc Meetings. Within B3, the five participants' average score for the Meeting Rooms was 4.6 for its level of support for Ad-hoc meetings. Further discussions explaining these scores are provided in the subsequent sub-sections.

Amongst all the affordances (intended or emergent), these were further differentiated into how well the worksetting supported the affordance - well, moderate, poorly. For the purposes of this research, support scores of 4.0 and above are interpreted as supported well, support scores between 3.5 to 4.0 are considered moderate support and support scores below 3.5 are considered poor support. It was found that participants responded positively when support scores above 4.0, responded neutrally when support scores were between 3.5 to 3.99 and responded negatively when support scores were below 3.5.

In some instances, the results were interpreted with caution as there were very few respondents (activity support scores with less than 3 respondents are marked with a *). However, these results are not eliminated as these indicate the potential of certain worksettings to accommodate activities that may only be recognised by a minority. In forming generalizations, activities and worksettings with only a few respondents are treated with caution, for example, if there were contradictory feedback, these are not be included in making the generalisations.

When the illustrations referred to space pressure, the observation results on Occupancy rates and Utilisation rates are drawn upon.

6.3.1 Employees' cognitive and behavioural response towards the intended affordances

Using the analysis of employees' cognitive and behavioural responses towards the various worksettings, this section addresses Theoretical Proposition 4.

Theoretical Proposition 4: The intended affordances designed for by the Architects should have more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for.

Employees' written cognitive and behavioural responses towards the intended affordances are summarised in Table 6.4 on the next page. Intended affordances that scored poorly for certain activities are shaded and cells that are hatched are not intended affordances. This table results are highlighted in the following discussions from Section 6.3.1.1 to Section 6.3.1.4 on intended affordances taken up.

The cognitive and behavioural results provide some support for this Theoretical Proposition. Whilst intended affordances were designed for and were more likely to score higher in employees' cognitive responses than emergent affordances that were not designed for, some intended affordances had mixed cognitive and behavioural responses across the organisations. In most worksettings, intended affordances taken up scored well for perceived support, were rated as suitable and participants intended to continue taking up the intended affordance. Whereas, employees who scored the worksetting poorly typically did not take on those affordances and had no intention to start as they thought that it was less than suitable for the activity.

Table 6.4: Summary of support score for intended affordances taken up by employees

		Meeting Rooms	Outside Neighbourhood non- confidential worksetting	Study Booth	Desks	Conferencing Pods	Neighbourhood Collaboration worksettings	Library	Drop-in points	Kitchen area
Ad-hoc Meetings	B1		4.3 (7)			4.3 (6)	3.9 (9)			
							3.7 (17)E 3.4 (17)NT 3.5 (17)N			
	B2	3.0 (2)	3.3 (14)	3.7 (3)					3.5 (2)	4.2 (6)
	B3	4.6 (5)	4.1 (12)				4.6 (7)			
Audio Video Conference	B1	4.0 (8)				4.5 (8)				
	B2	4.3 (12)			1.0 (2)					
	B3	4.4 (10)		3.7 (6)	4.0 (1)	4.3 (3)				
Collaboration and Brainstorming	B1	4.5 (2)	4.3 (7)			4.0 (4)	3.9 (8)			
							3.7 (18)E 3.5 (17)NT 3.9 (20)N			
	B2	4.1 (7)	2.8 (8)						3.3 (4)	4.5 (2)
	B3	4.7 (3)	3.7 (12)		5.0 (1)		4.4 (9)			
Confidential Discussion	B1	4.4 (7)								
	B2	4.3 (15)								
	B3	4.4 (10)								
Focused Work	B1				3.7 (3)			2.0 (3)		
					3.8 (18) 3.9 (20)b					
	B2			4.4 (21)						
	B3			3.0 (8)	2.0 (1)			5.0 (4)		

Table 6.4 (Continued...)

		Meeting Rooms	Outside Neighbourhood non- confidential worksetting	Study Booth	Desks	Conferencing Pods	Neighbourhood Collaboration worksettings	Library	Drop-in points	Kitchen area
Hosting Non-employees	B1									
	B2									
	B3									
Informal Conversation	B1		4.0 (3)				4.1 (7)			4.1 (7)
	B2		3.6 (7)				3.8 (11)E 3.8 (4)NT 3.8 (8)N		2.9 (18)	3.7 (19)
	B3		3.5 (2)				5.0 (2)			4.6 (11)
Learning from Colleagues	B1	4.67 (3)			4.1 (10)	3.7 (3)				
	B2	2.75 (4)			4.3 (6) 3.3 (3)b		3 (2)E 4.5 (4)NT 4.6 (7)N			
	B3	5 (1)			3.7 (7)					
Phone Conversation	B1					3.7 (3)				
	B2			4.5 (14)	3.1 (14) 4.2 (10)b					
	B3		4.0 (5)	4.0 (2)		4.3 (4)				

Table 6.4 (Continued...)

		Meeting Rooms	Outside Neighbourhood non-confidential worksetting	Study Booth	Desks	Conferencing Pods	Neighbourhood Collaboration worksettings	Library	Drop-in points	Kitchen area
Planned Meeting	B1	4.6 (8)				4.2 (9)				
	B2	4.2 (19)		3.8 (4)			2.5 (2)E 3.4 (7)NT 3.0 (5)N			3.7 (3)
	B3	4.5 (15)	4.2 (5)				4.0 (1)			4.0 (2)
Routine Task	B1				4.6 (9)					
	B2				4.4 (21) 4.2 (16)b				2.3 (20)	
	B3				4.1 (17)	5.0 (2)				
Relaxing/ Taking a Break	B1									4.0 (9)
	B2		4.6 (5)							4.1 (18)
	B3		4.5 (4)				4.0 (2)	5.0 (6)		4.5 (6)

Legend:

b	For worksettings with barriers or enclosures
E	The Edge
NT	Network Table
N	Nest
(x)	Number of participants that responded

This section begins with a discussion on the take up of intended affordances that supports the Theoretical Proposition followed by intended affordances with varying scores, intended affordances that were not taken up by employees and a worksetting that scored poorly for all intended affordances.

6.3.1.1 Intended affordances that scored well in support scores

The worksettings that scored well (4.0 and above) in all three organisations, allowing generalisations that these worksettings support the following affordances well were:

- Meeting Rooms- Audio Video Conference, Collaboration and Brainstorming, Confidential discussion, Planned Meetings;
- Study Booth- Phone Conversation;
- Desks- Routine Tasks;
- Conferencing Pods- Audio Video Conference; and
- Kitchen- Relaxing/ Taking a Break.

Similar to employees' positive affective responses that led to higher take up of affordances, the worksettings that scored well for the intended affordances above were either previously available in the assigned workplace office or had high level of enclosures affording more audio and visual privacy. The higher take up of intended affordances compared to emergent affordances indicated that the Implementation Process successfully captured a majority of the activities that employees conducted. Of the nine worksettings, Meeting Rooms was the only worksetting that scored above 4.0 for multiple intended affordances across the three organisations and Conferencing Pods were the only worksettings that performed well for all intended affordances. The positive cognitive responses for these were attributable to the worksetting features, such as technology and enclosures, that supported several intended affordances well.

Other intended affordances that scored well in the organisations that they were taken up at were:

- Outside Neighbourhood Non-confidential worksetting (ONN) - Planned Meeting (B3), Relaxing/ Taking a Break (B2, B3);
- Desks - Collaboration and Brainstorming (B3*);
- Conferencing Pods (B1, B3) - Ad-hoc Meetings (B1), Collaboration and Brainstorming (B1), Planned Meeting (B1), Routine Task (B3*);

- Neighbourhood Collaboration Worksetting – Relaxing/ Taking a Break (B3*)
- Library (B1, B3) - Relaxing/ Taking a Break (B3); and
- Kitchen – Ad-hoc Meetings (B2), Collaboration and Brainstorming (B2*).

Whilst no generalisations can be drawn from these because of the low response numbers, some of the cognitive and behavioural responses towards these intended affordances provides two insights on the designed worksetting features. Firstly, having several sub-types within one worksetting variety increases the number of intended affordances that are supported well. For illustrative purposes, it was found that the sub-types of ONN in B3 supported two intended affordances well even though they typically required very different supporting features (Planned Meeting and Relaxing/ Taking a Break). B3 had the largest variety of ONN Worksettings similar to van Meel, Martens and Ree's (2010) Work Lounges, Meeting Points, Small and Large Meeting Spaces. Some of B3's worksettings were sit or stand, had display screens, whiteboards that served as a barrier and writeable surface, varying levels of enclosure and were more concentrated towards the Kitchen or major circulation area.

Outside Neighbourhood Non-confidential worksetting (ONN) - Planned Meeting

B3's high score for Planned Meeting at the ONN is attributable to some worksettings set up quite formally resembling an unenclosed Meeting Room. Some teams also enjoyed their weekly team meetings in these spaces as it was more relaxed and informal whilst others expressed that using the ONN depended on their meeting agenda and technology needs¹⁹⁸.

Outside Neighbourhood Non-confidential worksetting (ONN) - Relaxing/ Taking a Break

Participant 41 in B3 mentioned that sometimes they started out using the ONN for Relaxing/ Taking a Break but it eventually turned into Collaboration. Others in B3 thought that the ONN were great to meet new people, relax and chat¹⁹⁹ indicating their take up of social affordances within the ONN.

Secondly, two forms of flexibility afforded by the Conferencing Pods were found to support Ad-hoc Meetings well in the two types of Conferencing Pods in B1 (group) and B3 (individual) – flexibility in the number of users accommodated and flexibility to accommodate ad-hoc activities as they were non-required booking in B1.

¹⁹⁸Participants 31, 52, 61 and 62 in B3

¹⁹⁹Participants 42, 43, 52 and 63 in B3

Conferencing Pods – Ad-hoc Meetings

Participants in B1 raised that the Conferencing Pods (for groups) were good for Ad-hoc Meetings as they could not be booked and they thought that the setup was relaxing, comfortable and semi-enclosed with technology for Visual Display when required²⁰⁰. Even though none of the respondents in B3 indicated on paper that they conducted Ad-hoc Meetings in the Conferencing Pods (individual), Participant 23 raised that they could fit several people in it and it was observed that users in B3 also conducted discussion-based activities at the Conferencing Pod resulting in the Conferencing Pods to be over-utilised at times.

Despite scoring well, there were a few intended affordances that had worksetting features with room for improvement. These are illustrated in the Conferencing Technology that supports Audio Video conferences and Soundproofing of enclosures in Meeting Rooms that supports Confidential Discussions.

Conferencing Technology - Audio Video Conferences

Two aspects of the Conferencing Technology that had room for improvement were the availability of Conferencing technology in B2's Meeting Rooms and the faulty speakers in B1's Conferencing Pods.

Unlike B1 and B3 that had Conferencing technology at two to three worksettings, B2 only had one worksetting with Conferencing Technology. Since Meeting Rooms in B2 were the only worksetting with Video conferencing facility, the Meeting Rooms were most suited for Video Conferencing as it was an activity that was described as too loud and messy for other open worksettings²⁰¹. However, availability was an issue as they were a 'massive challenge' to book²⁰². Some employees reported cancelling their Video Conference when they cannot get a room, going to another building close by to use their facilities²⁰³ or conducting them at less than suitable worksettings, as discussed under Emergent affordances.

²⁰⁰Participants 11, 12, 13, 14, 21, 23, 41, 44 and 46 in B1

²⁰¹Participants 23 and 32 in B2

²⁰²Participants 21, 22, 31, 32, 33, 34, 41, 43, 51, 52, 61, 62, 63, 64 and 65 in B2

²⁰³Participants 11, 12 and 13 in B2

Within B1, participants discussed that the Conferencing Pods with Conferencing technology were only suited to non-confidential Audio and Video conferences as the speakers were faulty²⁰⁴. The audio privacy of the Conferencing Pods in B1 were described as inferior to the Meeting Rooms because the speakers projected sound external to the Conferencing Pod instead of internally²⁰⁵. This resulted in the user turning the volume up to the point where employees in the adjacent Desk area described it as yelling and 'entertainment'²⁰⁶.

Enclosures in Meeting Rooms - Confidential Discussions

Despite scoring well, the participants in B1 and B3 described that their Small Meeting Rooms were inappropriate for group confidential discussions as its poor soundproofing afforded poor audio privacy and its transparent window panel facing major circulation routes afforded poor visual privacy²⁰⁷. Participants described that others in the adjacent room or outside could hear their confidential conversations²⁰⁸ and see everything²⁰⁹. Participant 22 in B1 intentionally conducted job interviews for potential employees outside the office for these reasons. Participant 43 in B3 described that even though they have taken their confidential discussion into a Meeting Rooms, it was not confidential at all. As Meeting Rooms are the only fully enclosed worksetting in the internal work area designed to accommodate groups, there was a lack of appropriate worksettings with the level and quality of enclosures required to support Confidential Discussions in B1 and B3.

This suggests that making improvements to the worksetting features post-moving in will increase the cognitive and behavioural responses towards the worksettings (Babapour, 2019b).

6.3.1.2 Intended affordances with varying scores

Despite the Architects' intentions, there were a range of intended affordances that scored well in one or two organisations but poorly in others. The cognitive and behavioural results have revealed several reasons for the varying scores ranging from designed Worksetting features,

²⁰⁴Participants 12, 14, 21, 31, 32, 33, 34, 42 and 46 in B1

²⁰⁵Participants 21, 23, 31, 32, 33, 34 and 44 in B1

²⁰⁶Participants 12 and 14 in B1

²⁰⁷Participants 12 and 33 in B1; Participants 41, 43 and 44 in B3

²⁰⁸Participant 12 in B1; 44 in B3

²⁰⁹Participants 12, 21 and 22 in B1

human behaviour, inconsistent communication of intended affordances, space pressure, preferences, conflicting intended affordances, time and social environment. Each of these are discussed in turn drawing on illustrations from the results.

As the worksettings and their designed features varied across organisations, this was a primary contributor to the varying scores of intended affordances between organisations. This was found in several worksettings and the intended affordances, such as Collaboration and Brainstorming and Ad-hoc Meeting at the ONN, Focused Work at Desks, Ad-hoc Meeting and Collaboration and Brainstorming at Neighbourhood Collaboration Areas and Focused Work at the Library. Ad-hoc Meetings at the ONN are illustrated here as they scored above 4.0 in B1 and B3 but only scored 3.3 in B2. This was attributable to the enclosures and positioning of the ONN.

Outside Neighbourhood Non-confidential worksetting (ONN) - Ad-hoc Meetings

Compared to the ONN in B1 and B3, B2 only had one type of ONN with three floor-to-ceiling enclosures along major circulation routes, whereas, the worksettings in B1 and B3 were either positioned in an area with less foot traffic (B1) or had a larger variety varying in formality or enclosure levels to suit different preferences of types of Ad-hoc Meeting requirements (B3). The low score in B2's ONN were due to the unsuitability for Ad-hoc Meetings attributable to the lack of confidentiality afforded (as some Ad-hoc Meetings were confidential) and distractions from the openness and positioning along major circulation routes. Some participants intended to stop using them for Ad-hoc Meetings²¹⁰. Some participants discussed that it was a great alternative for one-on-one meetings when the Meeting Rooms were unavailable but others would not meet in there for too long as it was physically uncomfortable²¹¹. Some participants highlighted that some passer-by interrupted their discussions and confronted them for conducting one-on-one meeting at the ONN indicating that the casual setup may give some employees a wrong idea that discussions there were not work-related²¹².

Another key contributor to the varying scores of intended affordances at the designed worksettings was unpredictable human behaviour that caused a suitable worksetting to be less

²¹⁰Participants 12, 13, 14, 23, 62 and 64 in B2

²¹¹Participants 31, 32, 33, 34, 41 and 53 in B2

²¹²Participants 12, 13 and 14 in B2

than suitable. A few illustrations are discussed. Two forms of unpredictable human behaviour were already discussed in earlier sections – the passer-by interruptions on Ad-hoc Meetings at the ONN and occupied whiteboards at the ONN and Neighbourhood Collaboration Areas preventing others who needed the whiteboards from taking up the intended affordances at those worksettings. Another unpredictable behaviour that distorted the Architects' intent for the Library was a participant in B3 that was reading in the Library being requested to leave the Library as one team wanted to use the Library as a Meeting Room even though this went against the guidelines and design intent of the Library²¹³.

Unclear or inconsistent communication of the Architects' intended affordances for certain worksettings also caused varying support scores of the Intended affordances as employees had a different perception of the intended affordances and how the worksettings should be used. There were minimal physical signs or cues provided to communicate the intended affordances to employees post-moving in as there were no use of colours or symbols and very few signs to communicate the intended affordances (Skogland, 2017). This was illustrated in Phone Conversations at Desks of which participants were unsure whether the Architects' intentions were for Phone Conversations to be supported or not. This caused conflicting cognitive and behavioural responses about the suitability of Phone Conversations at Desks in B1 and B2.

Desks - Phone Conversations

Phone Conversations at Desks were an intended affordance in B2 (4.2 in Cubicles and 3.14 in Desks) but scored better in B1 (4.2) and B3 (4.29) even though it was not an intended affordance in B1 and B3's non-Contact Centre teams. Phone Conversations were one of the more frequent activities in all three organisations due to the nature of some phone-based teams, such as the Contact Centre teams.

Due to the inconsistent communication or lack of communication on the intended affordances at the Desks, non-Contact Centre participants in all three organisations were divided on the suitability of Phone Conversations at the Desks with the majority taking phone calls at the Desks but a minority insisting that it is less than suitable and should be taken elsewhere²¹⁴. The majority thought that it depended on the type of phone call (work-related) and the length of phone call (short calls were tolerable) but related to the

²¹³Participant 63 in B3

²¹⁴Participants 21, 22, 23 and 52 in B2; Participant 31 in B1

minority that thought it was less than suitable due to the noise and distraction caused²¹⁵.

Two participants in B3 discussed that they had confronted colleagues when they were too loud, had more phone calls, took teleconference calls, or were taking personal calls requesting them to use other enclosed worksettings²¹⁶.

Even though the Cubicles in B2 were designed to be a quiet space for focusing, Phone Conversations was the highest scoring activity. Its enclosure helped to block out noise and disruptions and afforded audio privacy for confidential Phone Conversations with their customers making it the preferred worksetting for phone-based employees²¹⁷.

At certain worksettings, space pressure prevented users from taking up the intended affordances that they thought were suitable resulting in varying negative and positive cognitive and behavioural responses. As discussed earlier, worksettings such as the Meeting Rooms and Desks remain the most popular worksettings to conduct a wide range of activities causing them to face availability issues. Some of these were attributable to them being familiar worksettings to employees that were available in their previous assigned workplace indicating that employees may not have habituated themselves with taking up affordances at other worksettings in the ABW. Others were attributable to users being unable to leave their Desks due to landline phones within Contact Centre teams who conduct most activities at their Desks²¹⁸.

Varying cognitive and behavioural responses were also attributable to the same worksetting and features being perceived differently by the employees due to their preferences. In one instance, the Study Booth, the same participant also had paradoxical feedback about the same worksetting due to a mismatch of worksetting features - the same participants described that the enclosures made them feel too enclosed and confined but also too exposed for confidential work.

Study Booth – Focused Work

Focused Work was the most frequent intended affordance in both organisations in which participants in B2 (4.4) scored the Study Booth much higher than B3 (3.0) even though

²¹⁵Participants 31, 32, 41, 42, 51, 53, 61, 62, 63, 64 and 65 in B2; Participants 21, 22, 23, 24 and 64 in B3

²¹⁶Participants 13 and 44 in B3

²¹⁷Participants 51 and 64 in B2

²¹⁸Participants 11, 41, 42 and 43 in B3

their worksettings were highly similar. Across both B2 and B3, several participants indicated that the worksetting was less than suitable and intended to stop using it because it was too exposed for private and confidential work and the enclosure made them feel too closed in and confined (B2, B3), dizzy (B2), claustrophobic (B2, B3), disconnected (B2), challenging for others to approach them as users often have earphones on or were focusing and will get startled (B2), lacked natural lighting (B3), was too dark (B3) and uncomfortable due to the non-height adjustable desks (B3)²¹⁹. Whilst some of these seems paradoxical, it is due to the combination of transparent glass enclosure and blocked-out walls. The Architects may have designed the Study Booth with high architectural privacy (fully enclosed with floor-to-ceiling enclosure) but some employees' experience of privacy at the Study Booth contradicted the architects' design intentions (Oldham & Rotchford, 1983; Sundstrom, Burt, & Kamp, 1980).

Nevertheless, several participants thought that the Study Booth was great to get away from their team to work productively as they can be 100% focused, work peacefully and quietly especially when they had a 'big month or big week'²²⁰. Some participants in B2 turned the Study Booth into their own temporary office for a whole week and emailed their team to inform them on their whereabouts²²¹. Interestingly, Participant 42 in B2 mentioned that for them the Study Booth is too quiet and they leave the door open to reduce the quietness.

As B1 did not have any Study Booths, the participants discussed that the only enclosed space that they had for Focused Work was Meeting Rooms as there were no alternatives (Rolfö et al., 2018), unlike B2 and B3. Several participants in B1 expressed the need for a Study Booth as the Meeting Rooms were often unavailable, using Meeting Rooms for individual Focused Work was underutilisation and employees can hold small confidential discussions in there to free up more Meeting Rooms²²². Unlike B2 and B3, participants in B1 explained that they had no choice but to conduct Focused Work at the Desks as there were no other enclosed individual worksettings besides the Meeting Room that was often occupied²²³. Some participants reported conducting Focused Work in their car or

²¹⁹Participants 12, 13, 14, 15, 21 and 62 in B2; Participants 21, 23, 24, 32 and 42 in B3;

²²⁰Participants 21, 22, 23, 41, 42, 53 and 65 in B2

²²¹Participant 14 in B2

²²²Participants 12, 14, 33, 41, 42, 43, 44, 45 and 46 in B1

²²³Participants 31, 32, 33 and 34 in B1

travelled home to work at their Kitchen table using their personal devices which they thought was ridiculous as the ABW office should provide a quiet space for Focused Work²²⁴ (Keeling et al., 2015; Mosselman et al., 2009).

Participants' worksetting preference for Focused Work in B2 was the Study Booth, followed by the Cubicles and the Open Desks due to the increasing noise and disruption levels as openness level increases²²⁵. However, Participant 31 preferred the Open Desks for Focused Work as they were height adjustable.

The illustration above also highlights that employees' uptake of certain affordances may also be due to the employees' busy-ness as they only took up affordances at the Study Booth when they had a very busy period. Additionally, worksettings may have conflicting intended affordances causing the worksetting to not support any well. For example, the Study Booth in B3 were designed for Audio Video Conference that scored 3.7 and Focused Work that scored 3.0 in which Audio Video Conference are noisy and Focused Work requires silence. Due to the poor soundproofing of the Study Booth²²⁶, none of the two intended affordances performed positively at the Study Booth.

The social environment and their desire to be part of a social group also contributed towards the varied take up of affordances across organisations and employees' varied cognitive responses. This is illustrated in the Kitchen worksetting for Informal Conversations (further descriptions available in Appendix D).

Kitchen – Informal Conversations

Although the Kitchen did not score poorly for Informal Conversations (B1: 4.14, B2: 3.68, B3: 4.55), the descriptive feedback varied between organisations. In alignment with the support score, several participants in B3 discussed that the Kitchen in B3 encouraged conversations as it was a good central point that people 'collide' into others that they had never met before and lots of informal conversation happens there²²⁷. In contrast, the participants in B1 discussed that the social environment was not ideal as it did not encourage Informal Conversations with employees they did not know unless it was

²²⁴Participants 31, 33, 34 and 42 in B1

²²⁵Participants 21, 23, 34, 41, 42 and 43 in B2

²²⁶Participants 41, 42, 44, 51, 52 and 53 in B3

²²⁷Participants 11, 12, 13 and 64 in B3

related to the sports channel on the television²²⁸. Similarly, a few respondents in B2 rated the Kitchen quite poorly for supporting Informal Conversations and intended to stop using the Kitchen for Informal Conversation as they thought it was less than suitable²²⁹.

Another explanatory factor that contributed towards participants' varied take up of intended affordances was the time during the day or periods of busy-ness (Kim et al., 2016; Mosselman et al., 2009; Rolfö, 2018). Even if the worksetting was suitable but positioned in a high traffic area, its suitability of the intended affordance differed based on the time of the day as high foot traffic can be distracting making the worksetting less than suitable during lunch hour. This was found in B3's ONN for Collaboration and Brainstorming that scored 3.67. There were positive cognitive responses and it was identified by several participants as suitable for large group collaboration, available on ad-hoc basis and supported creativity²³⁰. However, the ONN was thought less than suitable for Collaboration and Brainstorming during lunch time due to its noise, traffic flow and distractions²³¹.

The eight reasons outlined above (designed Worksetting features, human behaviour, inconsistent communication of intended affordances, space pressure, preferences, conflicting intended affordances, time and social environment) explains the varying scores of intended affordances across organisations that requires consideration in the ABW Implementation Process pre- and post-moving in.

6.3.1.3 Intended affordances not taken up

In addition to the cognitive and behavioural responses towards the intended affordances of each worksetting, it was found that a range of intended affordances were not taken up by the participants even though they were designed to be supported by the Architects. These are summarised in Table 6.5 on the next page and labelled as 'NTU' in the columns.

²²⁸Participants 42, 43, 44, 45 and 46 in B1

²²⁹Participants 41, 42 and 43 in B2

²³⁰Participants 23, 32, 41, 42, 51 and 62 in B3

²³¹Participants 21, 22, 32, 34, 51 and 53 in B3

Table 6.5: Intended affordances not taken up by employees (as labelled 'NTU')

		Meeting Rooms	Outside Neighbourhood non-confidential worksetting	Study Booth	Desks	Conferencing Pods	Neighbourhood Collaboration worksettings	Library	Drop-in points	Kitchen area
Ad-hoc Meetings	B1	NTU			NTU					NTU
	B2									
	B3			NTU	NTU					NTU
Audio Video Conference	B1			NTU						
	B2			NTU						
	B3									
Collaboration and Brainstorming	B1				NTU					NTU
	B2									
	B3									NTU
Confidential Discussion	B1									
	B2									
	B3									
Focused Work	B1					NTU				
	B2									
	B3									
Hosting Non-employees	B1									
	B2									
	B3									
Informal Conversation	B1									
	B2									
	B3									
Learning from Colleagues	B1									
	B2									
	B3									
Phone Conversation	B1									
	B2									
	B3									
Planned Meeting	B1						NTU			NTU
	B2									
	B3			NTU						
Routine Task	B1							NTU		
	B2									
	B3									
Relaxing/ Taking a Break	B1		NTU							
	B2									
	B3									

During the discussions, it was revealed that some of these intended affordances were taken up by a few participants but not recorded in the paper-based data compiled in Table 6.5 because these were not the main, frequently conducted activity at the worksetting. This indicates that a small minority of employees may have taken up these intended affordances. Further analysis of the remaining intended affordances that were not taken up revealed a few reasons as to why this was the case.

Firstly, the availability and book-ability of the worksettings deterred participants' take up of the intended affordances. Some intended affordances which included planning in advance were not taken up at worksettings that could not be booked as these affordances required certainty over worksetting availability to notify all employees involved, whereas, intended affordances that were impromptu and unplanned were not taken up at worksettings that required booking due to low availability and booked-out worksettings. This was illustrated in the Meeting Rooms and participants' non-take up and low take up of Ad-hoc Meetings.

Meeting Rooms – Ad-hoc Meetings

The *Meeting Rooms* in B1 were often fully occupied or booked out by others. Due to the impromptu nature of Ad-hoc Meetings, these rooms were either unavailable or employees avoided them as they did not want to be requested to vacate (since the Meeting Rooms in B1 did not have a Meeting Room electronic panel, it was hard to tell when it was available or not)²³⁵. Similarly, from the intended affordances with varying scores, Ad-hoc Meetings performed quite poorly in B2* (3.0) relative to B3 (4.6) due to the lack of room availability as they were normally fully booked and unavailable for impromptu meetings on short or no notice²³⁶. Participant 21 in B2 expressed that even though no-shows were common occurrences, they will not use the Meeting Rooms on an Ad-hoc basis due to the fear of being removed from them. Some evidence was also found for the opposite in which participants discussed that the Neighbourhood Collaboration Worksetting in B1 was less than suitable for Planned Meetings because they could not be booked, and Planned Meetings required bookings in advance to secure the space²³⁷.

Secondly, some intended affordances were not taken up due to less than suitable worksetting features, such as the technology set up (Tagliaro & Ciaramella, 2016b). For instance, the Study Booth in B2 lacked Audio Video Conference technology for Audio Video Conference unlike the Study Booth in B3. Similarly, in B1, the single monitor in the Library was described as

insufficient and that the Desks' set up for VDI meant that employees on laptops cannot use the Library Desks²⁴¹.

6.3.1.4 Worksettings that did not score well for all intended affordances

The Architects planned for the Drop-in Points to support four intended affordances. However, only one intended affordance scored moderately, Ad-hoc Meeting (3.5). The other three intended affordances, Collaboration and Brainstorming (3.25), Routine Work (2.25) and Informal Conversations (2.89) did not score well despite the Architects' intent for the Drop-in Points to support these activities.

Drop-in Points

A few participants in B2 expressed their confusion over the worksetting and its features as they were unsure of the Architects' intended affordances and indicated its unsuitability towards those intended affordances. Even though the worksetting was set up to accommodate work-related activities, participants explained that its positioning next to the Kitchen, lifts and toilets made it undesirable for both work and non-work related activities²⁴² as reflected in the support score where Relaxing and Taking a Break (3.1) scored lower than some Work-related activities. Participant 41 went as far as describing that they hated them.

During the discussion, some participants raised that the Drop-in Points were suitable for Informal Conversations, socializing and were a good overflow of space for the Kitchen during peak lunch hours²⁴³ but users conducting work-related activities tend to get dragged into Informal Conversations by passers-by²⁴⁴. Due to the high levels of distractions in the high traffic area, Routine Work scored poorly even though some participants indicated its suitability to short-term Routine Work, such as replying to emails in between meetings²⁴⁵. Those who indicated that it was less than suitable for Routine Work could have been referring to long-term Routine Work at the Drop-in Points when employees could not find Desks within the neighbourhood²⁴⁶. This is reflected in

²⁴¹Participants 14, 32 and 42 in B1

²⁴²Participants 31, 32, 33, 34, 41, 51, 52, 63, 64 and 65 in B2

²⁴³Participants 13, 15, 31 and 32 in B2

²⁴⁴Participants 12, 13, 14, 15, 51 and 52 in B2

²⁴⁵Participants 12, 13, 14, 15, 51 and 61 in B2

²⁴⁶Participants 31, 32, 33 and 34 in B2

the observations where some users at the Drop-in Points used them across several observation periods, thus, pointing towards employees using them for medium and long-term working. The results indicated that the worksetting performed better for team activities rather than individual activities.

6.3.2 Employees cognitive and behavioural responses towards emergent affordances

This section provides support for Theoretical Proposition 5:

Theoretical Proposition 5: The emergent affordances that have positive cognitive and behavioural responses are affordances that require few supporting worksetting features, and vice versa.

This section begins with a discussion of the positive cognitive and behavioural responses followed by a discussion of the negative cognitive and behavioural responses towards the emergent affordances. Emergent affordances are those that were not designed for by the Architects but taken up by the employees. These emergent affordances taken up are summarised in Table 6.6 in which all shaded and hatched cells are irrelevant (as they do not relate to emergent affordances) and all grey-shaded cells highlight emergent affordances that performed poorly.

Table 6.6: Summary of emergent affordances taken up by employees

		Meeting Rooms	Outside Neighbourhood non-confidential worksetting	Study Booth	Desks	Conferencing Pods	Neighbourhood Collaboration worksettings	Library	Drop-in points	Kitchen area
Ad-hoc Meetings	B1							3.4 (9)		
	B2				4.0 (1)					
	B3									
Audio Video Conference	B1									
	B2				1.0 (2)		2.5 (2)			
	B3				4.0 (1)					
Collaboration and Brainstorming	B1									
	B2			3.7 (3)	3.6 (9)					
	B3									
Confidential Discussion	B1									
	B2			4.5 (16)						4.0 (1)
	B3				2.0 (1)		4.0 (1)			
Focused Work	B1						4.0 (1)			
	B2		4.0 (7)						2.6 (5)	
	B3					5.0 (2)				
Hosting Non- employees	B1									
	B2					NA	3.6 (5) N			3.5 (4)
	B3	3.0 (1)	2.5 (2)				1.0 (2)			2.5 (2)
Informal Conversation	B1				4.0 (2)	5.0 (2)		3.5 (7)		
	B2	4.0 (3)			3.3 (3)b					
	B3									

Table 6.6 (Continued...)

		Meeting Rooms	Outside Neighbourhood non- confidential worksetting	Study Booth	Desks	Conferencing Pods	Neighbourhood Collaboration worksettings	Library	Drop-in points	Kitchen area
Learning from Colleagues	B1						4.5 (2)			
	B2			4.8 (4)					3.3 (3)	
	B3						5.0 (1)			
Phone Conversation	B1				4.2 (6)		4.0 (2)	4 (4)		4.0 (3)
	B2	4.3 (3)	3.3 (4)				3.3 (7) E		3.0 (2)	2.8 (6)
	B3				4.3 (7)					
Planned Meeting	B1					4.2 (9)				
	B2									
	B3				3.0 (2)					
Routine Task	B1									
	B2		3.5 (2)	4.7 (7)						
	B3									
Relaxing/ Taking a Break	B1									
	B2				1.0 (1)		3.9 (7) E 4.4 (8) N		3.1 (7)	
	B3									

Table 6.6 (Continued...)

Legend:

b	For worksettings with barriers or enclosures
E	The Edge
N	Nest
	Emergent affordances that performed poorly
(X)	Number of participants that responded

Emergent affordances that scored well

The results supported Theoretical Proposition 5 as it was found that emergent affordances that required few supporting worksetting features were easy to accommodate at any worksetting resulting in positive cognitive and behavioural responses. These were typically affordances that were non-confidential, did not require full focus or concentration and had no requirements for formality, as illustrated in Phone Conversations at the Library in B1.

Library – Phone Conversations

Phone Conversations in B1's Library scored well (4.0) as conversational-type activities required little supporting features. The take up of these emergent affordances in the Library conflicted with the Architects' intended affordances and guidelines. Participants in B1 were aware that Phone Conversations were the exact opposite of the Architects' intended affordances as it disrupted others who were there for peace and quietness²⁴⁸.

Even though the Library in B1 was not a worksetting with audio privacy, Participant 13 explained that they took phone calls in the Library because they could not have their colleagues in the neighbourhood listen to their conversations indicating that this was a worksetting that was available within a suitable proximity from their neighbourhood. As discussed earlier, others explained that they were confused about the intended affordances as the worksetting design conflicted with the *Library etiquette* and the intended affordances for non-conversational activities (Skogland, 2017).

In addition to Phone Conversations in the Library in B1, two other conversational-type emergent affordances (Ad-hoc Meetings and Informal Conversations) were taken up in the Library of B1 that scored moderately (3.5-4.0 out of 5). Several participants felt

²⁴⁸Participants 11, 13, 14, 31, 33 and 34 in B1

confused about the intended affordance of the Library as the Library design was not an enclosed room next to high foot traffic that did not afford silence causing users not to comply with the guidelines by conducting conversational-type activities that went against the conventions of a Library²⁴⁹. The Architects intended for the Library to be a quiet space that accommodated short-term work similar to the Drop-in Points in B2 and individual Focused work in the semi-enclosed chairs. Some users in B1 were unhappy that some employees were using the Library for the opposite of what it was designed for as it disrupted the peace and quietness that they go there for²⁵⁰. The design of the Library conflicted with the workplace guidelines and intended affordance that the organisation intended in B1 (Skogland, 2017). There may have been less confusion if the Library was renamed as 'Drop-in Points' similar to B2 that acts as an overflow of space instead of their initial intention for users to accommodate quiet activities²⁵¹ since the Library lacked enclosure to keep noise out and was next to a major circulation route.

However, the cognitive and behavioural results of this research attributed employees' positive responses towards emergent affordances to two other factors. Firstly, some emergent affordances were taken up by very few participants indicating that some participants had preferences differing from the majority in terms of the supporting features they required. For example, conducting Focused Work in B1's Neighbourhood Collaborative worksetting that was fully open and along the major circulation route with high foot traffic. Secondly, some worksettings had more supporting features than the emergent affordances required. These were often highly enclosed formal worksettings with at least three sides of enclosure, such as Meeting Rooms, Outside Neighbourhood Non-confidential worksetting (ONN) in B2, Conferencing Pods and Study Booths. In addition to the range of intended affordances taken up at the Meeting Rooms and Study Booths, several other emergent affordances were taken up and performed well in B2's Meeting Rooms and Study Booths. For instance, these emergent affordances performed well in B2's Study Booths: Confidential Discussion (4.5), Learning from Colleagues (4.8) and Routine Task (4.7). A few participants in B2 explained that the Study

²⁴⁹Participants 21, 31, 32, 34, 45 and 46 in B1

²⁵⁰Participants 23, 31, 32, 33 and 44 in B1

²⁵¹Participants 12 and 23 in B1

Booth was great for quick Confidential Discussions because of the audio privacy afforded and the ease in finding a Study Booth compared to Meeting Rooms²⁵².

The emergent affordances taken up at the Study Booths and Conferencing Pods indicated their success in reducing space pressure on Meeting Rooms due to their enclosed nature and reduced underutilisation of Meeting Rooms if individual Video Conferencing was conducted in a 4-person Meeting Room. The Conferencing Pods in B1 was described as a 'great Meeting Rooms alternative' for small groups available on an ad-hoc basis and a favourite by some participants in B1 for non-confidential discussions²⁵³.

On the contrary, the emergent affordances taken up at the Meeting Rooms and Desks explains the space pressure on these worksettings as the number of these worksettings were installed based on the expected take up of intended affordances, not emergent affordances. The take up of emergent affordances at the Desks, such as Ad-hoc Meetings (B2*), Audio Video Conferences (B3*), Informal Conversation (B1*) and Phone Conversation (B1, B3), also indicates the lack of switching behaviour due to the convenience of conducting short discussions at their Desks or potentially the need for more Speech guidelines at the Desks. A few participants from all three organisations thought that Ad-hoc Meetings at Desks were inappropriate due to the conversational topic and it can get loud for extended periods of time²⁵⁴. Whilst there were a mix of cognitive responses with regards to the suitability of the Desks for Audio Video Conferences, participant 44 in B3 was against employees conducting Audio or Video Conferences at their Desks and has confronted some colleagues for it. It is unclear why some participants conducted Audio Video Conferences at their Desks but they may have thought that the semi-enclosed Cubicles were intended for Audio Video Conference. However, some low mobility teams indicated that they were unable to switch worksettings and that they conducted all types of team activities at their Desks because they could rarely take time away from their landline phones²⁵⁵.

²⁵²Participants 15, 32 and 42 in B2

²⁵³Participants 14, 21, 31 and 42 in B1

²⁵⁴Participant 13 in B1; Participant 61 in B2; Participants 11, 41, 42, 43 and 44 in B3

²⁵⁵Participants 11, 41, 42 and 43 in B3

Emergent affordances that scored poorly

The results support the antithesis of Theoretical Proposition 5 that is, emergent affordances that received negative cognitive and behavioural responses required more supporting worksetting features. These were typically work-related activities that required concentration, formality, confidentiality and multiple individuals that placed additional mental and physical demands on employees when the worksetting poorly supported their affordances (Been et al., 2015; Candido et al., 2016; Mosselman et al., 2009; Rolfo, Eliasson, & Eklund, 2017; Tagliaro & Ciaramella, 2016b; Wohlers & Hertel, 2017). These were activities such as Confidential Discussion, Hosting non-employees, Audio Video Conference, Planned Meetings, Phone Conversation and Learning from Colleagues.

Further investigation into why these poorly supported emergent affordances were taken up revealed that it was due to the workplace guidelines and worksetting availability restricting employees from using more suitable worksettings. One workplace guideline resulting in poorly supported emergent affordances was the Client Suites guideline. Without the worksetting guideline restricting employees' use of the Client Suites that better suits the affordances they intend to take up, employees would not need to take up emergent affordances at less suitable worksettings resulting in the poor support scores for these emergent affordances taken up.

Client Suites - guideline

Employees took up emergent affordances at worksettings, such as the ONN, Neighbourhood Collaboration areas and Kitchen, due to the Concierge's strict enforcement of the Client Suite guideline in B3. The Client Suite guideline permitted hosting clients. Therefore, employees were restricted in hosting non-employees that are not clients, such as meetings involving employees from other offices, at the Client Suites (the participants considered them as 'non-employees'). The inability to book a Meeting Room that was their most preferred alternative led to employees hosting non-employee meetings at their less preferred alternatives, Outside Neighbourhood Non-confidential worksetting, Neighbourhood Collaboration Worksetting and Kitchen that supported Hosting Non-employees poorly²⁵⁶. Participant 34 in B3 attributed the different perceptions of suitable affordances for the Client Suites to the lack of education during

²⁵⁶Participants 11, 13, 21, 31, 32, 34, 61, 63 and 64 in B3

the ABW Implementation Process. This indicates that some workplace guidelines may require review or exceptions to be made to allow for more flexibility to respond to the ongoing changes within the workplace. Furthermore, better communication of these workplace guidelines can prevent misinterpretation and conflict with the Concierge managing the Client Suites. A more detailed discussion on the Client Suite guidelines is conducted in Chapter 7.

The low availability of certain worksettings, such as the Meeting Rooms, Desks and worksettings with Conferencing facilities, resulted in employees taking up emergent affordances elsewhere at worksettings that poorly supported the emergent affordances (Kim et al., 2016; Mosselman et al., 2009; Rolfö et al., 2018; van der Voordt, 2004). For instance, the lack of Desks availability pushed employees to take up emergent affordances, such as Focused Work and Routine Task at the Kitchen and Drop-in Points²⁵⁷. This indicates that alternatives with more supportive affordances were required for worksettings with low availability. The lack of worksettings with Conferencing facilities in B2, that did not have Conferencing Pods, pushed employees to take up Audio Video Conferences at Desks and Neighbourhood Collaboration Worksettings on their laptop even though it was less than suitable²⁵⁸. Participant 23 expressed that conducting Audio Video Conference at the Neighbourhood Collaboration Worksetting was inappropriate due to the close proximity to the Desks as some users put their conferences on speakers that distracted everyone else working at the Desks.

Additionally, it is also possible given the affordances noted that some Ad-hoc Meetings may be confidential and some may not. Similarly, for Phone Conversations. This research suggests that sub-types in activities needs further consideration in the Implementation Processes to design worksettings and the quantities provided as confidential and non-confidential activities require different designed affordances explaining the low score of some emergent affordances. Some emergent affordances that performed positively and negatively can be explained by the sub-types within the activities resulting in them being represented under different activity headings. For example, some Team events like Morning Tea every Monday may have fallen under 'Planned Meeting' as it is planned, whereas, Team events like Celebrations or socializing

²⁵⁷Participants 12, 13, 14, 15, 31, 32, 51, 52 and 61 in B2

²⁵⁸Participants 13 and 32 in B2

may fall under 'Ad-hoc Meeting', 'Informal Conversation' or 'Relaxing/ Taking a Break' if it was an impromptu gathering²⁵⁹.

There were also a range of emergent affordances that performed moderately indicating that they were reasonable alternative worksettings for employees to conduct these activities. These worksettings may act as good overflow spaces in the short-run or on rare occasions that the intended worksettings are fully occupied.

6.4 Summary

This chapter reports on employees' acceptance of the various ABW worksettings that represents the physical features of the ABW and how they affect employees' take up of affordances. The chapter contributes theoretically in several ways. The main contribution is the defragmentation of the designed physical ABW features, how they affect employees' affective, behavioural and cognitive acceptance of the physical ABW features and drove employees' take up of affordances at each worksetting variety. Fragmented across several studies, the literature has identified some links between employees' inconsistent take up of affordances with some physical ABW features. However, none of the previous studies had researched the aforementioned contributions collectively in depth. This contribution was made possible by the Employee Acceptance Model designed to study employees' acceptance of the physical ABW features from the three psychological dimensions: affectively, behaviourally and cognitively.

The links validated and invalidated through the four Theoretical Propositions (TP 2-5) are summarised in Figure 6.6. These were enabled through the in-depth study on the suitability between the intended affordances designed into the various ABW worksettings, employees' acceptance and employees take up of affordances. The study of employees take up of affordances extends beyond the take up and non-take up of intended affordances to studying employees' take up of emergent affordances. This in-depth study revealed the contributors towards employees' take up and non-take up of affordances, including the worksetting features designed, employees' affective, behavioural and cognitive acceptance and the role of Phase 3 of the ABW Implementation Process.

²⁵⁹Participants 22, 43 and 46 in B1; Participants 13 and 52 in B3

The four Theoretical Propositions with roots drawn from the ABW Implementation Theory and Affordance Theory are:

Theoretical Proposition 2 (TP 2): Worksettings and features that generate positive affective responses translates into employees' behavioural take up of affordances resulting in higher demand and higher utilisation; and vice versa.

Theoretical Proposition 3 (TP 3): Post-moving into the ABW, ongoing maintenance and workplace management are often overlooked but are critical to sustain employees' affective responses and behavioural take up of affordances within the workplace.

Theoretical Proposition 4 (TP 4): The intended affordances designed for by the Architects should have more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for.

Theoretical Proposition 5 (TP 5): The emergent affordances that have positive cognitive and behavioural responses are affordances that require few supporting worksetting features; and vice versa.

In summary, the case study results partially support the Theoretical Proposition 2 that positive affective responses translated into employees' behavioural take up of affordances resulting in higher demand and higher utilisation, and vice versa. The worksettings that were found to have positive affective responses and higher take up of affordances were those that were previously available in their assigned workplace office or worksettings that are enclosed and afforded more privacy. The higher take up of affordances at worksettings that generated positive affective responses resulted in availability issues with varying consequences at required booking and non-required booking worksettings. Whilst the unavailable worksettings that were in-demand pushed others to take up other worksettings, some of these were not set up ergonomically for long-periods of working and went against the organisations' corporate real estate strategies to take up the ABW (health and wellbeing strategy).

Figure 6.6: Links between worksetting features and worksetting variety with employees' take up of affordances

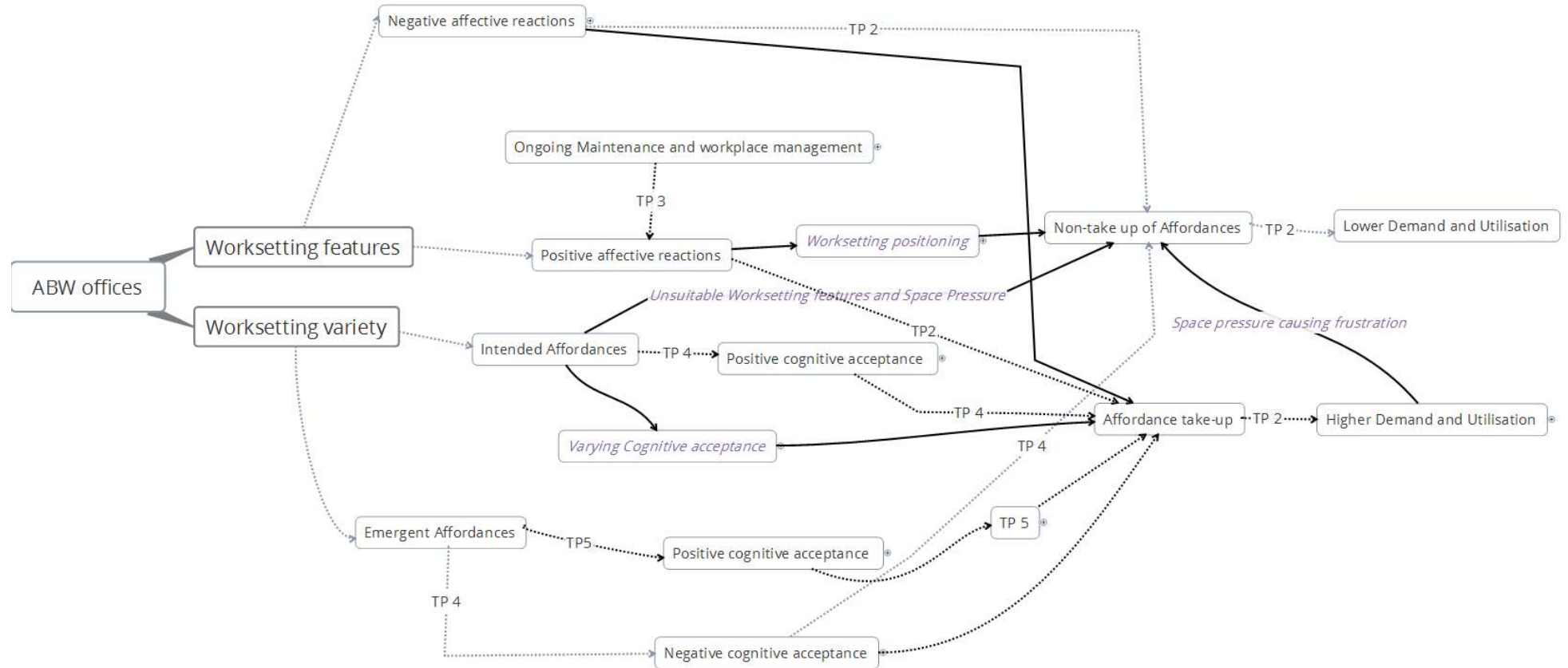


Figure 6.6 (Continued...)

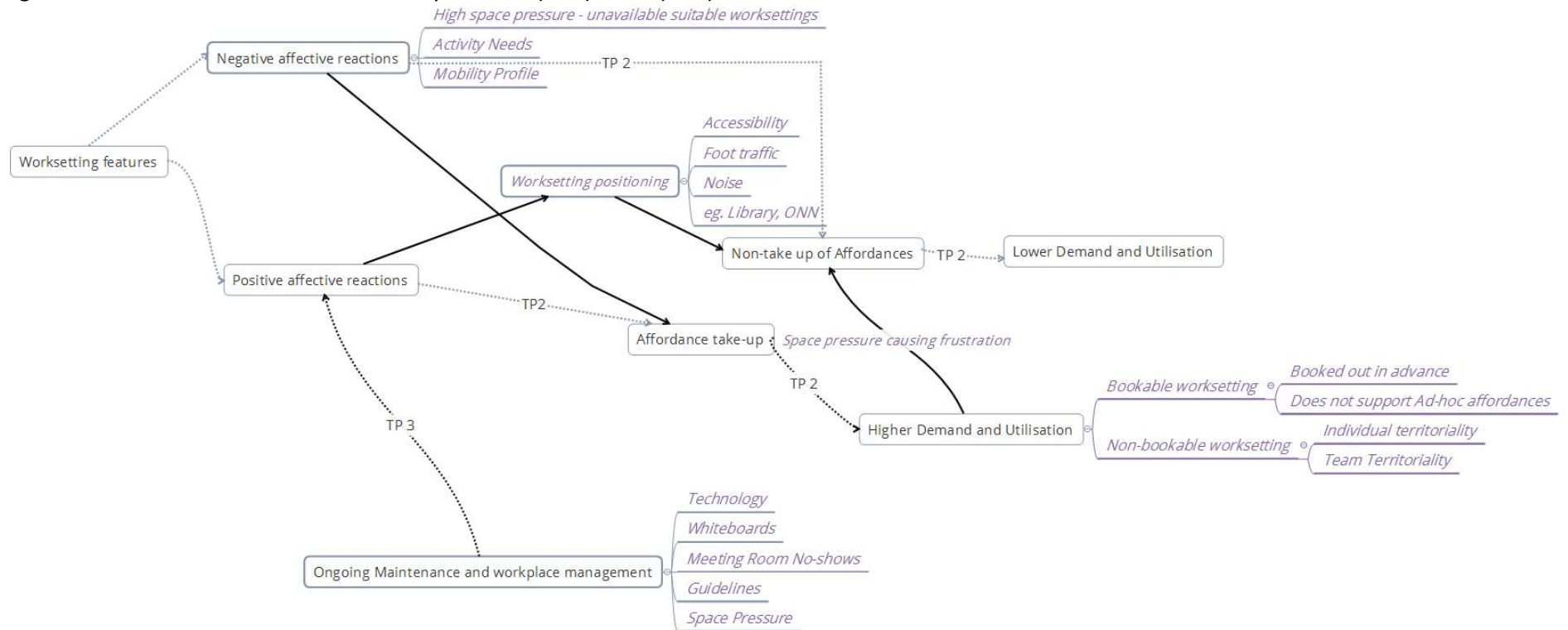
Legend:

	Theoretical Proposition proposed relationship not validated by the results
	Theoretical Proposition proposed relationship validated by the results
	Emergent relationship found from the results
<i>Italics</i>	Represents results found
TP	Theoretical Proposition

Additionally, positive affective responses did not always translate to high demand and take up of affordances resulting in low utilisation of certain worksettings. Of the nine various worksettings, there was only one worksetting that received unanimously negative affective responses, Drop-in Points. In general, most worksettings received a mix of affective responses with some worksettings receiving more negative affective responses than others resulting in lower take up of affordances and few availability issues. Contrary to the Theoretical Proposition, the lack of alternatives resulted in employees taking up affordances at worksettings that they had negative affective responses towards. The lack of alternatives was attributable to space pressure, employees' activity needs, no other available alternative worksettings and employees' low mobility profiles causing them to be Desk-bound. Additionally, there were a few stand out worksetting features contributing to employees' affective responses more so than others, such as worksetting enclosure, positioning and size that affected the openness perceived by employees, worksetting size and ergonomic features.

The case study results also support Theoretical Proposition 3 that ongoing maintenance and workplace management post-moving in is critical to sustain employees' affective responses and behavioural take up of affordances within the workplace. The post-moving in phase tends to be overlooked due to overspending on the pre-moving in phases of the ABW Implementation Process (Anderson & Ackerman-Anderson, 2010). The results identified that these worksetting features require more attention in the long-term management and maintenance of the ABW: technology, whiteboards, Meeting-room no-shows, guidelines and space pressure that ongoingly affect employees' affective responses and behaviour. The links validated in Theoretical Proposition 2 and 3 are summarised in Figure 6.7.

Figure 6.7: Links validated in Theoretical Proposition 2 (TP 2) and 3 (TP 3)



Legend:

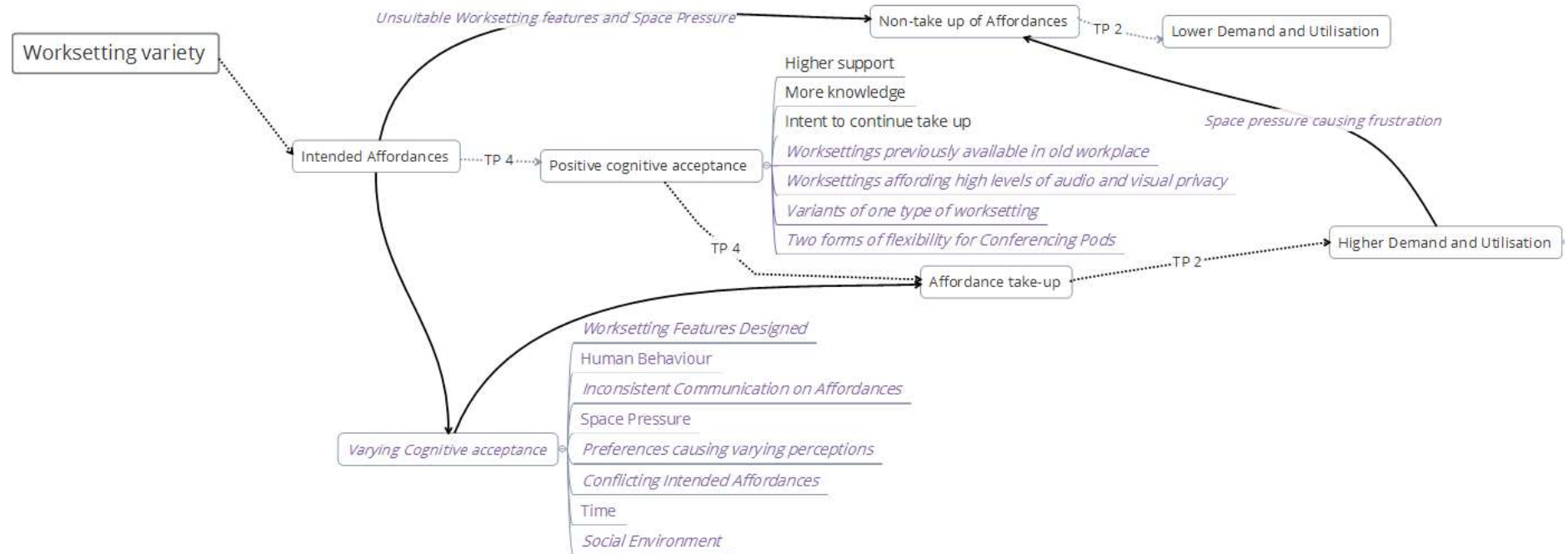
	Theoretical Proposition proposed relationship not validated by the results
	Theoretical Proposition proposed relationship validated by the results
	Emergent relationship found from the results
<i>Italics</i>	Represents results found
TP	Theoretical Proposition

With regards to Theoretical Proposition 4, the case study results provide partial support that intended affordances designed for by the Architects should outperform emergent affordances that were not designed for in terms of cognitive and behavioural responses. Intended affordances that received positive cognitive and behavioural responses often scored well for perceived support, were rated as suitable and participants intended to continue taking up the intended affordances. These results were attributable to high levels of enclosure and their availability in the previous assigned workplace. This is an indicator that the ABW Implementation Process successfully captured employees' worksetting needs for those affordances. Intended affordances that scored well in the three organisations enabled generalisations to be formed. There were also other intended affordances that scored well in one or two organisations. These revealed that having several sub-types within one worksetting variety within the ABW increases the number of intended affordances supported well and that there were two forms of flexibility afforded by Conferencing Pods generating positive cognitive responses – flexibility in the number of users accommodated and the flexibility to accommodate Ad-hoc activities. Despite scoring well, some worksettings had room for improvement in their features, such as their technology and soundproofing of the worksettings.

However, some intended affordances had mixed cognitive and behavioural responses across the three case study organisations. These can be attributed to the designed worksetting, human behaviour, inconsistent communication of intended affordances, space pressure, preferences, conflicting intended affordances, time and social environment. These requires consideration in the ABW Implementation Process.

It was also found that there were intended affordances not taken up. These were attributable to less than suitable worksetting features for the intended affordances, and the availability and bookability of worksettings. The availability and bookability of worksettings deterred the take up of intended affordances that were impromptu or unplanned. The opposite also applied such that intended affordances that are planned were not being taken up at worksettings that were non-required booking. The links validated in Theoretical Proposition 4 are summarised in Figure 6.8.

Figure 6.8: Links validated in Theoretical Proposition 4 (TP 4)



Legend:

	Theoretical Proposition proposed relationship not validated by the results
	Theoretical Proposition proposed relationship validated by the results
	Emergent relationship found from the results
<i>Italics</i>	Represents results found
TP	Theoretical Proposition

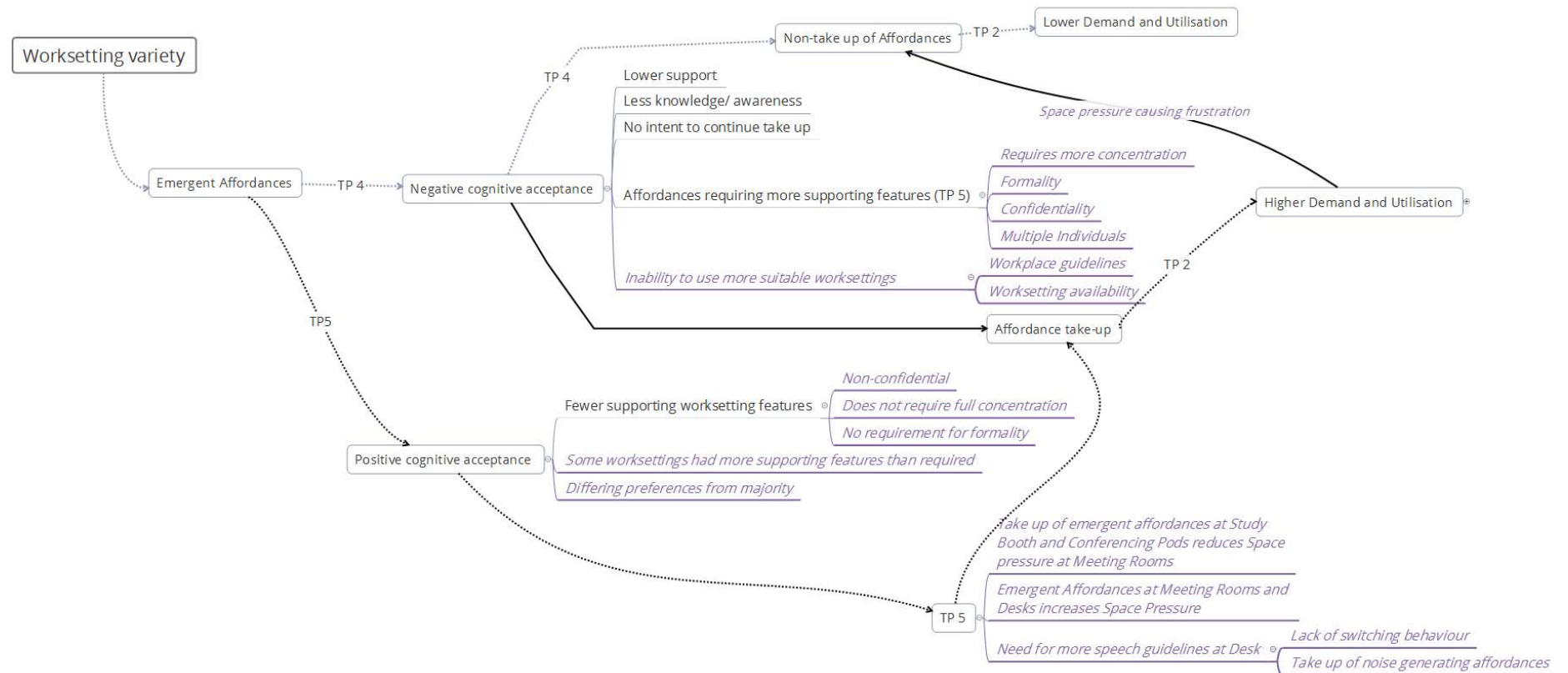
Of the nine worksettings, the Drop-in Points was the only worksetting that did not score well for all its intended affordances. Even though the intended affordances were taken up, participants attributed the poor support score to the less than suitable worksetting for the intended affordances, their confusion over the worksettings and the worksetting features, the high space pressure at Desks and users being dragged into conversations when conducting Routine Work at the Drop-in Points for extended periods.

In addition to the intended affordances, there were emergent affordances taken up that were not designed for by the Architects. The results supported Theoretical Proposition 5 that positive cognitive and behavioural responses towards emergent affordances were those that required few supporting worksetting features making them easy to accommodate and vice versa. Emergent affordances that were typically easy to accommodate were those that are non-confidential, did not require full concentration and had no requirements for formality. Two other contributing factors towards emergent affordances received positively were preferences of the minority that differed from the majority and some worksettings had more supporting features than the emergent affordances required. Emergent affordances taken up at Study Booths and Conferencing Pods was successful at reducing space pressure at the Meeting Rooms, whereas, emergent affordances taken up at the Meeting Rooms and Desks explains the high space pressure on these worksettings as these were unaccounted for by the Architects in designing the workplace.

As per Theoretical Proposition 5 put forward, emergent affordances that received negative cognitive and behavioural responses often required more supporting worksetting features. These were work-related activities that required concentration, formality, confidentiality and multiple individuals. Further investigation into why these poorly supported emergent affordances were taken up revealed that it was due to the workplace guidelines and worksetting availability restricting employees from using more suitable worksettings.

There were also a range of emergent affordances that performed moderately indicating that they were reasonable alternative worksettings for employees to conduct these activities at. These worksettings may act as a good overflow of space in the short-run or on rare occasions that the intended worksettings are fully occupied. The links validated in Theoretical Proposition 5 are summarised in Figure 6.9.

Figure 6.9: Links validated in Theoretical Proposition 5 (TP 5)

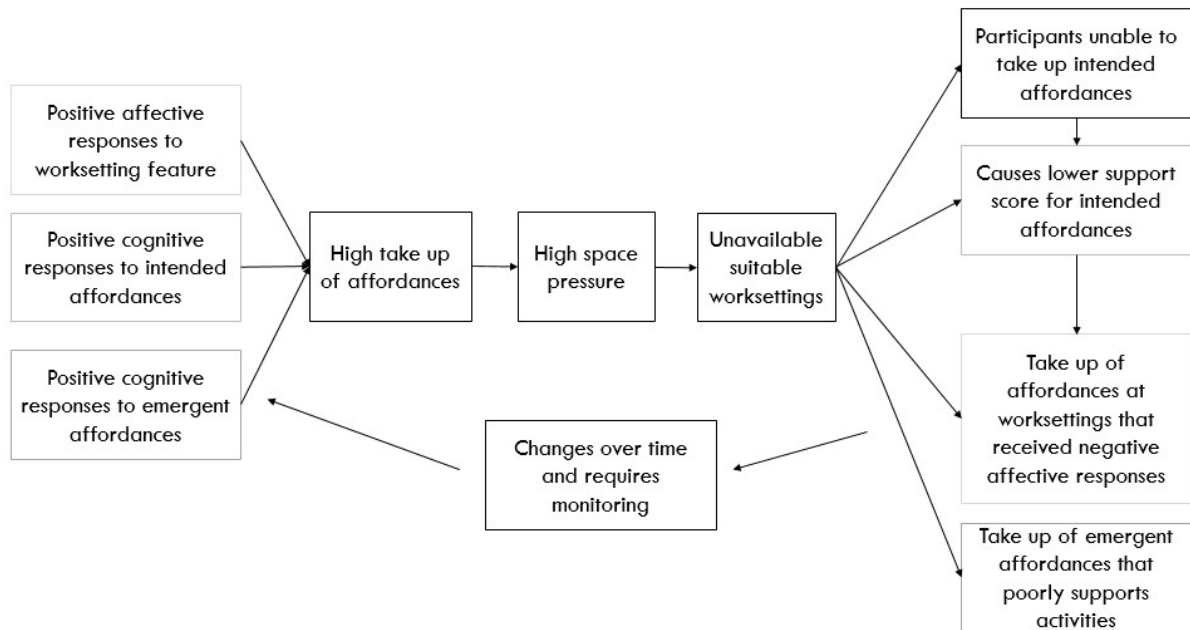


Legend:

	Theoretical Proposition proposed relationship not validated by the results
	Theoretical Proposition proposed relationship validated by the results
	Emergent relationship found from the results
<i>Italics</i>	Represents results found
TP	Theoretical Proposition

Collating the results in this chapter revealed that space pressure was the common driver across all the positive and negative affective, cognitive and behavioural responses to the ABW worksetting feature and the affordances taken up at the various worksettings as summarised in Figure 6.10.

Figure 6.10: The linkage of Space Pressure with positive and negative employee acceptance



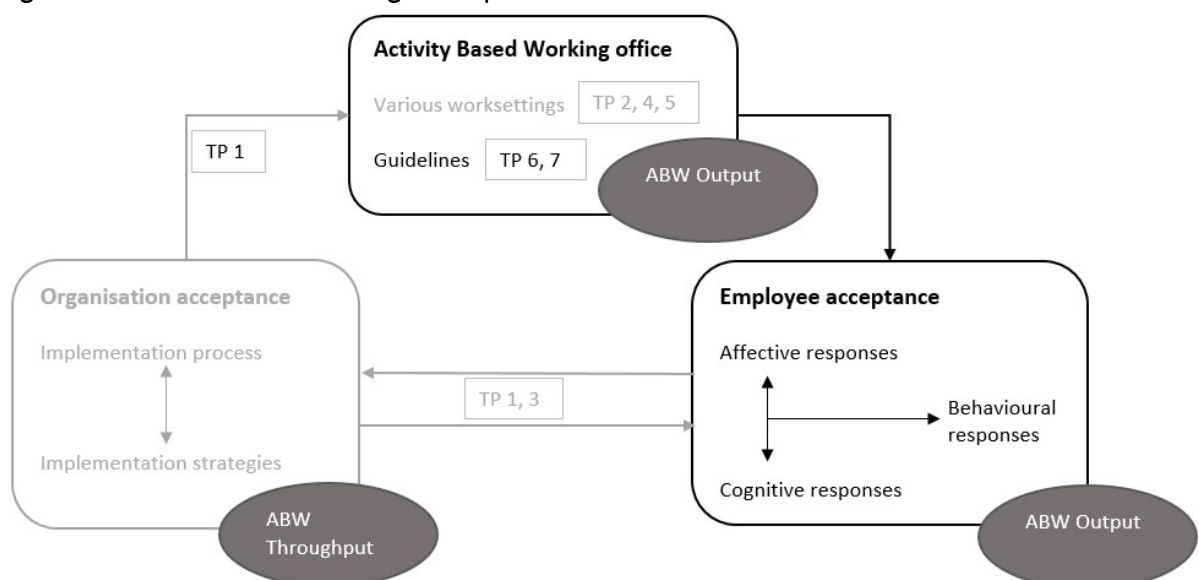
As the concept of ABW relies on a lower employee-workstation ratio compared to First and Second Generation workplaces, space pressure is higher in ABW offices. The study found that when employees form positive affective responses towards the worksetting features and positive cognitive responses towards the intended and emergent affordances at certain worksettings, it led to higher take up of affordances. The higher take up of affordances led to high space pressure at those worksettings resulting in unavailable suitable worksettings for employees to choose from as these worksettings were highly occupied. This resulted in employees' inability to take up intended affordances at their desired worksettings that caused lower support score; and employees' take up of affordances at worksettings that they had negative affective responses towards and take up of emergent affordances that poorly supported their activities. Collectively, these reinforces the importance of ongoing monitoring and active management of space pressure within ABW offices post-moving in.

7 ABW Outputs – Employees’ acceptance of the ABW Guidelines

7.1 Introduction

Reviewing the definition of an ABW office, it is an office that provides a variety of worksettings that are unassigned to individuals. Chapter 6 deals with the first part of the definition of ABW by reviewing the variety of worksettings that is more focused on the physical features of the ABW office and how it supports the various affordances. This chapter focuses on the second half of the definition of an ABW that is ‘unassigned to individuals’ but with a broader perspective through investigating the functional features of the ABW or the workplace guidelines that employees are aware of. The workplace guidelines facilitate the ABW functioning and how the workplace is used as they promote or restrict the take up of affordances. The absence of, or non-compliance with the workplace guidelines may result in a dysfunctional, chaotic workplace. Even though the workplace guidelines are intangible and non-physical, the literature identifies that they affect employees’ knowledge of them, their perceived affordances and take up of affordances. The theoretical positioning of this chapter is illustrated in Figure 7.1.

Figure 7.1: Theoretical Positioning of Chapter 7



As discussed in Chapter 3, the Theoretical Propositions that are in this chapter are Theoretical Propositions 6 and 7:

Theoretical Proposition 6 (TP 6): Employees' primary learning of the Workplace Guidelines is through their involvement in Phase 1 and 2 of the ABW Implementation Process.

Theoretical Proposition 7 (TP 7): Common issues generating negative acceptance of the ABW workplace guidelines are attributable to the lack of process informing new employees of the guidelines, ambiguity of guidelines and guidelines that are conflicting with the workplace design.

These Theoretical Propositions are addressed in Section 7.3 and Section 7.5 of this chapter based on a semi-grounded study undertaken. The results on architects' intended guidelines were gathered through Stage 1 of the Research Design, whereas, the results on employees' guidelines acceptance were gathered through Stage 2 of the Research Design as discussed in Section 4.8. This chapter begins with employees' cognitive awareness or knowledge of the workplace guidelines followed by how they learnt about them, a summary of employees' acceptance of the various categories of guidelines and a discussion on the issues with employees' ABW guidelines acceptance. This is the first research of its kind that deals with Research Gap 3 by investigating the end-users' acceptance of the ABW guidelines that affects their compliance and take up of affordances within the ABW.

7.2 Workplace guidelines

This section discusses the workplace guidelines that employees identified as part of their cognitive acceptance of the ABW and this is compared to the guidelines intended by the Architects, identified in the literature and their specificity to ABW. Overall, the guidelines that the participants are aware of form part of their cognitive acceptance of the ABW and its affordances can be divided into the following five categories from the semi-grounded analysis conducted:

1. Fundamental ABW guidelines -
 - i. Unassigned seating;
 - ii. Clean-desk policy; and
 - iii. Use of (individual) storage.
2. Complementary ABW guidelines -
 - i. Clear Worksetting if away for more than two hours;
 - ii. Neighbourhood zones;
 - iii. Two hours booking restriction;
 - iv. Paper Reduction and Minimisation;
 - v. Noise Management; and
 - vi. Flexible Working guideline.
3. Worksetting-specific guidelines -

- i. Desk etiquette;
 - ii. Client Area etiquette;
 - iii. Library etiquette; and
 - iv. Meeting Room etiquettes.
- 4. General guidelines -
 - 1. Ergonomics; and
 - 2. Hygiene.
- 5. An Emergent guideline –
 - 1. Booking System for non-required booking worksettings.

A descriptive summary of the individual guidelines in each category of guideline is provided.

Fundamental ABW guidelines

The guidelines that fall under Fundamental ABW guidelines are those on which the whole concept of ABW is built and without them, the concept of ABW is dysfunctional. These guidelines are exclusive to the ABW and not found in Assigned offices as they contradict those workplace concepts. Inherent in the definition of ABW is (i) Unassigned seating and to support this, the (ii) Clean-desk policy ensures that employees do not 'own' a personalised worksetting as these are shared resulting in employees' (iii) Use of (individual) storage to store belongings in their assigned locker. These are the critical guidelines to be communicated to employees through the workplace change management process to create awareness and equip employees with knowledge on the intended affordances that the guidelines restrict or promote. A brief description of each guideline is discussed in turn.

Unassigned seating was a guideline in all three organisations that promoted employees to take up affordances at a suitable worksetting of their choice and supported higher worksetting utilisation within the ABW. To support this, employees were not allowed to reserve worksettings for others. Only Anchors were assigned Desks and permitted to take up affordances at their Desks on consecutive days due to their type of work and technology requirements (Ekstrand, 2016; Gerdenitsch et al., 2018; Skogland, 2017) and for Occupational Health and Safety reasons (B2 and B3). Since Anchors were permitted to use the same Desk consecutively, the participants' interpretation of *Unassigned seating* were the restrictions on taking up affordances at the same Desk on consecutive days (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017) and the expectation to switch worksettings to take up affordances based on their activities.

Clean-desk policy ensures that every employee packed up their personal belongings at the end of everyday such that worksettings are left as found and available for other users (Brunia & Hartjes-Gosselink, 2009). In all three organisations, the organisation's representative

expressed that either the Cleaner or Concierge removed any belongings left on worksettings, such as Desks, at the end of the day and those in B3 will have to pick up their belongings from Concierge. Enforcement by the Cleaner or Concierge ensured consistency across the organisation and removed the need for managers to take charge of enforcing compliance (Skogland, 2017). The *Clean-desk policy* supports the *Unassigned seating* guideline to restrict consecutive take up of affordances at the same worksetting daily and for information security purposes. The requirement to remove all personal belongings also implied no personalisation of worksettings. Similar to the literature's findings, this guideline was unambiguous across the three case studies (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017) and also applied to Anchors (Skogland, 2017). This enabled other employees to take up affordances at Desks belonging to Anchors when the Anchor was absent, for employees within the Anchor team to switch Desks amongst themselves and to prevent a 'second class feeling' amongst non-Anchor employees.

Use of (individual) storage is more limited in the ABW relative to their previous office as all storage within the ABW are strictly allocated. The individual storage consisted of lockers allocated to each individual (in which they are not allowed to keep food), whereas, the team storage is typically allocated per team (typically close to or within their neighbourhood and dependent on the team's storage requirement) and shared storage referred to the cabinets in the Kitchen for staff to put their food items.

Complementary ABW guidelines

The Complementary ABW guidelines are those that facilitate the smooth functioning of the ABW to further promote or restrict take up of affordances through worksetting sharing, without which the concept of ABW can still function, but less smoothly. This is done through promoting worksetting sharing when away from the worksetting (*i. Clear Worksetting if away for more than two hours*) or by limiting use of certain worksettings (*iii. Two hours booking restriction*), provide teams with an area they can call their own (*ii. Neighbourhood zones*), promote respectful behaviour by managing noise within the various worksettings (*v. Noise Management*) and to promote more flexibility in and out of the office (*iv. Paper Reduction and Minimisation* and *vi. Flexible Working guideline*). A brief description of each guideline is discussed in turn.

The guideline to *Clear worksetting if away for more than two hours* was a guideline in B2 and B3 (not B1). The intention is to free up worksettings by restricting employees from occupying worksettings when away as it displaces others' take up of affordances.

Neighbourhood zones are the allocation of areas to teams or departments for colleagues in the same team or department to meet and encourage take up of affordances together within the Neighbourhood. The organisations intended for Neighbourhoods to be welcoming to all, including employees from other teams. Moving between Neighbourhoods to network or take up social affordances and take up affordances at worksettings unavailable within their Neighbourhood was also encouraged. These Neighbourhoods are self-managed and self-enforced by the departments or teams that have been designated to them but incorrect behaviours may be escalated further with upper management in B3. However, as space pressure increased in B2, the Property team highlighted to the employees that they should show courtesy and leave others' neighbourhood if they displaced someone from affordances, such as sitting with their team. This slightly contradicts the Architects' initial intentions to share across Neighbourhoods. Amongst the three organisations, B1 had the least physical identifiers of Neighbourhood zones as the floorplate consisted of long stretches of Desks along the windows segmented by planters. B2 had physical identifiers like signages and team personalisation at The Nest in each Neighbourhood, whereas, B3's Neighbourhoods are divided by walls and circulation routes.

Two hours booking restriction was intended by the three organisations to restrict employees from taking up affordances at those required booking worksettings for more than two hours. However, this guideline was only raised by the employees in B3 for all required booking worksettings (Study Booths and Meeting Rooms). The booking requests are sent through to the Concierge for approval and bookings beyond two hours are typically rejected. The Concierge will then speak to them about why they may need it for longer periods and explore alternatives. This guideline is a form of restriction on using scarce worksettings for extended periods (Babapour & Rolfö, 2019).

All three organisational representatives discussed that *Paper Reduction and Minimisation* was part of the change moving into the ABW as all individuals and teams had limited storage. All three organisations expected employees to minimise printing by using digital alternatives. The few key reasons for this were to minimise the amount of confidential information on paper to

lower their risks, reduce storage and environmental waste, and promote employees moving around to take up affordances at various worksettings more easily.

The intention of the *Noise Management* guideline was to encourage employees to reflect on their noise-generating activities and to decide on where to take them such that they do not disrupt others taking up affordances. Except for the Library in B1 and B3 (covered under *Library etiquette*), there were no explicit Speech guidelines in the other worksettings.

All three organisations intended for all employees to be offered *Flexible Working guideline* for more work-life balance but this was up to the managers in the individual teams. *Flexible Working policies* included providing employees with more flexibility in time and place (such as work from home options and non-standard working hours). This differed depending on their job scope and management team.

Worksetting-specific guidelines

These Worksetting-specific guidelines relied on the same underlying principles as the Fundamental ABW guidelines and Complementary guidelines that was to respect all users of the worksettings but specifies further detail to define some appropriate and inappropriate behavioural take up of affordances in these worksettings. A brief description of each guideline is discussed in turn.

The three organisations intended for employees to adopt certain *Desk etiquettes* to ensure that employees were courteous and respectful to their colleagues that were also undertaking affordances at the Desk. The expectation was that employees will mainly only use the Desk for computer work and restrict themselves from taking up noise-generating affordances at the Desks for prolonged periods by remove themselves from the Desks. Other *Desk etiquettes* also included no messy eating at Desks (with aromatic or spill-able food), reporting technological Desk issues (such as non-functional monitors), eliminating trip hazards by storing things underneath their Desks and in lockers and no reservation of Desks for colleagues.

Organisational representatives in all three organisations pointed out that the *Client Area etiquette* was to provide 5-star client services at the Client Area that was external to the internal work area. Employees were to inform Reception whenever they were going to have a visitor so that the visitors can be welcomed, and visitor parking prioritised for clients in B1. In B1 and B3, the take up of affordances at the Client Area was restricted to client meetings even when there were no Meeting Rooms available internally. Additionally, employees were

expected to be professional and careful with confidential documents, presentations conducted and whiteboards used in the rooms within the Client Area.

With the *Library etiquette*, both B1 and B3 intended for the Library to be a quiet-space with no interruptions such that only non-noise generating affordances are taken up. B1 permitted the use of technology, whereas, B3 intended for it to be a technology-free zone. This was the only worksetting in the ABW that had clear, explicit Speech guidelines. Over time, the Technology-free guideline in B3 was changed to allow technology to avoid printing and paper wastage²⁶⁰.

Meeting Room etiquettes was intended by all three organisations to facilitate and restrict the take up of affordances at the Meeting Rooms. Primarily, the organisations intended for all users to use other worksettings whenever possible to leave Meeting Rooms for those who may have technological or confidentiality needs, to cancel Meeting Rooms if they no longer needed them and to finish their meetings on time so that others can start on time. Organisations had different periods for recurring meetings. Additionally, the Meeting Rooms in B2 were managed by the booking panel that automatically released bookings if the attendees do not check in within 15 minutes to free up the Meeting Room for others to take up affordances there.

General guidelines

Two General guidelines that are not exclusive to ABWs were found and discussed in turn.

With regards to the *Ergonomics* guideline, all three organisations intended for their employees to take up the ergonomic affordances afforded by the worksettings (Desk, Chair and Monitor) to suit their own ergonomics whenever they switch worksetting (if ergonomic options are available).

With regards to the *Hygiene* guideline, the organisational representatives expected all employees to maintain a certain level of hygiene as a matter of respecting their colleagues to promote take up of affordances at various worksettings. The basics included cleaning up after themselves to restore the worksetting to the way they found it, such as washing their own dishes or putting them in the dishwasher, taking their cups to the Kitchen or wiping off any whiteboard writing. B1 went into more detail such as showering after exercising, staying away if they were sick and wiping down the Desk if they went home sick.

²⁶⁰ Participants 31 and 34 in B3

Emergent guideline

An Emergent guideline is a guideline that was not intended by the organisation but created by the employees. During the discussion with the participants, there was one guideline that were self-created by the teams in B2: *Booking System for Non-required booking worksettings*.

Participant 22 in B2 described that a Booking System for their Nest was created due to the high demand for them in their Neighbourhoods. The Booking System consisted of a 'time schedule' on the whiteboard in the Nest where employees fill out their names in the time slot they wanted. These indicate that employees are capable of improvising as space pressure within the office increases and when guidelines are lacking.

Comparison of workplace guidelines

Using a semi-grounded theory approach, this research investigated the workplace guidelines that employees are aware of that represents their cognitive knowledge on the ABW workplace guidelines. A comparison of the guidelines that employees are aware of with the guidelines intended by the Architects, guidelines identified in the literature and the specificity of the guidelines to ABW offices are summarised in Table 7.1.

Comparing the workplace guidelines that employees are aware of with the Architects' intended guidelines, only the Emergent guideline was unintended by the Architects. This is an indicator of success in their communication of the workplace guidelines through to the employees that are aware of them.

Table 7.1: Comparison of workplace guidelines identified by participants with Architects’ intentions, the literature and specificity to ABW

Guideline category	Workplace guidelines identified by employees	Guidelines intended by Architects	Evident in the literature as...	Specificity to ABW compared to assigned workplace offices
Fundamental ABW guidelines	<i>Unassigned seating</i>	Yes	Unassigned seating	Exclusive to ABW
	<i>Clean-desk policy</i>	Yes	Removal of belongings	Exclusive to ABW
	<i>Use of (individual) storage</i>	Yes	Implicit	Exclusive to ABW
Complementary ABW guidelines	<i>Clear worksetting if away for more than two hours</i>	Yes	Not evident	Exclusive to ABW
	<i>Neighbourhood zones</i>	Yes	Neighbourhood Zone	Non-exclusive to ABW
	<i>Two hours booking restriction</i>	Yes	Restrictions on using scarce worksettings consecutively	Non-exclusive to ABW
	<i>Paper Reduction and Minimisation</i>	Yes	Implicit	Non-exclusive to ABW
	<i>Noise Management</i>	Yes	Speech guidelines	Non-exclusive to ABW
	<i>Flexible Working guideline</i>	Yes	Flexible Working guideline	Non-exclusive to ABW
Worksetting-specific guidelines	<i>Desk Etiquette</i>	Yes	Implicit	Non-exclusive to ABW
	<i>Client Area etiquette</i>	Yes	Implicit	Non-exclusive to ABW
	<i>Library etiquette</i>	Yes	Speech guideline	Non-exclusive to ABW
	<i>Meeting Room etiquette</i>	Yes	Restrictions on using scarce worksettings consecutively & Implicit	Non-exclusive to ABW
General guidelines	<i>Ergonomics</i>	Yes	Implicit	Non-exclusive to ABW
	<i>Hygiene</i>	Yes	Implicit	Non-exclusive to ABW
Emergent guideline	<i>Booking System for non-required booking worksettings</i>	No	No	Not applicable

The workplace guidelines identified by the employees, in the fourth column, were compared to the guidelines identified in the literature from Section 2.1. Except for the Emergent guideline and Speech guidelines, all the guidelines identified in the literature were similar to those identified by the participants from the case study organisations. Since an Emergent guideline emerged from this study and was not previously identified in the literature, an Emergent guideline in this study referred to those self-created by the employees and unintended by the Architects. The Speech guidelines found in the case studies partially differed from those in the literature as the three case studies were less specific and less explicit about their Speech guidelines. Unlike the literature that had Speech guidelines identified for limiting the take up of affordances involving interaction with colleagues and speaking on the phone at different zones, these were limited in the case studies. The organisation intended for the employees to self-regulate by reflecting on the level of noise generated by the affordances they took up and retreating to the suitable worksettings for those affordances. Except for the Library, in which no interaction was allowed, there were no explicit Speech guidelines in the other worksettings. Employees may have benefitted from more clearly defined and explicit Speech guidelines (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017) since noise was reported as an issue in some worksettings and there was inconsistent knowledge about whether Phone calls were permitted at the Desks.

As this research adopted a semi-grounded approach of identifying the guidelines based on employees' knowledge and awareness of them, there were some guidelines that were implicit in the ABW literature labelled as 'implicit' in Column 4 of Table 7.1. Whilst these were not explicitly stated in the ABW literature as guidelines, they were implicit in the ABW strategic drivers instead of ABW guidelines, the way an ABW functions as per the definition of an ABW and how a workplace functions (non-specific to ABW). The guidelines that were implicit in the ABW literature are: *Use of (individual) storage* (Fundamental ABW guideline), *Paper Reduction and Minimisation* (Complementary ABW guideline), Worksetting-specific guidelines and General guidelines (*Ergonomics and Hygiene*). *Use of (individual) storage* and *Paper Reduction and Minimisation* were implicit in the literature as a feature of ABW and an Environmental sustainability strategic driver of adopting the ABW. With the Worksetting-specific guidelines and General guidelines, these may not have been identified explicitly in the ABW literature because they were non-exclusive to ABW offices.

The guidelines that are non-exclusive to ABW offices may also be found in non-ABW offices, such as assigned workplace offices, as identified in Column 5 of Table 7.1. However, guidelines that are non-exclusive to ABW offices are more critical in ABW offices than assigned workplace offices because the concept of ABW relies on sharing worksettings and these guidelines support the take up of affordances within the ABW by promoting a respectful and safe environment. The only guidelines that are exclusive to ABW offices are the Fundamental ABW guidelines and *Clear worksetting if away for more than two hours* under the Complementary ABW guidelines. Guidelines non-exclusive to ABW offices may differ slightly in their application and enforcement in ABW offices and non-ABW offices but these differences are outside the scope of this study. For instance, *Clean-desk policy* may be found in assigned worksetting offices such that employees are required to remove documents on their Desks for information-security purposes. However, employees in assigned worksetting offices are permitted to personalise unlike ABW offices that do not permit personalisation and require employees to restore the worksetting to the condition in which it was found.

7.3 Impact of the ABW Implementation Process on employees’ cognitive learning of the ABW guidelines

This section addresses Theoretical Proposition 6 using employees’ cognitive responses with regards to how they learnt about the ABW guidelines that promote and restrict employees’ take up of affordances.

Theoretical Proposition 6: Employees’ primary learning of the Workplace Guidelines is through their involvement in Phase 1 and 2 of the ABW Implementation Process.

The results partially support this Theoretical Proposition in which several learning channels from Phase 2 and Phase 3 of the ABW Implementation Process were identified (Babapour & Rolfö, 2019). Except for the Change Champions in B1, most employees were not involved in Phase 1 of the ABW Implementation Process. As a result, they reported not learning of the workplace guidelines from their involvement in Phase 1 and did not indicate any desire to be involved in Phase 1 to learn or influence the workplace guidelines.

The Guidelines’ learning channels were compared across the three organisations and summarised in Table 7.2. Understanding how employees learn about the workplace guidelines is critical to identifying the effective channels in communicating the intended workplace guidelines to the end-users that affects their awareness of the affordances within the ABW.

Table 7.2: Cross case comparison of Guidelines learning channels

	B1	B2	B3
<i>Intranet/ Social media</i>	Yes (1)	Yes (3)	
<i>Online Modules/ E-learning</i>		Yes (3)	Yes (7)
<i>Email</i>	Yes (1)	Yes (3)	Yes (5)
<i>Workshop sessions or Meetings</i>		Yes (2)	Yes (9)
<i>Building tours</i>			Yes (7)
<i>Pilot</i>		Yes (1)	Yes (7)
<i>Change Champions</i>		Yes (1)	
<i>Posters on walls</i>	Yes (4) pre-moving in	Yes (3) in ABW post-moving in	
<i>Information pack on Move-in Day</i>	Yes (7)		
<i>Previous experience from working in other ABWs</i>		Yes (2)	Yes (7)
<i>Observation of others and Trial & Error</i>	Yes (1)	Yes (4)	
<i>Word of mouth or by asking questions</i>		Yes (10)	
<i>Building Newsletter (containing behavioural refreshers or reminders)</i>		Yes (1)	
<i>Confrontation from Colleagues</i>			Yes (1)
<i>Concierge or Cleaners enforcement</i>	Yes	Yes (2)	Yes (2)

Legend:

(*number inserted*)	Number of participants that identified the workplace guideline learning channel
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Of those identified, several communication channels were from Phase 2 (Implementation of Workplace Change) of the ABW Implementation Process indicating their effectiveness and importance. These were: Intranet/ Social Media, Online Modules for E-learning, Email, Workshop sessions or Meetings, Building Tours, Pilot, Change Champions, Posters, and Information pack on Move-in Day (Babapour & Rolfö, 2019). These indicate that both electronic, physical and face-to-face communication channels ensured that a wide range of employees learnt about the guidelines. Employees who had previously experienced working in ABW offices identified their experience as their source of learning about the workplace guidelines. Employees also did not express a desire to be engaged in designing the workplace guidelines as most of them thought they were reasonable, unlike the results found in the literature on employees' desire to be engaged (Babapour & Rolfö, 2019). This difference in desire to be engaged may be due to a difference in culture between the Nordic countries and in Australia and New Zealand.

Post-moving into the ABW, several learning channels were identified, such as Observing others and Trialling it themselves, Word of mouth or asking questions, Building Newsletters, Confrontation and Enforcement by the Concierge or Cleaners. The first two have emerged naturally from the employees' own initiative and may be attributable to the number of participants that began working post-moving into the ABW as a new employee or from an internal transfer, whereas the latter three were from the organisation's ongoing efforts post-moving in. B3 was the only organisation which had the Concierge brief new employees on the ABW guidelines, whereas, both B1 and B2 left it up to the teams themselves. Whilst some participants that entered the ABW office in B2 discussed that the guidelines were not complex, the guidelines communicated through 'Word of mouth' from their colleagues were not always accurate resulting in inconsistent knowledge on the ABW guidelines. These indicate that ongoing efforts to sustain the desirable behaviours and take up of affordances for smooth functioning of the ABW post-moving in is required from the Facilities Management, the Concierge, Cleaners and Property team. Ongoing communication of workplace guidelines also provides employees with a reference point, continuous education and reminders of the intended workplace guidelines (Babapour & Rolfö, 2019).

Contrary to the Theoretical Proposition that employees' involvement in Phase 1 and Phase 2 is essential for employees' learning about the workplace guidelines, the results from this study indicate that the variety of learning channels in Phase 2 and Phase 3 are equally important and that learning channels in Phase 3 may act as a substitute for involvement in Phase 1. It was also found that participants were divided with regards to whether their involvement in Phase 2 of the Implementation Process influenced their learning about the guidelines²⁶¹. This indicates that participants learning about the guidelines through the communication channels in Phase 3 may be sufficient for some but various learning channels in both Phase 2 and Phase 3 ensure that all employees with differing needs are catered and provided for.

7.4 Employees' acceptance of the ABW guidelines

This section draws on the comprehensive results to provide a brief summary of Employees acceptance of the guidelines within the five categories, with more focus on the Fundamental ABW guidelines and Complementary ABW guidelines as this research contributes to the

²⁶¹Influenced their learning: Participant 51 in B2; Did not influence their learning: Participants 12 and 13 in B1, and Participant 52 in B2

knowledge about ABW. Each subsection includes a discussion on the employees affective, behavioural and cognitive responses towards them and consequences of the guidelines over time (if any).

In general, participants described that the guidelines felt like second nature to them and that they were simply being told to be adults and behave respectfully²⁶². There was more teething pain amongst employees that had previously been personalising their Desk for several years. The realisation of the benefits of ABW facilitated in changing their mindset and to work through the teething issues post-moving in²⁶³. This indicates that the guidelines have been assimilated cognitively and potentially behaviourally from as early on as one year post-moving in.

7.4.1 Fundamental ABW guidelines

Most employees including Anchors were aware of the three fundamental guidelines indicating alignment with the organisation’s intended affordances of the ABW. Table 7.3 below summarises the employees’ written affective and cognitive acceptance of the Fundamental ABW guidelines in which caution should be taken in interpretation of the statistics. Within each case study organisation, each guideline was identified whether it was a guideline as per the Architects’ intent (‘Intent’), the number of participants that identified these as a guideline (‘Total’), and the number of participants that liked it (‘L’), disliked it (‘D’) or felt neutral about it (‘N’).

²⁶²Participants 11, 12, 13 and 23 in B1; Participant 43 in B3

²⁶³Participants 11, 12, 13 and 14 in B2; Participants 11, 42, 43, 51, 52 and 53 in B3

Table 7.3: Fundamental ABW guidelines identified by employees and intended by the Architects

Fundamenta l ABW guidelines	ALL					B1				B2				B3			
	<i>Inten t</i>	<i>Tota l</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>	<i>Tota l</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>	<i>Tota l</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>	<i>Tota l</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>
Clean-desk policy and	All	62	77.4	8.1	14.5	17	76.5	11.8	11.7	24	87.5	0.0%	12.5	21	66.7	14.3	19.0
Unassigned seating	All	24	41.2; 75.0 A	32.4; 25.0 A	37.5	12	33.3	33.3	33.3	10; 4 A	60.0; 75.0 A	40.0; 25.0 A		12	33.3	25.0	41.7
Storage																	
<i>Individual</i>	All	10	70.0	0.0	30.0	1	100.0	0.0	0.0	5	80.0	0.0	20.0	4	50.0	0.0	50.0
<i>Team</i>	All	1	0.0	100.0	0.0	0				0				1	0.0	100.0	0.0
<i>Shared (Kitchen)</i>	All	1	100.0	0.0	0.0	0				0				1	100.0	0.0	0.0

Legend:

Intent	Architect's intended workplace guideline
All	All three organisations
L	Like
D	Dislike
N	Neutral
A	Anchor participants
	less than 5 respondents when all responses from the three organisations are totalled

From the employees’ affective responses, majority of the participants liked the *Clean-desk policy* and the *Use of (individual) storage* but there were mixed affective responses with *Unassigned seating*. The cognitive responses raised in favour of the Fundamental ABW guidelines resulting in compliance were attributable to:

- Superior and supportive work environment to take up affordances - cleaner and tidier, keeping the volume down at Desks²⁷⁰;
- Social affordances - networking opportunities afforded²⁷¹;
- Different way of working - worksetting that catered to their needs, pushes them to reflect on their day, prevent desk ownership, respectful towards their peers, people only take out what they need²⁷²;
- Occupational Health and Safety - pushes them to move around that was good ergonomically²⁷³ (Arundell et al., 2018);
- More flexibility in take up of affordances - in sharing worksettings, sitting with whomever required and moving around to various worksettings²⁷⁴(Babapour, 2019a); and
- Superior information security for confidential information²⁷⁵.

These align with the organisation’s intent for employees’ take up of affordances within the ABW, the guidelines that were designed to support it and the strategic drivers of why organisations adopt ABW. Whilst it was the organisations’ intent to provide a Superior and supportive work environment for employees’ take up of affordances, their main intention was to do this through the variety of worksettings instead of the cleaner, tidier and quieter environment at the Desks highlighted by the participants. These positive cognitive responses indicate that the organisation successfully conveyed the benefits of the guidelines and/ or the employees were able to recognise the importance for the existence of these guidelines to promote the take up of affordances.

²⁷⁰Participants 21, 23, 31, 32, 44 and 46 in B1; Participants 21, 33, 34, 41, 43, 51, 61, 64 and 65 in B2; Participants 13, 33, 42, 52, 53, 61 and 62 in B3

²⁷¹Participant 46 in B1; Participants 12 and 65 in B2

²⁷²Participant 43 in B1; Participants 15, 31, 52 and 62 in B2; Participants 11 and 24 in B3

²⁷³Participant 15 in B2; Participants 24 and 42 in B3

²⁷⁴Participants 31, 34 and 45 in B1; Participants 11 and 63 in B2; Participants 21, 31 and 61 in B3

²⁷⁵Participants 41 and 44 in B1; Participant 61 in B2

The cognitive responses for disliking the guideline and/ or not complying was due to:

- Lack of storage - individual (for personal belongings and work-related items); and team (for one team in B3 that received a fair bit of merchandise)²⁷⁶;
- Technology limitations limiting the take up of affordances - in B1 some Desks had VDIs and others had laptops, teams that are Desk-bound due to landline phones or call centre phones, and poor connectivity at certain worksettings²⁷⁷;
- Work culture/ system - ‘Buddy-system’ in which new employees are assigned a more senior employee to work with that limited the Desks they could take up affordances at that suited both employees’ technology system²⁷⁸;
- Inefficiencies²⁷⁹ from lack of paper material²⁸⁰, packing and unpacking (when they sat in the same seat all week)²⁸¹, not personalising²⁸², resolving technological issues from moving around to take up affordances, looking for available worksettings as the availability of some worksettings are poorly identified²⁸³, looking for colleagues and inability to collaborate or communicate with colleagues that were not sitting close to them requiring more communication effort²⁸⁴ (Babapour, 2019a);
- Social mis-affordance - isolation from peers²⁸⁵ although the Neighbourhood zones helped keep the team together and provided some flexibility and familiarity; and
- Lack of personalisation (with personal belongings and internal environment quality) - made them feel ‘more empty and robotic’ and ‘not homely’²⁸⁶.

Those who felt neutral generally liked some of the positives but disliked some of the negatives, did not really mind or had no preference²⁸⁷.

²⁷⁶Participants 13 in B1; Participants 21, 23, 24 and 31 in B3

²⁷⁷Participants 12, 21 and 23 in B1

²⁷⁸Participants 22 and 23 in B1

²⁷⁹Participants 31, 33, 43 and 44 in B1

²⁸⁰Participant 44 in B3

²⁸¹Participant 65 in B2; Participant 51 in B3

²⁸²Participants 32 and 61 in B3

²⁸³Participant 34 in B2

²⁸⁴Participants 12, 21, 22, 43 and 44 in B1; Participants 12 and 43 in B3

²⁸⁵Participants 21 and 22 in B2; Participant 44 in B3

²⁸⁶Participants 42 in B1; 21, 22, 41, 42 and 43 in B2; Participants 32, 41, 43, 51, 53 and 61 in B3

²⁸⁷Participants 31, 32, 33, 34, 43 and 44 in B1; Participants 12, 32, 34, 61, 62, 63, 64 and 65 in B2; Participants 12, 41, 43, 44, 52 and 53 in B3

Some consequences that developed over time were:

- Space Pressure:
 - Reserving Desks for their team (B2) resulting in increased space pressure²⁸⁸;
 - Space pressure displaced others who arrived late from taking up their desired affordances making it a non-family friendly environment or late-arrival unfriendly environment (as some people went off for meetings before arriving)²⁸⁹;
 - Inequality as leaders were allowed to have Desks reserved²⁹⁰;
- Anchor Desks:
 - Not all Anchor Desks could be shared due to confidentiality of discussions unlike the organisation intent²⁹¹;
 - Challenging to identify whether Anchor Desks employees are around to show or indicate whether others could use their Desks (B2)²⁹²;
- Individual Territoriality:
 - Nesting behaviour such as employees gravitating towards a certain Desk²⁹³, ‘self-declared’ Anchors and the tension that arises when they do not get ‘their’ Desk²⁹⁴;
 - Users coming to work early to occupy their preferred worksetting in B2 and B3²⁹⁵ (Kim et al., 2016); and
- Occupational Health and Safety risks - people leave things around due to insufficient storage²⁹⁶.

Some of these consequences, such as Space Pressure and Individual Territoriality, are non-compliance with the guidelines (Babapour, 2019a). The limited storage has resulted in unintended consequences, such as Occupational Health and Safety risks and environmental wastage. Despite the organisation intent for Anchor Desks to be shared for others to take up

²⁸⁸Participants 52 and 53 in B2

²⁸⁹Participants 14 and 23 in B1; Participants 21, 22, 23, 53, 61, 62, 63, 64 and 65 in B2; Participant 33 in B3

²⁹⁰Participants 52 and 53 in B2

²⁹¹Participants 52 and 53 in B2

²⁹²Participant 52 in B2

²⁹³Participant 12, 13 and 14 in B1; Participant 51 in B3

²⁹⁴Participants 12, 21, 22, 31, 32 and 34 in B1

²⁹⁵Participants 22, 41, 43 in B2; 43 and 44 in B3

²⁹⁶Participants 21, 23, 24 and 31 in B3

affordances at those Desks when Anchors were not around, this was not as simple as the Architects' intent. The other Anchors present did not allow anyone else to sit at those Desks due to the confidentiality of their discussions. With increasing space pressure, teams have started to develop a Team territoriality mentality, coming up with strategies and behaving defensively over their Neighbourhood Zone. Employees' nesting behaviour resulted in a non-family friendly environment as employees arriving on time or later could not sit at Desks and take up affordances close to their team and organisations were potentially benefitting from employees working unpaid overtime from coming in early that may also have adverse effects on their work-life balance.

7.4.2 Complementary ABW guidelines

Employees' written affective and cognitive acceptance of the Complementary ABW guidelines are summarised in Table 7.4 below. From the employees' affective responses, the majority of the participants liked the guideline to *Clear their Desk if away or more than two hours*, *Neighbourhood zones*, and *Noise Management* guidelines but there were mixed affective responses for the *Two hours booking restriction*.

Table 7.4: Complementary ABW guidelines identified by employees and intended by the Architects

Complementary ABW Guidelines	ALL					B1				B2				B3			
	Intent	Total	L (%)	D (%)	N (%)	Total	L (%)	D (%)	N (%)	Total	L (%)	D (%)	N (%)	Total	L (%)	D (%)	N (%)
Clear desk if away for more than 2 hours	B2, B3	9	55.6	22.2	22.2	0				4	75.0	0.0	25.0	5	40.0	40.0	20.0
Neighbourhood zoning	All	14	78.6	7.1	14.3	5	60.0	20.0	20.0	6	83.3	0.0	16.7	3	100.0	0.0	0.0
Two hours booking restriction	B3	6	16.7	33.3	50.0	0				0				6	16.7	33.3	50.0
Paper reduction and minimisation	All	0				0				0				0			
Noise management	B1, B3	9	88.9	0.0	11.1	5	80.0	0.0	20.0	1	100.0	0.0	0.0	3	100.0	0.0	0.0
Flexible Working guideline	All	2	100.0	0.0	0.0	0				1	100.0	0.0	0.0	1	100.0	0.0	0.0

Legend:

Intent	Architect's intended workplace guideline
All	All three organisations
L	Like
D	Dislike
N	Neutral
	less than 5 respondents when all responses from the three organisations are totalled

As these guidelines are complementary to the Fundamental guidelines, it is unsurprising that most of the reasons for liking and disliking these guidelines and the consequences are similar to those in the Fundamental ABW guidelines. Therefore, these are discussed briefly to avoid over-repetition. The cognitive responses explaining the positive affective responses towards the Complementary ABW guidelines were attributable to:

- Superior and supportive work environment for take up of affordances – cleaner, shared and conducive environment to concentrate with less distractions, more respectful and able to obtain more privacy²⁹⁷;
- Team environment through Neighbourhood zones - kept team together, provides flexibility and familiarity, prioritises team and provide employees the security of having a designated area²⁹⁸;
- Less paper made them more agile to take up affordances around the ABW²⁹⁹; and
- Enabled them to maintain a work life balance and made the most out of those around the office³⁰⁰.

On the contrary, the cognitive responses attributable to the negative affective and behavioural responses towards the Complementary ABW guidelines were due to:

- Lost productivity if they had to pack and unpack, cannot sit with someone they had to collaborate with, cannot take up affordances at a worksetting they needed when they were not displacing anyone (due to booking restrictions in B3) and technological needs³⁰¹;
- Loss of productivity from reduced paper consumption;
- Isolated from main contact points if they worked across several teams as they did not fit in with any teams and did not have their own team area (B1)³⁰²; and
- Challenges in anticipating which colleague are in³⁰³.

²⁹⁷ Participant 34 in B1; Participants 43, 52, 53, 61 and 64 in B2; Participants 12, 15, 31, 32 and 63 in B3

²⁹⁸ Participant 21, 34 in B1; Participants 13, 14, 32, 33, 42 and 62 in B2; Participants 11, 24 and 51 in B3

²⁹⁹ Participant 32 in B1; Participants 15 and 53 in B2; Participants 21, 24 and 34 in B3

³⁰⁰ Participant 14 in B2

³⁰¹ Participants 51, 52 and 53 in B2; Participants 33, 63 and 64 in B3

³⁰² Participant 21 in B1

³⁰³ Participant 12 in B3

These guidelines resulted in a range of cognitive and behavioural consequences:

- Team territoriality over their Neighbourhood zones:
 - Employees did not dare to use worksettings at other Neighbourhoods without permission³⁰⁴;
 - Not removing writing on whiteboards³⁰⁵;
 - Unhappy team members when others sat in their area³⁰⁶ and did not contribute towards the weekly alcohol social event³⁰⁷; and
 - Occasional conflict or confrontation³⁰⁸;
- Not complying with guidelines such as Clear worksettings if away for more than two hours as reflected in the reservation rate of Desks;
- Divided employees about the Noise Management guidelines such as taking phone calls, teleconference and Videoconference at Desks due to inconsiderate employees (B3) and lack of appropriate available worksettings (B1)³⁰⁹;
- Environmental wastage - increased paper consumption from throwing out paperwork that will not fit in a locker and reprinting it whenever required³¹⁰ and from not having two screens to work on³¹¹; and
- *Flexible Working guideline* take up differed between teams due to the work they conducted and their Managers ability to manage employees that take up the flexible working policies (some Managers did not support the take up these affordances)³¹².

Some of the behavioural consequences of not complying with the guidelines restricted employees’ take up of the affordances at worksettings, such as worksettings with whiteboards and not clearing worksettings if away for more than two hours. Other times, non-compliance resulted in poor support of affordances taken up by employees in the ABW.

³⁰⁴Participants 12, 14, 31 and 34 in B1

³⁰⁵Participants 34 and 42 in B2; Participants 51, 52 and 53 in B3

³⁰⁶Participants 12, 31 and 33 in B1

³⁰⁷Participants 34 and 42 in B2; Participants 51, 52 and 53 in B3

³⁰⁸Participant 21 in B1

³⁰⁹Participants 12, 21, 22, 23 and 34 in B1; Participant 31 in B3

³¹⁰Participants 31 and 34 in B1

³¹¹Participants 12 and 63 in B3

³¹²Participants 41, 42 and 43 in B2; Participant 41 in B3

7.4.3 Worksetting-specific guidelines

Employees’ written affective and cognitive acceptance of the Worksetting-specific guidelines are summarised in Table 7.5. From the employees’ affective responses, majority of the participants liked *Desk Etiquette*, *Client room bookings* and the *Meeting Room Booking Panels* but there were mixed affective responses to *No reserving multiple Desks*, the *Library etiquette* and *Recurring Meetings*.

Some guidelines were disliked and not complied with such as:

- *Prohibitions on eating at their Desks*³¹³;
- *Strict Client Rooms booking policy*³¹⁴ *such that no internal meetings are allowed at Client Area even when there was no availability of rooms in the internal work area; and*
- *Unclear guidelines with regards to lift access for Internal Staff guests (employees that worked at other sites) in B3*³¹⁵.

The guideline to treat the Library as a quiet space is the only explicit Speech Policy within the case study organisations. However, this was not always complied with in B1 causing some participants not to take up the intended affordance at the Library³¹⁶.

The few *Meeting Room etiquettes* were guidelines to restrict the consecutive take up of affordances at the Meeting Room for prolonged periods (Babapour & Rolfö, 2019). Despite the guidelines, several participants still identified an issue with availability of them attributable to mixed compliance of users not releasing Meeting Rooms that they no longer required³¹⁷. Non-compliance with releasing Meeting Rooms they no longer required displaced others from taking up affordances at the Meeting Rooms when the Meeting Room was booked but in fact, available for use. The low availability of Meeting Rooms made it tricky to accommodate impromptu usage and meetings that ran overtime³¹⁸.

³¹³Participants 13, 14, 21, 23, 33, 42, 44, 46 and 63 in B1

³¹⁴Participant 14 in B1

³¹⁵Participant 41 in B3

³¹⁶Participants 32, 33 and 34 in B1

³¹⁷Participants 11, 12, 13 and 14 in B1; Participants 24, 32, 34 and 41 in B3

³¹⁸Participants 61, 62, 63, 64 and 65 in B2

Table 7.5: Worksetting-specific guidelines identified by employees and intended by the Architects

Worksetting Specific guidelines	ALL					B1				B2				B3			
	Intent	Total	L (%)	D (%)	N (%)	Total	L (%)	D (%)	N (%)	Total	L (%)	D (%)	N (%)	Total	L (%)	D (%)	N (%)
Desk etiquette																	
<i>No eating at desk</i>	All	6	50.0	16.7	33.3	5	60.0	0.0	40.0	1	0.0	100.0	0.0	0			
<i>No reserving multiple Desks</i>	B2	4	25.0	25.0	50.0	0				3	33.3	0.0	66.7	1	0.0	100.0	0.0
Client Area etiquette	All	3	66.7	33.3	0.0	1	0.0	100.0	0.0	0				2	100.0	0.0	0.0
Library etiquette	B1, B3	7	42.9	42.9	14.3	4	25.0	75.0	0.0	0				3	66.7	0.0	33.3
Meeting Room etiquette																	
<i>Recurring Meeting Room bookings</i>	All	3	0.0	33.3	66.7	2	0.0	0.0	100.0	0				1	0.0	100.0	0.0
<i>Meeting Room booking panel</i>	All	17	64.7	0.0	35.3	0				6	83.3	0.0	16.7	11	54.5	0.0	45.5

Legend:

Intent	Architect's intended workplace guideline
All	All three organisations
L	Like
D	Dislike
N	Neutral
	less than 5 respondents when all responses from the three organisations are totalled

7.4.4 General guidelines

Employees' written affective and cognitive acceptance of the General guidelines are summarised in Table 7.6. It would be methodologically useful to provide more robust findings from this numerically small data set, but that information was not collected because the methods employed had other data objectives such as to gather acceptance responses in-depth as oppose to in large numbers. Whilst issues with the General guidelines may also be present in assigned worksetting offices, employees in an ABW offices may react to these issues more negatively as individual territoriality is removed and the entire office is shared with others. These indicates that issues that may seem small and common in non-ABW offices should not be overlooked.

From the employees' affective responses, both the *Ergonomics* and *Kitchen hygiene* guidelines were liked by the few participants that were aware of them or recognised them as guidelines. With regards to *Ergonomics*, employees with specific ergonomic needs should be dealt with prior to moving in to prevent Occupational Health and Safety issues. These may imply that exceptions to the *Unassigned seating guideline* may be required to assign Chairs or worksettings ergonomically set up for certain individuals. Compared to ABWs, worksetting ergonomics is less of an issue in assigned worksetting offices because worksettings are not shared and simply must be set up ergonomically initially³²⁵.

³²⁵Participants 31, 32 and 34 in B1

Table 7.6: General workplace guidelines identified by employees and intended by the Architects

General guidelines	ALL					B1				B2				B3			
	<i>Intent</i>	<i>Total</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>	<i>Total</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>	<i>Total</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>	<i>Total</i>	<i>L (%)</i>	<i>D (%)</i>	<i>N (%)</i>
<i>Ergonomics</i>	All	9	100.0	0.0	0.0	0				6	100.0	0.0	0.0	3	100.0	0.0	0.0
<i>Kitchen hygiene</i>	B1, B3	11	90.9	9.1	0.0	4	75.0	25.0	0.0	3	100.0	0.0	0.0	4	100.0	0.0	0.0

Legend:

Intent	Architect's intended workplace guideline
All	All three organisations
L	Like
D	Dislike
N	Neutral

Various types of Hygiene guidelines were identified by the participants in the individual worksheet handed out during the Focus Group Interviews and some were covered under the Worksetting-specific guidelines. Therefore, the main Hygiene guideline that did not fall under the Worksetting-specific guideline in Section 7.3.3 is the *Kitchen hygiene guideline*. The participants in B2 and B3 liked the Kitchen cleanliness guidelines, such as washing up after themselves, the monthly fridge clean out as it was respectful towards others and kept the Kitchen clean and hygienic for all³²⁷, but the lack of notice for the monthly fridge clear out was a downside³²⁸. Unlike B2 and B3, *Kitchen hygiene* was an issue in B1 due to inconsistent compliance with the guidelines³²⁹. One issue in all three organisations was employees not returning cups to the Kitchen and leaving cups at the worksettings once they were done with them, such as at the Desks and Meeting Rooms which had to be dealt with over time to change employees’ behaviours³³⁰.

7.4.5 Emergent guideline

As discussed earlier, one Emergent guideline was found as employees in B2 came up with a *Booking System for non-required booking worksettings* in their Neighbourhood. There is a lack of acceptance responses on this guideline as this was only identified by one participant in one organisation. However, one other participant in the focus group was in disbelief that employees from the team with the Emergent guideline complied with the guideline as they thought that others from their team would not have complied with the guideline³³¹. Despite the lack of acceptance responses, the Emergent guideline provide an insight into employees’ capability to self-regulate the ABW.

Whilst the identified Emergent guideline may be a simple and intuitive solution, this indicates that when workplace guidelines are lacking and are inadequate in addressing employees’ needs, employees are capable of self-regulation of the workplace to take up affordances more effectively. The emergence of guidelines created by employees questions the need for more enforcement of guidelines or to empower employees to self-regulate. More guidelines enforcement may yield higher costs in the long term as the Concierge or Cleaners may have to

³²⁷Participants 21, 34, 41 and 43 in B2; Participants 11, 31, 34 and 61 in B3

³²⁸Participant 22 in B2

³²⁹Participants 14, 23 and 33 in B1

³³⁰Participants 41, 42, 43, 44, 51 and 53 in B3

³³¹Participant 21 in B2

enforce them, however, empowering employees to self-regulate requires employees to be responsible and come up with a fair solution acceptable by the employees affected, though that may be perceived as outside their job scope. Employees' preference to self-regulate may differ between teams, organisations and culture and should be investigated in the first two phases of the ABW Implementation Process.

7.5 Issues with employees' ABW guidelines acceptance

This section addresses Theoretical Proposition 7 using illustrations from employees' affective, cognitive and behavioural acceptance of the ABW workplace guidelines. This section begins with results that partially supports the Theoretical Proposition. This is then followed by an alternative explanation to employees' negative affective and cognitive acceptance by presenting the trade offs to employees' negative acceptance of the guidelines. After that, a discussion on the negative behavioural acceptance of the ABW guidelines and drivers of them are presented to provide an insight into the consequences of negative behavioural acceptance of the ABW guidelines and how they could potentially be managed.

Theoretical Proposition 7: Common issues generating negative acceptance of the ABW workplace guidelines are attributable to the lack of process informing new employees of the guidelines, ambiguity of guidelines and guidelines that are conflicting with the workplace design.

7.5.1.1 Comparison with the literature

The results provide partial support for Theoretical Proposition 7. There were insufficient results to demonstrate that the negative acceptance of ABW workplace guidelines is attributable to the lack of process informing new employees of the guidelines restricting and promoting employees' take up of affordances. None of the participants identified that there was a lack of process in informing new employees of the workplace guidelines even though B3 was the only organisation that had the Concierge officially brief new employees to facilitate their take up of affordances in the ABW. There were a few inconsistencies in knowledge of the guidelines identified by most employees reflecting the effectiveness of the learning channels employed in the ABW Implementation Process, as discussed in Section 7.3. However, the results provide support that ambiguity of guidelines and guidelines conflicting with the workplace design generated negative acceptance of the ABW workplace guidelines.

7.5.1.1.1 *Ambiguity*

Whilst ambiguity of guidelines and guidelines that conflicted with the workplace design were identified, these were not the primary issues generating negative affective, cognitive and behavioural responses. The guidelines’ ambiguity is illustrated in the *Noise Management* guideline where less ambiguity is desired about restrictions in noise generating affordances.

Noise Management

As discussed in Chapter 6, non-Contact Centre employees, whom were medium to high mobility employees that were able to retreat to other worksettings, were divided about the suitability of taking up noise-generating affordances at the Desks, such as Phone Conversations. These employees were not bound to their Desk by fixed phone lines, therefore, Phone Conversations at their Desks were a choice. A majority of participants thought that it was suitable whilst a minority insisted that it was less than suitable and is an affordance that should be taken up at a more appropriate worksetting that does not disrupt others’ take up of affordances at the Desk³³². The ambiguity with the Noise Management guideline caused some employees to take phone calls at Desks that resulted at times in confrontation amongst employees³³³. This indicates that employees may have benefitted from more clearly defined Speech guidelines to restrict the take up of noise-generating affordances at the various worksettings (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017). Similar to the literature, guidelines’ ambiguity caused differing knowledge of affordances promoted or restricted, varying perceived acceptable actions and dissatisfaction when there was perceived incorrect use of worksettings (Arundell et al., 2018; Babapour & Rolfö, 2019; Rolfö & Babapour, 2017).

Additionally, it was found that the consequences of some guidelines introduced ambiguity into employees’ understanding of acceptable affordances to take up. This is illustrated in the *Neighbourhood zones* guideline in B1 where employees defied the Architects’ intent to share worksettings within their Neighbourhood, such that employees can take up affordances at other Neighbourhoods, by demonstrating and self-enforcing team territoriality over their Neighbourhood. This introduced ambiguity into employees’ understanding of the *Neighbourhood zones* as some employees interpreted that the intent of the guideline was to

³³²Participants 21, 22, 23 and 52 in B2; Participant 31 in B1

³³³Participants 13 and 44 in B3

prevent them from taking up affordances available at other Neighbourhoods. Team territoriality in B1 also illustrates that employees may be diverting their individual territoriality needs towards team territoriality (Wohlers & Hertel, 2017).

Neighbourhood zones

Despite the Architects' intent that their Neighbourhoods were to be shared with others, signs of team territoriality were reported to a higher extent in B1 than B2 and B3. Some signs of team territoriality in B2 and B3 were affective responses, such as discontentment over others occupying some Desks in the Neighbourhoods, and behavioural responses, such as not removing writing on the shared whiteboards in B2³³⁴. Some participants in B1 thought that the Neighbourhood zones were intended to be a 'guideline' as opposed to a strict policy and that people talked about sitting in other Neighbourhoods prior to moving in³³⁵. However, after they moved in, an 'unwritten rule' developed to not sit in other Neighbourhoods³³⁶, teams were very protective over their neighbourhood border and started enforcing it like a territory³³⁷. Some extremely territorial Neighbourhoods confronted others to 'get out of their neighbourhood' to prevent others from taking up affordances there even though the area was never full³³⁸. Over time, a few participants interpreted that the Architects' intent for the Neighbourhood guideline was to prevent others from taking up affordances at worksettings in other Neighbourhoods without permission³³⁹. Thus, introducing ambiguity into the employees' understanding of the Neighbourhood Zone guideline intent.

Participants explained that for them team territoriality was predominantly productivity-related and their need to sit with their team (Tagliaro & Ciaramella, 2016a) which explains why team territoriality was more evident in low mobility teams that had high task inter-dependency (Wohlers & Hertel, 2017). Team territoriality aligns with employees' desire to identify themselves with a group socially that are critical for team effectiveness, trust, information-sharing, satisfaction and performance (Brunia & Hartjes-Gosselink, 2009; Wohlers & Hertel,

³³⁴Participants 34 and 42 in B2; Participants 51, 52 and 53 in B3

³³⁵Participants 21, 22 and 23 in B1

³³⁶Participants 12 and 14 in B1

³³⁷Participant 12 in B1

³³⁸Participant 21 in B1

³³⁹Participants 31 and 34 in B1

2017). Team territoriality has not yet been identified in the literature as a potential issue but is expected to be critical in organisations with low mobility teams and as space pressure increases over time. The ambiguity in employees’ understanding of the *Neighbourhood zones* introduced by employees’ team territoriality over time restricted employees’ take up of affordances within the ABW and indicates that as part of managing the workplace, reminders of the intentions of the guidelines are required. This difference between intentions in the guideline for employees to be mobile outside the Neighbourhood Zone and employees’ psychological needs seen in their team territoriality raise questions about the alignment of management ‘needs’ in the guideline and employee ‘needs’ exhibited in their behaviour. Despite the identification of this difference, this research’s data does not allow further examination at this time but this is something that can be explored in future research.

7.5.1.1.2 *Design conflicting with guidelines*

As per Theoretical Proposition 7, Worksetting-specific guidelines that conflicted with the design of the worksetting that affected employees’ acceptance of the workplace guidelines was also found and are illustrated in the Library.

Library etiquette

The Library was intended to be a quiet space with the *Library etiquette* preventing noise-generating affordances from being taken up in B1 and B3. Their design varied significantly in which B1’s Library was partially open with low visual privacy and no audio privacy, whereas, the Library in B3 afforded audio privacy and moderate visual privacy when the Library door was closed. The affective responses towards the *Library etiquette* in B1 indicate that majority of participants disliked it, whereas, the majority of participants in B3 liked it. The minority of participants in B1 who liked the *Library etiquette* expressed that it freed up Desks within the Neighbourhood to reduce space pressure³⁴⁰ and was slightly quieter for focusing³⁴¹. Those who disliked it felt confused³⁴² as they thought that the Library was noisy from the lack of enclosure in a high foot-traffic position³⁴³ next to the major circulation routes, users not complying with the Speech guidelines, users constantly accessing the Library as an accessway or to grab their coat

³⁴⁰Participant 21 in B1

³⁴¹Participants 11 and 32 in B1

³⁴²Participants 31 and 34 in B1

³⁴³Participants 14 and 33 in B1

from the coat rack in the Library³⁴⁴; and it only had one monitor display³⁴⁵. Some participants in B1 felt that the Library’s excessive openness felt uncomfortable and another commented that some colleagues talked to them and interrupted their work³⁴⁶, contrary to the *Library etiquette*. The negative affective and cognitive acceptance in B1 are attributable to the Library design that conflicted with the *Library etiquette* in which there was a preference for a more enclosed space that affords more privacy and quietness³⁴⁷. By comparison in B3, that was an enclosed room, the affective and cognitive acceptance were more positive in which participants enjoyed the quietness and view that made them feel calm, happier, focused, relaxed and allowed them to brainstorm without distractions³⁴⁸. Participant 34 in B3 felt neutral about the guideline and rarely took up affordances at the Library due to the restrictiveness of intended affordances due to the *Library etiquette* guideline. This indicates that a mismatch between the *Library etiquette* restricting the intended affordances and the affordances that employees intend to take up may result in less than positive affective and cognitive responses (Skogland, 2017).

7.5.1.2 Trade-offs

Further analysis of the participants’ negative affective, behavioural and cognitive responses identifies that these responses were trade-offs for the positive affective, behavioural and cognitive responses. At times, the negative acceptance was a direct result of the unavoidable ABW guidelines’ restrictions on the affordances that employees wanted to take up that should be weighed into the organisation’s decision making to adopt the ABW. Therefore, the following discussion puts forward the trade-offs identified in employees’ acceptance of the workplace guidelines to avoid overly focusing on the negatives.

As per the Architects’ intent, the Fundamental ABW guidelines supported flexibility in switching worksettings to take up various affordances and sitting with anyone as per their work requirement. However, this was at the expense of inefficiencies from time wasted and collaboration challenges when they were unable to sit with their colleagues. These

³⁴⁴Participants 12, 13, 14, 21 and 23 in B1

³⁴⁵Participants 32, 33 and 34 in B1

³⁴⁶Participants 23, 45 in B1

³⁴⁷Participants 41, 23, 31, 32 and 34 in B1

³⁴⁸Participants 11, 13, 31, 33, 34, 53, 61, 63 and 64 in B3

inefficiencies conflicted with employees’ perception of productivity levels and resulted in non-compliance at times (Kim et al., 2016; Mosselman et al., 2009).

Unassigned seating and Clean-desk policy

Participants who had positive affective and cognitive responses to both the *Clean-desk policy* and *Unassigned seating* liked it because they enjoyed the flexibility in switching worksettings³⁴⁹ (Babapour, 2019a) based on the affordances taken up and to sit with whoever was required³⁵⁰. However, these were at the expense of four forms of inefficiencies discussed by the participants as time wasted³⁵¹ from:

- i. Minimal paper usage and reading documents digitally³⁵²;
- ii. Packing and unpacking³⁵³ (Babapour, 2019a);
- iii. Finding a desk - The challenges in finding available Desks close to their colleagues³⁵⁴ resulted in collaboration challenges³⁵⁵. Participant 34 in B2 also discussed that identifying available worksettings was challenging at times. Even though employees were encouraged to use Desks assigned to Anchors in B2 when the assignee was out of office, employees found it hard to know when the assignee was out of office and did not want to be displaced should the assignee return³⁵⁶; and
- iv. Technological issues - Other technology limitations faced by employees in B1 were the Desks set up to only accommodate laptop or VDI and when there was no suitable Desk-technology configuration within their neighbourhood, they had to go to other Neighbourhoods³⁵⁷. This was even more of a challenge when employees had to work in pairs or more individuals as one person may be on VDI and another on laptop³⁵⁸.

³⁴⁹Participants 34 and 45 in B1; Participant 63 in B2; Participants 21, 31 and 61 in B3

³⁵⁰Participants 31 and 34 in B1; Participant 11 in B2

³⁵¹Participants 31, 33, 43 and 44 in B1

³⁵²Participant 44 in B3

³⁵³Participant 65 in B2; Participant 51 in B3

³⁵⁴Participant 42 in B1; Participants 21, 22, 53, 61, 62, 63, 64 and 65 in B2

³⁵⁵Participants 11, 13 and 44 in B3

³⁵⁶Participant 52 in B2

³⁵⁷Participants 12, 21 and 23 in B1

³⁵⁸Participants 22 and 23 in B1

With regards to social affordances, the ABW presented more social affordances such as networking opportunities with others outside their team³⁵⁹ (Babapour, 2019a). However, some employees felt isolated at times when they could not sit with their colleagues due to worksetting unavailability or when they felt the social environment within the organisation was lacking³⁶⁰. Contrary to Wohlers & Hertel’s (2017) proposition that ABW offices facilitate inter-team processes due to less visible team boundaries and co-location, participants reported struggling to find their non-team colleagues as they did not know whether their colleague were in or out of office³⁶¹. The inability to find non-team colleagues were reported to a higher extent in B1 than B2 and B3 potentially attributable to the wayfinding application used in B2 and B3.

With the *Clean-desk Policy*, several participants enjoyed the cleaner, tidier, fresher and more hygienic workplace³⁶² when compared to their previous office. This came at the expense of not being able to personalise worksettings that was more of a struggle for low mobility employees.

Clean-desk Policy

The participants in B2 and B3 who did not miss personalisation thought the ABW was a cleaner workplace, and the more mobile and flexible users enjoyed moving around to take up affordances; though they did not think it was a sterile work environment with no personality and that it was irrelevant to their work, most will probably not personalise even if they could³⁶³. Participant 43 in B2 brought a plant around everyday pointing towards individual personalisation and compliance with the guidelines. Those who missed personalisation were predominantly from lower mobility teams with lower task variety who missed having their photos on their Desks, that their workplace no longer felt like a ‘second home’ and it was ‘more empty and robotic’ without personalisation³⁶⁴. They expressed that their job was relatively stressful and felt that personalising would have alleviated their mental state to remind them the purpose of work and distract them

³⁵⁹Participant 46 in B1; Participants 12 and 65 in B2

³⁶⁰Participants 21 and 22 in B2; Participant 44 in B3

³⁶¹Participants 31, 43 and 44 in B1; Participants 31 and 32 in B2; Participants 11 and 12 in B3

³⁶²Participants 21, 23, 32, 44 and 46 in B1; Participants 21, 33, 34, 41, 43, 51, 61, 64 and 65 in B2; Participants 13, 33, 42, 52, 53, 61 and 62 in B3

³⁶³Participants 34, 61, 62, 63, 64 and 65 in B2; Participants 41, 43, 44, 52 and 53 in B3

³⁶⁴Participant 42 in B1; Participants 21, 22, 41, 42 and 43 in B2; Participants 51 and 53 in B3

from their stress positively³⁶⁵. This verifies that employees with a low mobility profile and low task variety finds non-personalising in an ABW environment a stressor (Wohlers & Hertel, 2017). However, a few participants in B3 expressed that personalisation was not about putting up personal items but about the convenience and security of having things close by to them, such as stationary, post-it notes and phone numbers³⁶⁶.

Participants from low and high mobility teams also had differing responses due to their task interdependency and movement around the ABW. Participants from high mobility teams with low task interdependency were happy to comply with the Fundamental ABW guidelines and did not feel a need to personalise as they benefitted from the flexibility of switching worksetting to take up various affordances. However, participants from the low mobility team with high task interdependency and Anchors found it challenging to comply with the Fundamental ABW guidelines as they had to pack up and unpack daily, could not personalise and did not benefit much from the flexibility offered by the ABW due to the low variety of affordances they took up³⁶⁷. Some of these participants from low mobility teams thought that there was a mismatch between the ABW, their activity requirements and technology limitations, especially in phone-based teams³⁶⁸. Decreasing the technology limitation that binds employees to Desks may allow low mobility employees to adopt more switching behaviour and therefore take up more affordances. The difference in the acceptance between different mobility profiles and task interdependencies of employees leads to the question of whether the 'One-size-fits-all' guidelines is ideal for all. Whilst most participants agreed that the ABW and the 'One-size-fits-all' approach may not suit everyone as well, one participant in B2 discussed that ABW cannot be implemented half-heartedly, such that everyone across the entire ABW have the same workplace guidelines despite their mobility profiles, as it would be too confusing for employees and will fail³⁶⁹.

The primary role of some workplace guidelines was to restrict the take up of intended affordances by the same individual(s) or to prevent employees from displacing others from taking up affordances when they were not present to take up the intended affordances for a period of time. These workplace guidelines have the intention to free up worksettings to

³⁶⁵Participants 41 and 43 in B3

³⁶⁶Participants 32 and 61 in B3

³⁶⁷Participants 12 and 43 in B1

³⁶⁸Participants 21, 23, 41, 43 and 44 in B1

³⁶⁹Participant 11 in B2

promote others’ take up of intended affordances that contributed to the positive cognitive responses of some participants. However, the restrictions imposed by the guidelines caused some participants to perceive a trade-off between employees’ productivity with real-estate productivity that contributed to their negative cognitive responses to the workplace guidelines. This was found in two workplace guidelines, *Two hours booking restrictions* and *Clear Worksetting if away for more than two hours*. With regards to *Two hours booking restrictions*, the time limit imposed caused some participants in B3 who needed the worksettings for longer periods to think that the organisation had chosen to impose more rules to restrict their take up of affordances instead of dealing with the issue of availability by providing more worksettings³⁷⁰. Arguably, imposing more rules was cheaper than providing more rooms. With regards to *Clear Worksetting if away for more than two hours*, the three primary reasons for non-compliance with the guideline were related to employees’ productivity³⁷¹ (Kim et al., 2016; Mosselman et al., 2009; Tagliaro & Ciaramella, 2016a). However, clearing the worksetting for others to use was described as critical in a high space pressure ABW so that the worksettings can be used more efficiently³⁷² (Kim et al., 2016). Interestingly, there is not an unambiguous reason for employees’ behavioural non-compliance with *Clear Worksettings if away for more than two hours* as both high and low space pressure were cognitive reasonings provided for participants’ behavioural non-compliance with the guideline.

7.5.1.3 Consequences of negative behavioural acceptance

The third aspect of employees’ acceptance of the ABW guidelines that has not been discussed in the prior sub-sections is employees’ behavioural acceptance. The main consequence of the negative affective and cognitive responses towards the guidelines resulted in negative behavioural acceptance that varied from unintended behavioural responses to non-compliance with the workplace guidelines. These are discussed in turn.

³⁷⁰Participants 21, 22 and 24 in B3

³⁷¹For collaboration purpose – Participant 64 in B3; Desire not to waste time packing and unpacking in a low space pressure environment – Participant 31 in B3; Desire to use dual-screens to work in between meetings – Participants 51, 52 and 53 in B2

³⁷²Participants 15, 31 and 32 in B3; Participants 21, 22, 43, 52, 53, 61 and 64 in B2

Unintended behavioural responses

Unintended behavioural responses are those unintended by the organisation and are not a direct non-compliance with the workplace guidelines. Some unintended behavioural responses towards the ABW guidelines can be illustrated in the *Unassigned seating* guideline. Due to the *Unassigned seating* guideline and its enforcement, employees could no longer personalise and were limited to expressing individual territoriality through consecutive use of the same Desk daily (Nesting) and eventually some employees were 'self-declared Anchors'. Other unintended behavioural consequences included arriving as early as 7:00am to occupy or reserve Desk(s). Whilst the literature and employees perceived nesting attributable to individual territorial behaviour as non-compliance of the guidelines, the case study organisations did not intend to prevent employees from nesting but merely discouraged it, a 'soft' form of guideline compliance (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017).

Unassigned seating

There were a few participants in each organisation who nested by using the same Desk daily but nesting behaviour was reported to a higher extent in B1 than B2 and B3. In B1, participants described that nesting behaviour was low when they just moved in. However, nesting behaviour increased significantly over time with individual and team territoriality tension built up³⁷³ as employees described it as their 'comfort zone instinct' to be with their team³⁷⁴. The tension built up is exemplified in their colleague that 'funnily threatened to kill you' if you took 'their' Desk even though the Desks belonged to nobody and all the Desks were similar³⁷⁵. Participant 22 in B1 also admitted that they would be in a 'bad mood' if they came into work and found someone else sitting on 'their' Desk. Eventually, some employees and teams declared their non-compliance and called themselves 'self-declared Anchors' but will still remove all their belongings at the end of the day³⁷⁶. The participants in B3 did not report any tension with nesting but acknowledged that everyone had naturally gravitated towards their preferred desk whether they recognised it or not³⁷⁷.

³⁷³Participants 12, 13, 14 and 23 in B1

³⁷⁴Participant 14 in B1

³⁷⁵Participants 21 and 22 in B1

³⁷⁶Participants 12, 21, 31, 32 and 34 in B1

³⁷⁷Participants 41, 42, 43, 44, 64 and 44 in B3

Some unintended behavioural consequences that arose was employees in B2 and B3 arriving as early as 7:00 am³⁷⁸ to occupy their preferred Desk (Kim et al., 2016) and to reserve Desks for others that then displaced others from taking up affordances at the reserved Desks. The cognitive responses for reserving Desks revealed that employees did it due to space pressure that prevented them from sitting with their colleagues or to not have a Desk if they arrived later³⁷⁹ (Babapour, 2019a), and the need to use two screens that were unavailable at other worksettings³⁸⁰. The lack of available Desks resulted in one manager telling their team members not to reserve Desks for lower level employees but to reserve Desks for them (the managers)³⁸¹, thus, exerting their hierarchy. Parents who had to start work later after dropping their children off felt that the high space pressure ABW was a non-family friendly environment that discriminated against them by preventing them from taking up the affordances they required³⁸². This may be because some smaller teams in B2 do not have an allocated 'team area' resulting in them being dispersed if no one came in early enough to reserve Desks for the team³⁸³. Excessive Desk reservation displacing employees from taking up affordances at the Desks that ended in confrontation occasionally was a big source of angst amongst employees³⁸⁴. Those that arrived later had less choices of worksettings³⁸⁵ that affected their autonomy in worksetting choices to take up affordances (Babapour, 2019a).

Non-compliance with workplace guidelines

Dependent on the workplace guideline, behavioural non-compliance resulted in various outcomes, some of which has already been discussed earlier, such as team territoriality. This subsection discusses the consequences of inconsistent compliance with the workplace guidelines, links between the behavioural non-compliance of guidelines and high space pressure.

³⁷⁸Participants 22, 41, 43 in B2; Participants 43 and 44 in B3

³⁷⁹Participants 21, 22, 23, 53, 61, 62, 63, 64 and 65 in B2; Participant 33 in B3

³⁸⁰Participant 52 in B2

³⁸¹Participants 52 and 53 in B2

³⁸²Participants 53 in B2

³⁸³Participants 21 and 22 in B2

³⁸⁴Participants 52 and 53 in B2

³⁸⁵Participants 14 and 23 in B1

Inconsistent compliance or non-compliance with the workplace guidelines also deterred others from taking up affordances at certain worksettings. For instance, the occasional non-compliance with the *Library etiquette* that resulted in employees' take up of noise-generating affordances instead of the intended affordances for a quiet space in the Library deterred some participants from using them, more so in B1 than B3 (Babapour, 2019b; Brunia & Hartjes-Gosselink, 2009; Kim et al., 2016; Rolfö et al., 2018; Tagliaro & Ciaramella, 2016b).

At times, the behavioural non-compliance of one guideline is linked to another, as illustrated in *Use of (individual) storage* and the *Paper Reduction and Minimisation* guidelines. When *Individual storage* were insufficient for employees, non-compliance of the guideline resulted in employees leaving their belongings on the floor that were safety hazards, and increased paper consumption from reprinting documents that were thrown away as they could not fit in the lockers. The increased paper consumption was a direct contradiction to the *Paper Reduction and Minimisation* guideline. The behavioural acceptance of these two guidelines are discussed together.

Use of (individual) storage and Paper Reduction and Minimisation

During the discussions in B1 and B3, the participants identified that the individual storage was insufficient³⁸⁶ and was a dissatisfier (Haapakangas et al., 2018; Kim et al., 2016; Mesthrige & Chiang, 2019). The participants in B3 struggled with storage for non-work items in their locker causing employees to not comply with storing all their personal belongings in the lockers and to leave their belongings (such as gymbag) on the floor that overflowed into the accessway that then posed a trip hazard. The participants could not understand why they did not have a co-sharing storage space that afforded the storage of bulkier items³⁸⁷. Participants in B1 also struggled with fitting their work files, printed documents and the bulky, non-functional laptop bag provided by the organisation into their locker. Since the printed documents could not fit into their lockers, they threw these out at the end of the day and reprinted them the following day or whenever required (up to three months later) even though they had no intention on destroying the environment and not complying with the *Paper Reduction and*

³⁸⁶Participants 31 and 34 in B1

³⁸⁷Participants 21, 23, 24 and 31 in B3

Minimisation guideline³⁸⁸. This was an issue amongst a few participants in B1 that still printed rather long documents because it was easier to review, take notes and touchbase with clients instead of reading them electronically. Thus, the limited individual storage that pushed some employees to print more had an adverse effect of being environmentally unfriendly. This indicates that B1 required alternative solutions for paper-heavy employees to either provide them with more storage or to change their work processes to reduce paper consumption.

Additionally, high space pressure is attributed to non-compliance to the guideline that led to negative cognitive acceptance over the worksetting guidelines of another highly in-demand worksetting, *Meeting Room etiquette*. The discontentment was more evident in B2 than B1 and B3 due to the higher space pressure in B2.

Meeting Room etiquette

The higher space pressure in B2 was evident in its utilisation rate (47.70%) and Occupancy rate (60.20%) that was higher than B1 and B3 by approximately 26.0% and 13.4% respectively. High space pressure caused rooms to be booked weeks in advance and caused the Meeting Rooms to be unable to support intended affordances such as Ad-hoc Meetings³⁸⁹. Non-compliance with cancelling Meeting Rooms that were no longer required contributed to the high space pressure.

Although it is a *Meeting Room etiquette* to finish their meetings on time, some participants in B2 discussed that they found it challenging to comply with finishing their discussions punctually and if their video conference was running overtime, the next video conference user would start dialling in and cut theirs off³⁹⁰. The added stress from others crowding outside the room (due to back-to-back meetings) waiting to kick them out disrupted their natural meeting progression and affordances taken up. Thus, even though the participants complied with this guideline because it was enforced by the subsequent users, they found it challenging³⁹¹.

³⁸⁸Participants 31 and 34 in B1

³⁸⁹Participants 11, 12, 13 and 14 in B1; Participants 24, 32, 34 and 41 in B3

³⁹⁰Participants 63 and 65 in B2

³⁹¹Participants 61, 62, 63, 64 and 65 in B2

Some of the negative responses and consequences could be anticipated by the organisations, such as technology limitations resulting in challenges to switching worksettings and finding the right worksetting configurations within their Neighbourhood (as B1 deployed a mix of VDI and laptops) to collaborate with colleagues³⁹². As these were dependent on the type of technology the organisation deployed, issues related to technology were within the organisations’ control and may require more investment to be resolved. Additionally, these issues could be mitigated if reflected on during the ABW Implementation Process. However, over time, changes to employees’ work can be expected and new unanticipated workplace issues, like those related to changing technology needs, have to be managed. This indicates a continuing need to invest in workplace support via new technology as technology needs change over time. This is particularly acute in ABWs where technology is critical to an ABW’s performance.

7.5.1.4 Drivers of employees’ behavioural compliance with the workplace guidelines

This subsection discusses the drivers of employees’ behavioural compliance with the workplace guidelines to better understand how the negative behavioural acceptance of the ABW guidelines can be managed. Employees’ behavioural compliance with the workplace guidelines indicates their positive behavioural acceptance of the ABW guidelines. Several factors were identified such as the enforcement of the guidelines, managers’ influence, confidentiality of documents, unintentional non-compliance, personal reasons, technological barriers and need to sit with their team to work productively. The most quoted reason was the enforcement of the guidelines.

Guidelines that were not strictly enforced were not followed so closely because they had a choice to not comply without any consequences³⁹³. For example, *Clean-desk policy* was strictly enforced in all three organisations in which the Cleaners or Concierge removed any personal belongings that were left behind³⁹⁴. However, strict enforcement may generate negative affective and cognitive responses. Participants in all three organisations described losing some things when they had initially moved in because they forgot and left them behind³⁹⁵. This resulted in them wasting a lot of time the next day trying to find the items. Some participants in B1 discussed that the strict enforcement of these guidelines was ‘stick-based instead of

³⁹²Participants 12, 21, 22 and 23 in B1

³⁹³Participants 11, 12, 13, 14, 43 and 65 in B2;

³⁹⁴Participants 21, 22 and 33 in B1; Participants 41, 42, 43, 44 and 51 in B3

³⁹⁵Participants 31 and 33 in B1; Participants 41, 42, 43, 44 and 51 in B3

carrot based’, ‘feels very draconian’, ‘comply or leave’ and ‘Nazi’-style³⁹⁶. Other guidelines, such as *Ergonomics* or *Clear worksetting if away for more than two hours*, were not strictly enforced or were simply up to the managers in the area to enforce, were not strictly complied with³⁹⁷. This resulted to some users leaving their belongings in the Study Booth for the entire day even though they were not present that displaced others from taking up affordances there³⁹⁸.

Managers also influenced the compliance of guidelines by exemplifying them in their behavioural take up of affordances³⁹⁹ and enforcing compliance, such as confronting outsiders not to leave behind rubbish on the Desks in their neighbourhood⁴⁰⁰. As illustrated below, some workplace guidelines, such as *Flexible Working guideline*, may be encouraged but are dependent on the type of work employees conduct and it was up to the managers to provide employees with the flexibility of time and location.

Flexible Working guideline

Only one participant in B2 and B3 identified and liked the guideline in which one complied explaining that it enabled them to maintain a work-life balance⁴⁰¹. Another participant complied sometimes discussing that it was hard to anticipate which colleague was in⁴⁰². However, some managers struggled with allowing participants to work flexibly outside their Neighbourhood within the office and to start slightly later as Participant 41 in B3 raised that their colleague was told off by the manager for: not sitting with the team (as they struggled to find an appropriate Desk in their Neighbourhood Zone), not being a team player, and not living out their team values. It is also a version of ‘team territoriality’ enforced by the manager. The participant perceived this as a tactic used by some managers during a performance review that left the colleague quite shocked and distressed resulting in the colleague currently arriving 1.5 hours early without getting paid for that extra time so that they could sit somewhere the manager deems acceptable. This indicates that for the *Flexible Working guideline* to be adopted,

³⁹⁶Participants 31 and 33 in B1

³⁹⁷Participant 31 in B1; Participants 21, 22, 41 and 43 in B2; Participants 51 and 63 in B3

³⁹⁸Participant 32 in B1

³⁹⁹Participant 11 in B1

⁴⁰⁰Participants 11 and 13 in B2

⁴⁰¹Participant 14 in B2

⁴⁰²Participant 12 in B3

managers must adapt to the new style of management based on trust especially when physical distance and visibility increases. This also suggests that managers in ABWs need to adjust their expectations that all their team members can all be allocated within their Neighbourhood Zones (where adopted) because ABWs have fewer allocated workpoints than team members. This necessitates flexible working when high proportions of team members are in the ABWs. Managers' inability to adapt restricts employees' autonomy and flexibility that goes against humans' basic psychological needs suggesting that this may have adverse effects on the employees' well-being, job satisfaction, motivation and performance (Wohlers & Hertel, 2017).

Some managers in B2 adapted to include the *Flexible Working guideline* in the Contact Centre team (a team that were heavily Desk-bound due to fixed-line phones) by allowing employees to sit anywhere only on Fridays⁴⁰³. Therefore, *Flexible Working policies* may not look the same for all teams within the organisation depending on the type of work and the managers' application of it.

Some participants in B3 also raised that confidentiality of documents influenced their compliance in which Participants 61 and 62 raised that they were compliant because of confidentiality. However, Participant 63 was supposed to lock their screen when they had confidential information on the screen but they did not comply sometimes because the technology shuts down when locked or stopped running a code⁴⁰⁴. Thus, occasional non-compliance here was due to technological limitations.

At times, non-compliance with guidelines was unintentional when there was a lack of knowledge or awareness. One circumstance identified was not clearing their Desk because they did not know that they would be away for more than two hours⁴⁰⁵. Another circumstance was the lack of knowledge of the guideline itself causing them to unconsciously not comply, such as participants thinking that they had to clear their Desks if they were away for half an hour instead of the intended two hours⁴⁰⁶. This indicates guideline ambiguity amongst the

⁴⁰³Participants 41, 42 and 43 in B2

⁴⁰⁴Participants 61, 62 and 63 in B3

⁴⁰⁵Participants 11, 12, 13, 14 and 15 in B2

⁴⁰⁶Participants 11, 12, 21, 22, 32, 63 and 65 in B2

employees that may cause different perceptions of acceptable actions (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017).

Personal reasons causing employees to arrive later or leave earlier were a reason for non-compliance with not reserving Desks and not cleaning up (leaving wrapper or cups behind) respectively⁴⁰⁷. Additionally, some days were busier than others, such as Monday and Tuesday, when less employees worked from home affecting the availability of Desks⁴⁰⁸.

Technology barrier were also a reason for non-compliance as switching Desks or worksettings disrupted their technology connection and the need to self-declare as an Anchor to leave their computer running overnight⁴⁰⁹, as highlighted earlier in B1 and B2 respectively.

Lastly, the need to sit with their team or colleagues to work productively was a reason for non-compliance with not reserving Desks and clearing Desks if away for more than two hours. As discussed earlier, this was partially due to not having an allocated team area within the Neighbourhood unlike other teams as sitting away from each other decreases their work efficiency levels and prevents them from capitalising on the various backgrounds within their team⁴¹⁰.

7.6 Summary

Using a semi-grounded approach to study the guidelines that participants were aware of, the guidelines identified by the participants can be categorised into five main categories: Fundamental ABW guidelines, Complementary ABW guidelines, Worksetting-specific guidelines, General guidelines and Emergent guideline. Employees' cognitive knowledge of the workplace guidelines were compared to those intended by the Architects, those evident in the literature and the specificity of the ABW workplace guidelines compared to assigned workplace offices. The primary theoretical contribution is the in-depth study of the functional features (workplace guidelines) within three ABW offices, how employees learnt about them and employees' affective, behavioural and cognitive acceptance of them. These contributions defragmented the role of the ABW functional features (workplace guidelines) and employees' acceptance of the functional features in employees' take up of affordances. This contribution

⁴⁰⁷Participants 41 and 53 in B2

⁴⁰⁸Participants 41, 42, 51 and 61 in B2

⁴⁰⁹Participant 21 in B2

⁴¹⁰Participants 21, 22, 53, 61, 62, 63, 64 and 65 in B2

was made possible by the Employee Acceptance Model designed to study employees' acceptance of the functional ABW features from the three psychological dimensions: affectively, behaviourally and cognitively. The current literature is fragmented in identifying the role of the ABW workplace guidelines in employees' take up of affordances as only one study somewhat investigated these (Babapour & Rolfö, 2019; Rolfö & Babapour, 2017) and other studies that did not specifically investigate the ABW workplace guidelines found inconsistent acceptance and compliance with the guidelines. The results provided partial support for these two Theoretical Propositions:

Theoretical Proposition 6: Employees' primary learning of the Workplace Guidelines is through their involvement in Phase 1 and 2 of the ABW Implementation Process.

Theoretical Proposition 7: Common issues generating negative acceptance of the ABW workplace guidelines are attributable to the lack of process informing new employees of the guidelines, ambiguity of guidelines and guidelines that are conflicting with the workplace design.

Contrary to Theoretical Proposition 6, most participants were not involved in Phase 1 of the ABW Implementation Process and did not attribute their learning about the workplace guidelines to their involvement in that Phase 1. It was found that employee engagement was not essential in designing the workplace guidelines in Phase 1: Strategy and Design for their acceptance and may be substituted with their involvement in Phase 3: Post-moving in of the ABW Implementation Process. However, the results provide partial support for Theoretical Proposition 6 that employees learning of the ABW guidelines are attributable to Phase 2: Implementation of Workplace Change of the ABW Implementation Process. The results indicate that participants learning about the ABW Guidelines through their involvement in Phase 3 were sufficient for some but various learning channels across Phases 2 and 3 ensures that all employees with differing needs are catered and provided for. Learning channels post-moving were critical as reminders and to educate new employees of the workplace guidelines that promote and restrict the take up of affordances within the workplace in the long-run.

With regards to Theoretical Proposition 7, there was some evidence of guidelines ambiguity and guidelines conflicting with the workplace design that supported the Theoretical Proposition. However, participants did not express that there was a lack of process informing new employees of the ABW guidelines. Additionally, it was found that employees' negative cognitive acceptance of the ABW was often from trade-offs towards the positive acceptance

responses. These should be weighed into the organisation's decision making to adopt the ABW. Whilst the case study organisations have reduced individual territoriality substantially, team territoriality over the Neighbourhood Desks arose and ended in confrontation at times, especially in low mobility teams due to their high task inter-dependency and need for more Desks. Also, sometimes managers attempted to enforce team territoriality by requiring all team members to sit together. Participants from low mobility teams with high task interdependency found compliance with the Fundamental ABW guidelines challenging as they benefitted less from the flexibility afforded. The mismatch between ABW and low mobility teams questions the suitability of a one-size-fits-all guideline. Additionally, space pressure and managers (and their management style) also influences employees' compliance or take up of the affordances from the guidelines. This is an indicator that ongoing monitoring of space pressure is required. Some of these negative responses and consequences could be anticipated by the organisations and should be weighed into their decision making to adopt the ABW, and at times, further investment post-moving in may be required to alleviate or resolve certain issues. The behavioural consequences of negative acceptance of the ABW guidelines varied from unintended behavioural responses to non-compliance with the workplace guidelines. The drivers of employees' compliance or positive behavioural acceptance of the ABW guidelines includes enforcement, manager's influence, confidentiality of documents, unintentional non-compliance, personal reasons, technological barriers, and need to sit with their team.

Part 5: Conclusion

8 Conclusion

8.1 Introduction

This chapter concludes the thesis based on the results explained in the previous chapters. It completes the arguments put forward in this thesis by drawing together the various themes put forward in Chapters 5, 6 and 7 on the case studies regarding how the research questions, posed in Chapter 4, are answered.

This chapter begins by revisiting the research problems followed by a summary of the multiple research gaps in the literature to be addressed by this research. The research questions are reiterated and answered from the discussions gathered in the previous chapters. Thereafter, the originality of the research and the research's contribution to knowledge, both primary and subsidiary contributions, are discussed. This is then followed by the limitations of this research and comments on generalisability prior to ending with a discussion on the possible avenues for future research. The implications for COVID19 on the research that was conducted pre-COVID19 are discussed briefly throughout the chapter and in-depth in Section 8.8.

8.2 Reconnecting the research problems with the empirical research

The research problem

From the existing ABW literature, ABWs have demonstrated the potential to achieve positive outputs or the workplace strategies that organisations set out to achieve and to outperform assigned territorial workplaces. Many of the benefits are reliant on employees' take up of the affordances suited to their needs at the variety of worksettings, and compliance with the workplace guidelines that promote and restrict employees' take up of affordances. However, the existing Corporate Real Estate research identifies inconsistent achievement of Increased Productivity and Increase in Employee Satisfaction with evidence that points towards overcrowding as a result of organisations' attempts to achieve the Reduce and Control Occupancy Cost strategy. The inconsistent achievement of these strategies points towards employees' inconsistent take up of affordances and compliance with the ABW guidelines.

The literature review identified that the inconsistent acceptance of the ABW affecting the outputs and CRE strategies achieved can be attributed to: workplace guidelines, space pressure, ability to find suitable worksettings, communication, management behaviours, cultural alignment, privacy afforded, activity profiles, social ties, physical design and

technology. All of these can be linked to the ABW Implementation Process (ABW Throughput) but there is a lack of recent studies on the ABW Implementation Process. The existing literature also focused on identifying the outcomes as measured by the Value-adding parameters through quantitative studies on how well the ABW was performing instead of why its performance was as such. The outcomes currently identified in the literature are fragmented across various studies causing a lack of clarity in the role organisational and employee acceptance play in employees' take up of affordances as there are no in-depth studies that have dealt with these three elements concurrently. Therefore, the 'Throughput' and the fundamentals defining ABW offices, the various ABW worksettings and the workplace guidelines, have been neglected and are addressed in this study.

The main research gap that guided this study is:

Inconsistent achievement of ABW Outputs are a result of the inconsistent take up of intended affordances within the ABW and non-compliance with the workplace guidelines that are attributable to the ABW Implementation Process and employees' acceptance of the ABW.

To address the main research gap, three statements of gaps to understand the inconsistent take up of intended affordances were identified:

Research Gap 1: There are limited in-depth studies on the ABW Throughput, the ABW Implementation Processes, that affect the intended affordances designed into the ABW (variety of worksettings and workplace guidelines) and employees' acceptance of them.

Research Gap 2: There are no in-depth investigations of the suitability between the intended affordances designed into the variety of ABW worksettings and its employees' activity needs that affects employees' acceptance of the ABW and take up of affordances.

Research Gap 3: There are limited in-depth studies on ABW guidelines (that define ABW) and employees' acceptance of them as reflected in their compliance and awareness of them.

Positioning these Research Gaps within the Value-added model from Corporate Real Estate Management and Facilities Management, there is some existing academic research on the Input (Resources available, Value-adding real estate strategies and Real Estate intervention) and the Output (Provisions from real estate and Outcomes as measured by Value-adding parameters). However, there is a lack of detailed investigation into the role of the ABW Implementation Process (ABW Throughput); the Physical and Functional features of the ABW

(ABW Output- Provisions from real estate); and employees' affectively, behavioural, and cognitive ABW acceptance (ABW Output- Outcomes as evaluated through the Employee Acceptance Model) in employees' take up of affordances (ABW Output- Outcomes as evaluated through the Employee Acceptance Model).

The practical problem

The research problem translates into a practical problem as the adoption and investments in ABW offices are increasing due to the purported Corporate Real Estate Strategies that can be achieved through ABWs. This is despite the uncertainties around the inconsistent achievement of Corporate Real Estate Strategies. The increasing adoption of ABWs without understanding the underlying issues in the ABW Throughput and the Provisions from the ABWs increases the potential for more non-acceptance of ABWs by employees. This may result in more post-relocation physical changes and reversion to assigned workplace offices.

The oversight in practice and theory of understanding why ABW are generating these outcomes will provide learnings from existing ABWs as a workplace innovation, deal with them and either avoid similar issues, or provide more transparency into what organisations can expect to deal with if they decide to adopt ABW offices.

8.3 Answering the Research Questions

In order to address the research gaps, the following sub-sections answer the related research questions based on the confirmation and extension of the Theoretical Propositions. These provide an insight into understanding the role of employees' and organisations' acceptance of ABW offices in the affordances taken up within the ABW office and the compliance with ABW guidelines. These are purported to affect organisation's achievement of their Corporate Real Estate strategies.

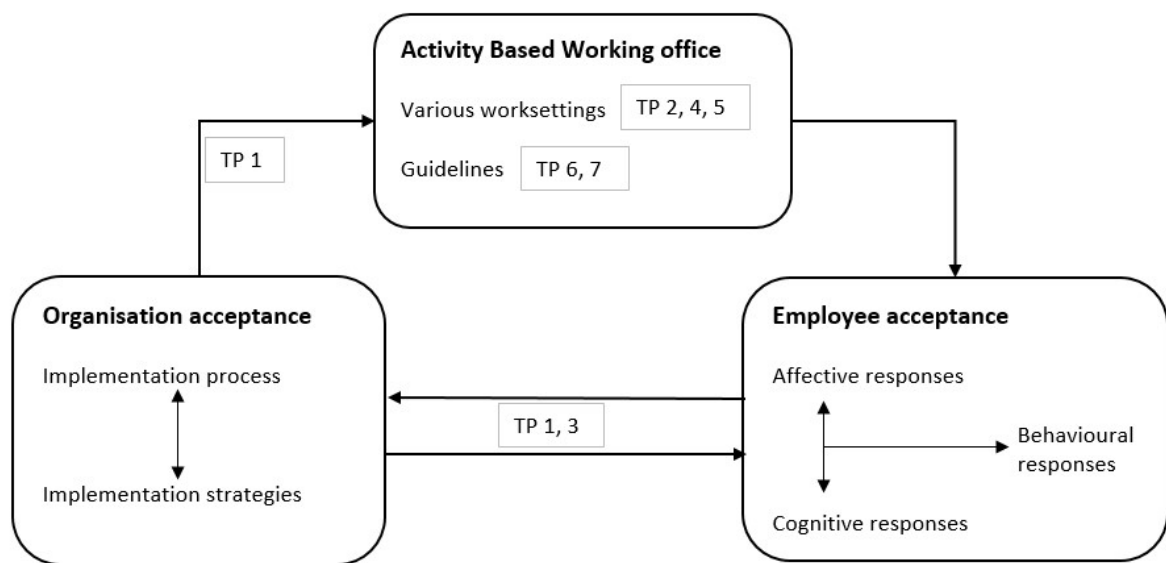
Main research question: What is the role of organisations' and employees' acceptance of ABW offices on employees' take up of affordances within the ABW?

Main Theoretical Proposition: Organisations' acceptance and employees' acceptance of the ABW office plays a role in employees' take up of affordances within the ABW and compliance with the guidelines.

This research provides supporting evidence that organisations' and employees' acceptance of ABW offices plays a fundamental role in employees' take up of affordances within the ABW, a

form of employees' behavioural acceptance. Their role is illustrated in the arrows in Figure 8.1. The Main Theoretical Proposition is the summation of the seven Theoretical Propositions (TP 1 – 7) addressed in further detail under the three research questions below. The individual Theoretical Propositions identify the underlying drivers of employees' take up of affordances and then defragment the links between the drivers. A summary of the findings under the individual Theoretical Propositions contributes towards the main Theoretical Proposition that is addressed here.

Figure 8.1: Positioning the propositions within the Theoretical Framework



Organisations' acceptance of the ABW office, through the Implementation Process and the Implementation strategy pursued, impacted employees' take up of affordances through how each step was conducted and the extensiveness of it. For instance, Business-driven implementation strategies resulted in the case study organisations conducting all steps recommended by the literature and conducting each step more extensively, such as in more depth and by employing more communication channels. These impact the extent of employee engagement (or involvement) and success in translating employees' needs into the affordances designed within the ABW, that has a flow on effect in employees' affective and cognitive acceptance of the ABW. The ABW Implementation Process impacts how employees feel about the workplace change and their knowledge on the intended affordances, in which they then form cognitive responses to the support afforded by the worksettings and the workplace guidelines.

However, the more success Architects have in translating users' needs into the affordances designed within the ABW from the data they collect, the less employee engagement demanded by the employees. This indicates the potential for substitutability of employee engagement with Architects' success in translating users' needs into the designed ABW.

Variations in organisations' acceptance of the ABW office resulted in different interpretations of ABW as identified through their similar defining principles (large variation of worksettings that were unassigned to individuals). For instance, B2 adopting a more neighbourhood-centric design compared to B1 and B3 that had more shared spaces outside the Neighbourhoods. Even though nine worksetting variety was identified, B1 had seven of these worksettings (did not have Study Booth and Drop-in Points) compared to B2 and B3 that had eight of these worksettings (B2 did not have Conferencing Pods and B3 did not have Drop-in Points). Links between the variety of worksettings were identified including the potential substitutability of worksettings for certain intended affordances to reduce the space pressure at popular worksettings. Additionally, B2 and B3 had a few different configurations for some worksettings. For instance, B2 and B3 had two to three configurations of Desks unlike B1 that only had one configuration of Desks. These increased the number of intended affordances supported at each of the various worksettings, as discussed when answering Research Question 2.

Employees' acceptance of the ABW can be broken down into their affective, cognitive and behavioural acceptance of the various worksettings and the workplace guidelines. From analysing the worksetting features affecting employees' affective responses, some worksetting features stood out more than others in influencing employees' affective responses that then affected their take up of affordances, the demand for the worksetting and the worksetting utilisation. Employees' affective responses may also change over time indicating the importance of *Phase 3: Post Moving in* of the ABW Implementation Process.

The affordances that employees took up at each worksetting, as part of their behavioural acceptance, was broken down into intended affordances designed for by the Architects and emergent affordances that were not designed for by the Architects. Both forms of affordances received positive, moderate and negative cognitive responses in relation to support. Additionally, not all intended affordances designed by the Architects were taken up. The drivers of employees' cognitive responses towards the affordances and the links between them were identified, as discussed in answering Research Question 2.

The separate analysis of the affective responses towards the worksetting features and cognitive responses towards the affordances identified one common contributor: space pressure. This further emphasizes the key role of space pressure in the affordances that employees take up and the need to monitor space pressure post-moving into the ABW. In addition to individual territoriality identified in the literature, the results indicated that team territoriality was more prominent through the occupancy of non-bookable worksettings, not removing whiteboard writings, self-enforcement of Neighbourhood and reluctance to participate in social events.

Employees' negative affective and cognitive acceptance of the ABW guidelines were attributable to guidelines ambiguity, worksetting design that conflicted with the guidelines and trade offs with positive affective and cognitive acceptance of the ABW guidelines. As a result of the negative affective and cognitive acceptance of the workplace guidelines, employees' behavioural acceptance of the guidelines varied from non-compliance with the workplace guidelines and unintended behavioural responses. Several drivers of employees' behavioural compliance with the workplace guidelines were identified and discussed when answering Research Question 3.

Research Question 1: What role does organisations' acceptance through the ABW Implementation Process play in employees' acceptance of the ABW?

Theoretical Proposition 1 (TP 1): Business-driven implementation strategy is the superior implementation strategy that will result in more positive cognitive responses towards the ABW Implementation Process as it focuses more on employees' needs and the affordances that should be designed into the ABW.

Organisations' acceptance through the ABW Implementation Process plays several roles in employees' acceptance of the ABW ranging from the implementation strategy pursued, the level of employee engagement, social environment influenced, and identifying the needs of employees with varying mobility profiles.

Firstly, the results demonstrated that the organisation's choice of implementation strategy resulted in different employees' acceptance, of which Business-driven implementation strategies are superior for more positive employee acceptance. Business-driven implementation strategies focus more on employees' needs and follow the steps recommended in the literature more closely and extensively, such as through more

communication channels. Therefore, employees' needs are better translated into the ABW design and execution. Additionally, most employees from organisations that took on a Business-driven implementation strategy had no desire for more involvement and some even thought that their involvement was excessive resulting in them to desire less involvement. The case study organisation that took on a Process-Solution-oriented strategy resulted in more negative employees' acceptance with more employees desiring additional engagement to affect the intended affordances designed into the ABW. Organisation's ability to undertake two implementation strategies has also not been previously identified in the literature. Whilst there were quite a few steps undertaken by the organisations that differed from the literature, the roll out of a pilot appeared to be critical for employees' learning of the intended ABW affordances and to mentally prepare employees struggling to conceptualise the ABW. Despite the pilot being a part of the pre-determined process in the case study organisation that undertook a combined Process-oriented and Solution-oriented strategy, the pilot was not carried out. This had consequences in that it negatively affected some employees' acceptance of the ABW as they struggled to conceptualise the ABW.

Secondly, the results demonstrated that more employee engagement does not necessarily translate to more positive cognitive responses towards the ABW and that not all employees desire to be involved in the Implementation Process. The most important thing to employees was having their needs adequately translated into the workplace design. Therefore, employee engagement in the workplace design may be a trade off with the Architects' ability to collect data and accurately reflect employees' needs in the intended affordances designed into the ABW.

Thirdly, the results indicated that a high level of employee engagement is more detrimental than a low level of employee engagement if the employees engaged felt that their input was excluded and not incorporated into the designed intended affordances. This was found in the Change Champions engaged in the participatory design that reacted more negatively to the ABW Implementation Process than the Change Champions that were only involved but not engaged.

Fourthly, the Implementation Process is critical to set up the social environment for the take up of social affordances within the ABW for teams to introduce themselves to one another, especially when teams had previously not been located at the same office. The lack of a conducive social environment may exacerbate team territoriality between Neighbourhoods

causing employees' struggle to take up social affordances. Collectively, these may adversely impact inter-team collaboration.

Lastly, it was found that low mobility teams, with less varied activity profiles, higher paper reliance and high task dependency, have differing needs and designed affordances that have to be accounted for in the Implementation Process. The factors causing their low mobility have to be analysed as there are varying needs between them, such as a call centre that has more technological needs compared to a heavily paper reliant team. Heavily paper reliant teams should have their business processes reviewed prior to moving-in to try to reduce their reliance on paper prior to moving in to ensure long-run low paper consumption. The lack of incorporation of Anchors' needs resulted in more negative affective and cognitive responses towards the ABW. Anchors that had to change their work processes and workstyle to adapt to the ABW discussed that their efficiency and the information security of their work was reduced as the ABW poorly supported their activity needs.

Research Question 2: What is the role of the worksetting variety and the worksetting features on employees' take up of affordances within the workplace?

The worksettings and features that were designed by the Architects primarily influenced employees' take up of affordances, a form of behavioural acceptance, within the workplace through the affective and cognitive acceptance responses that employees form. Some worksetting features that stood out more than others were identified in influencing employees' affective responses, as discussed below. Employees' affective responses may also change over time, therefore, requiring ongoing workplace management and monitoring of the ABW to maintain employees' positive affective responses. The intended affordances designed for by the Architects during the Implementation Process and emergent affordances that were not designed for resulted in various acceptance responses such as positively, negatively, mixed or were not taken up. Further discussion below provides an explanation for these various acceptance responses.

Additionally, space pressure was found to be one common driver affecting employees' affective responses towards the worksetting features and employees' cognitive responses towards the intended and emergent affordances. Whilst organisations set out to achieve their ABW strategy in Reduction of Occupancy Cost, the employee-workstation ratio causes more space pressure. Whilst employees' high take up of affordances was due to positive affective responses to the worksetting features and cognitive responses to the intended and emergent

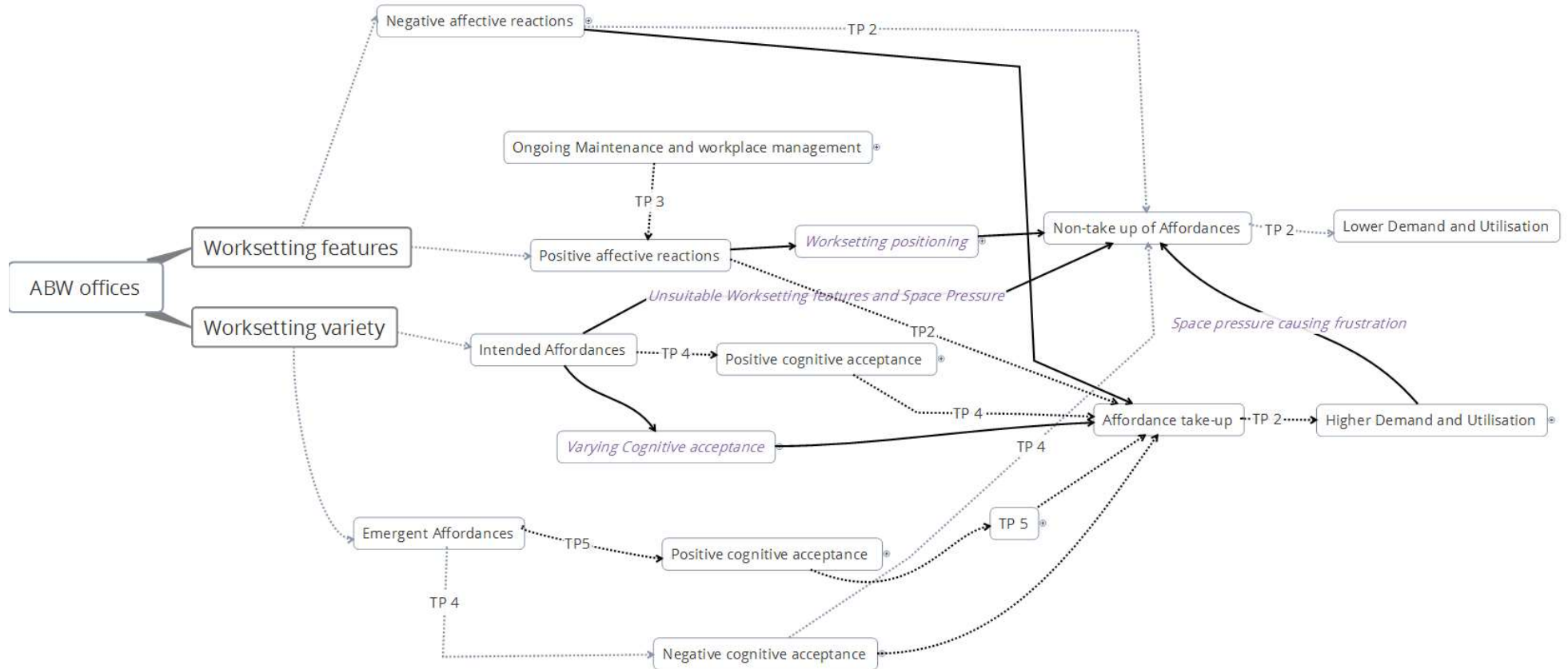
affordances, this led to high space pressure and unavailable suitable worksettings. Unavailable suitable worksettings led to participants inability to take up their intended affordances there. This resulted in lower support score for those intended affordances; and employees take up of affordances at worksettings that they had negative affective responses towards and take up of emergent affordances that poorly supported their activities. These further emphasize the importance of monitoring and active management of space pressure within the ABW post-moving in.

The links validated from the theoretical propositions and links that emerged from analysing employees' acceptance of the worksetting features and the worksetting variety are summarised in Figure 8.2. These links are discussed in further detail below.

Theoretical Proposition 2 (TP 2): Worksettings and features that generate positive affective responses translates into employees' behavioural take up of affordances resulting in higher demand and higher utilisation; and vice versa.

The worksetting and its features were fundamental in generating positive and negative affective responses that then affected the take up of affordances, the demand for the worksetting and worksetting utilisation. The various features of a worksetting collectively impact employees' affective responses contributing to their take up of affordances. A mismatch of one feature with the other features may negatively impact employees' acceptance and take up of the intended affordances. A few worksetting features that stood out more than others in affecting employees' affective responses were worksetting enclosure, positioning and size that affected the openness perceived by employees, worksetting size and ergonomic features. Contrary to Theoretical Proposition 2, the lack of alternative worksettings pushed employees that had negative affective responses towards certain worksettings to continuously take up affordances at those worksettings. The lack of alternatives was attributable to availability issues from space pressure, employees' activity needs and employees' low mobility profiles causing them to be Desk-bound.

Figure 8.2: Summary of links between the worksetting features and worksetting variety affecting employees' take up of affordances



Legend:

	Theoretical Proposition proposed relationship not validated by the results
	Theoretical Proposition proposed relationship validated by the results
	Emergent relationship found from the results
<i>Italics</i>	Represents results found
TP	Theoretical Proposition

Worksettings that tend to generate positive affective responses tend to be in higher demand and faced availability issues, such as the Meeting Rooms, Study Booth, Desks and Conferencing Pods. They were either worksettings that were previously available in the assigned office workplace pre-relocation or worksettings with high level of enclosures that afford privacy. In-demand worksettings that required booking are often booked out weeks in advance resulting in much frustration, whereas, non-required booking worksettings may lead to unexpected behaviour such as users demonstrating territorial behaviours or non-compliance with the guidelines. However, positive affective responses do not always translate into take up of affordances resulting in low utilisation due to reasons such as a mismatch with employees' activity profile and far distance from their Neighbourhood.

The few worksettings that stood out due to the positive affective responses are: Study Booth and Conferencing Pods; and for negative affective responses is: Drop-in Points. This study found a need for Study Booth and Conferencing Pods (2 variants – individual or small group) to be included in the worksetting variety within Neighbourhoods that have employees conducting Focused Work and Audio and Video conferencing. These were also well received as an alternative to Meeting Rooms for those activities and to reduce the space pressure on Meeting Rooms. The Drop-in Points was unanimously negative and requires further consideration. Even though they met the Architects' intent as an overflow of space, they were identified as poor substitutes for Desks when there were no more Desks available.

Theoretical Proposition 3 (TP 3): Post-moving into the ABW, ongoing maintenance and workplace management are often overlooked but are critical to sustain employees' affective responses and behavioural take up of affordances within the workplace.

Long-term daily maintenance and workplace management of the ABW and the following worksetting features is also required to maintain employees' affective responses over time: technology, whiteboards, Meeting-room no-shows, guidelines and space pressure that ongoingly affect employees' affective responses and behaviour. This is to prevent ownership or display of individual and team territoriality so that all the intended affordances that were supposed to be supported by the worksettings and features designed are supported.

Theoretical Proposition 4 (TP 4): The intended affordances designed for by the Architects should have more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for.

In general, the intended affordances designed for by the Architects in the worksettings and their features had more positive cognitive and behavioural responses than emergent affordances that the Architects did not design for as they scored better for support, were identified as suitable and their affordances were more highly taken up. This provides support towards the success of the Implementation Process in capturing a majority of employees' activity needs. A selection of worksettings that scored well in all organisations allowed this study to generalise that the following intended affordances are well-supported in these worksettings:

- Meeting Rooms- Audio Video Conference, Collaboration and Brainstorming, Confidential discussion, Planned Meetings;
- Study Booth- Phone Conversation;
- Desks- Routine Tasks;
- Conferencing Pods- Audio Video Conference; and
- Kitchen- Relaxing/ Taking a Break.

From the intended affordances that scored well in the organisations where they were taken up revealed two findings. Firstly, having several sub-types within one worksetting variety for a given ABW increases the number of intended affordances that are supported well. Secondly, two forms of flexibility were afforded by the two types of Conferencing Pods: flexibility in the number of users accommodated and the flexibility to accommodate Ad-hoc activities.

However, not all intended affordances scored well, some of which scored positively in one or two organisations but poorly in others. These were attributable to eight factors: designed worksetting features, human behaviour, inconsistent communication of intended affordances, space pressure, preferences causing varying perceptions, conflicting intended affordances, time, and social environment.

The study also revealed two reasons as to why not all intended affordances were taken up. These were due to the availability and book-ability of worksettings deterring participants from taking up the intended affordances, and the less than suitable worksetting features for the intended affordances.

Of the nine worksettings, the Conferencing Pod's intended affordances outperformed the remaining as all intended affordances that were taken up scored well. On the contrary, the

Drop-in Points did not score well for any intended affordances and underperformed relative to the other affordances. These align with the affective responses towards these two worksettings discussed earlier.

Theoretical Proposition 5 (TP 5): The emergent affordances that have positive cognitive and behavioural responses are affordances that require few supporting worksetting features; and vice versa.

The results also verified that the emergent affordances that have positive cognitive and behavioural responses are affordances that typically required few supporting worksetting features making them easy to accommodate at any worksetting, and vice versa. Emergent affordances that scored well often had more supporting features than required for the affordance taken up. Other reasons for take up includes differing preferences from the majority of respondents. Additionally, emergent affordances taken up at worksettings facing high space pressure explains why those worksettings were facing high space pressure as the quantity of worksettings were installed based on the anticipated uptake of intended affordances not emergent affordances.

Emergent affordances that were poorly supported were often work-related activities that required concentration, formality, confidentiality and the involvement of multiple individuals. The reasons why these were taken up was due to the workplace guidelines and worksetting availability restricting employees from using more suitable worksettings.

Research Question 3: What are the key drivers behind employees' acceptance of the ABW workplace guidelines?

This research investigated the key drivers behind employees' acceptance of the ABW workplace guidelines that promote and restrict employees take up of the affordances through a few approaches – the ABW Implementation Process, common issues identified in the ABW literature and drivers of negative acceptance identified using a semi-grounded approach.

Theoretical Proposition 6 (TP 6): Employees' primary learning of the workplace guidelines is through their involvement in Phase 1 and 2 of the ABW Implementation Process.

Understanding employees' learning of the ABW workplace guidelines is critical as it identifies the channel in which employees build up their cognitive knowledge of the workplace guidelines that they then accept affectively, cognitively and behaviourally. Contrary to

Theoretical Proposition 6, most employees did not learn through their involvement in *Phase 1: Strategy and Design* of the ABW Implementation Process as they were not involved in it. It did not attract more input because the Implementation Process was run so as to not include employees, en mass.

Most participants learnt about the workplace guidelines through their involvement in *Phase 2: Implementation of Workplace Change* and *Phase 3: Post-moving in* of the ABW Implementation Process and did not desire for any involvement in Phase 1 of the ABW Implementation Process to provide input in designing the ABW workplace guidelines. This indicates that employee involvement in Phase 3 may be a substitute for their involvement in Phase 1 of the ABW Implementation Process. Both pre- and post-moving in communication channels were found to be equally important to increase the consistency of knowledge of intended affordances and sustain behaviours in the long-run. However, post-moving in communication channels were often lacking in the studied organisations.

Theoretical Proposition 7 (TP 7): Common issues generating negative acceptance of the ABW workplace guidelines are attributable to the lack of process informing new employees of the guidelines, ambiguity of guidelines and guidelines that are conflicting with the workplace design.

Contrary to the primary issues in Theoretical Proposition 7 that were identified in the literature with regards to the workplace guidelines, the ambiguity of guidelines, lack of process in informing new employees and guidelines conflicting with the workplace design played a minor role in the negative acceptance of the ABW workplace guidelines. Self-induced ambiguity by employees was also found in the *Neighbourhood zones* guidelines due to team territoriality. This introduced ambiguity over perceptions of what constituted employees' acceptable behaviour over time, particularly on whether employees could use worksettings in other Neighbourhoods. Workplace guidelines that conflicted with the workplace design was illustrated in the Library. Even though the Library was intended to be a quiet space to support take up of quiet affordances, one Library lacked enclosures, was partially open with low visual and audio privacy and was located next to the major circulation routes that generated noise from the high foot-traffic.

Using the semi-grounded approach, the results demonstrated that the primary driver for the negative affective and cognitive acceptance were that they were direct trade offs to the positive affective and cognitive acceptance to the same workplace guidelines and were

unavoidable. These should therefore be weighed into an organisation's decision making to adopt the ABW. For example, the Fundamental ABW guidelines supported flexibility in switching worksettings and sitting with whomever, as per their work requirement, but this flexibility came at the expense of inefficiencies from time wasted in finding a desk, packing and unpacking, not using paper and technological issues. In several instances, the high mobility teams enjoyed the benefits of these guidelines but the low mobility teams were negative about them as they did not enjoy the same benefits as a result of their way of working. When space pressure increased, several consequences such as individual and team territoriality were exacerbated. These again raise questions of whether a one-size-fits-all guidelines are suitable for teams with different mobility profiles.

The main behavioural acceptance consequences of employees' negative affective and cognitive responses were unintended behavioural responses and non-compliance. Interestingly, both high and low space pressure may result in behavioural non-compliance with the guidelines. For example, both high and low space pressure were found to be the reasons for non-compliance with *Clearing worksettings if away for more than 2 hours*.

The results verified that employees' awareness, knowledge and organisations' enforcement of the workplace guidelines were the main drivers of employees' compliance with the guidelines, of which the opposite also holds true. The direct consequences from the organisations' enforcement of the workplace guidelines were also a means for employees to learn about the guidelines and consciously comply although this learning channel was not perceived favourably. Managers also played a critical role in employees' compliance towards the guidelines through them exemplifying compliance in their behaviour and enforcing the guidelines within their own neighbourhood. Several other reasons found for consciously not complying with the guidelines were the lack of direct consequences from not complying, technology limitations, need to sit with certain colleagues, habitual non-compliance, difficulty in differentiating guidelines between different building and busy-ness of employees.

8.4 Contribution and Originality of the research

The research's contribution falls in the domain of workplace change management under Corporate Real Estate Management (CREM) for innovative Third Generation workplaces. The contributions of this research are important because they are under-investigated in the field of CREM despite the increasing adoption of ABWs and the forecast increased adoption of innovative Third Generation workplaces post-COVID19 that are further discussed in Section

8.8. Past studies largely relied on large quantitative databases of post-occupancy evaluation questionnaires that identified that ABWs are struggling to achieve their CRE strategies attributable to the several drivers causing employees' inconsistent take up of affordances within the ABW. The semi-grounded and in-depth approach of studying organisations' and employees' acceptance of the ABW addresses the contention that ABW is a flawed innovation. An alternative view is put forward in this research: the success of ABW as an innovation is dependent on the ABW Implementation Process, the ABW Implementation Strategies and employees' acceptance of the physical and functional features of the ABW.

The primary contribution of this thesis is the defragmentation of the role of the physical and functional ABW features, organisational and employees' ABW acceptance in employees' take up of affordances. These were previously fragmented in the literature as there were no previous in-depth studies that concurrently studied the physical and functional ABW features; organisational ABW acceptance; employees' ABW acceptance affectively, behaviourally and cognitively; and employees' take up of affordances. This thesis makes this contribution through a holistic, in-depth study of organisations' acceptance, through their ABW Implementation Process and ABW Implementation Strategies, and employees' affective, behavioural and cognitive acceptance of the physical and functional ABW features. Its fine grained analysis of the nine varieties of ABW worksettings and sixteen workplace guidelines using the Employee Acceptance Model as a theoretical framework revealed detailed explanations of employees' acceptance and affordance take-up. These detailed explanations resolved the previous theoretical inconsistencies, confirmed previous theories and extended previous theories, that is elaborated on below.

The Employee Acceptance Model is an original theoretical contribution from this thesis as it was designed and deployed for this research to capture ABW Outcomes. Previous studies were focused on capturing ABW Outcomes in terms of the Value-adding parameters with a focus on identifying the extent that the organisation achieved their Value-adding ABW Corporate Real Estate Strategies. Whilst these identified inconsistencies in affordance take up and compliance with the guidelines, they lacked in explanation for the inconsistencies found. Explaining the affordance take up and guidelines compliance is addressed by the Employee Acceptance Model using psychological dimensions as an alternative theoretical approach. The Employee Acceptance Model redefined the holistic evaluation of ABW Outcomes through employees' affective, cognitive and behavioural acceptance of the physical and functional ABW features.

Instead of identifying how well organisations achieve their CRE strategies, the Employee Acceptance Model is useful to identify how the ABW physical and functional features drive employees' affective, cognitive and behavioural ABW acceptance (includes affordance take up and guidelines compliance). Since the ABW physical and functional features may differ between organisations, how they drive employees' acceptance may also differ. Employees' ABW acceptance is fundamental in organisations' achievement of some CRE strategies as some strategies rely on employees' take up of affordances and compliance with the guidelines, such as reduced occupancy cost relies on employees' compliance with unassigned seating. The ABW Implementation Process and Strategies studied also identified the role of an organisation's acceptance in employees' cognitive acceptance of the ABW. Collectively, these facilitated in explaining the role organisations' and employees' acceptance affect the affordances they take up.

Another original theoretical contribution is the theoretical lens employed using the Theory of Affordance that enabled studying the opportunities for action within the ABW environment and how affordances may be promoted or restricted by the ABW guidelines. The Theory of Affordances provided a semi-grounded approach to identify the intended and emergent affordances taken up. This is an original contribution to study the extent of how well the affordances designed translates to use and employees take up of affordances that were not designed for. Coupled with the Employee Acceptance Model, both theories facilitated with identifying and providing an explanation for the varying take up (and non-take up) of intended and emergent affordances. It also identified some consequences of affordance take up. For instance, the take up of emergent affordances at certain worksettings placed additional space pressure on those worksettings as the Architects did not account for the take up of these in planning the number of worksettings provided.

In addition to providing partial validation to some Theoretical Propositions, the results from this research also partially invalidated some previous theories put forward in the literature, provided a differing perspective on inconsistent employees' acceptance and provided some new findings. For instance, the literature is a proponent that all employees should be engaged as much as possible from Phase 1 of the ABW Implementation. However, it was found the extent of employee engagement may be substituted with the Architects' success in translating employees' needs into the intended affordances they designed. Additionally, high levels of employee engagement in the ABW Implementation Process may be more detrimental than

low levels of employee engagement if the input from employees are not then included in the designed ABW. A proactive approach towards managing ABW offices is key to maintaining employees' acceptance of the ABW, monitoring the affordances taken up and actively manage unintended behaviours that may be preventing others from taking up the intended affordances designed for. Some new findings included the ability for an organisation to pursue two ABW Implementation strategies concurrently.

8.5 Research Limitations

The data for this research was collected primarily in 2017 and 2018 before Australia and New Zealand were exposed to COVID-19 and its impacts on the workplace. As this research was conducted pre-COVID 19, this is a limitation of the research. However, the contributions and learnings from this research are still applicable to workplaces in the future and post-COVID19. This is because responses to COVID19 in managing workplaces look like requiring significant innovation and flexibility. ABW offices are an innovative Third Generation workplace that inherently have high flexibility. Increased adoption of innovative Third Generation workplaces post-COVID19 are forecast to support partial working from home through Unassigned seating that utilises office space more efficiently. Third Generation workplaces like ABWs better support the affordances that employees take up in the workplace through the variety of worksettings, as discussed under Section 8.8. Therefore, the future implementation of innovative Third Generation workplaces and employees' acceptance of them will be as relevant as ever and can still draw from the contributions in this research.

Since the data collection of this research is conducted in the Australian and New Zealand financial institution context, the external validity and generalizability of the study may be limited to countries with similar work cultures to Australia and New Zealand. For instance, employees' preference for involvement and engagement globally may differ from Australia and New Zealand. Therefore, the applicability of some results may be limited to work cultures that are like Australia and New Zealand.

One limitation to the research is the number of organisations studied (3 organisations). However, three case studies are not uncommon in qualitative studies and measures were taken to ensure construct validity, internal validity and reliability in the thesis as discussed in Chapter 4.

The large reliance on qualitative data and low reliance on quantitative data is a limitation of this research that involves a smaller population and less scope for generalisation of results. However, quantitative data lacked the explanation power in answering the research gaps, as found in prior research, and research questions that required a semi-grounded approach.

8.6 Comment on level of generalisability

This research used three Australian financial institutions as the empirical study sites to replicate the research design across cases and conduct cross-case comparisons for external validity (Yin, 2014). However, the research findings are generalisable and applicable at several levels (as limited in Section 4.10) because of how representative the case studies are of Australian financial institutions and Western financial institutions in general.

Firstly, there are several other financial institutions in Australia to which the findings may apply, given the similarities in work culture, work processes, product and service offerings, customer base, that will most probably translate into similar work requirements by the employees making the findings of this research generalisable to into the financial institution context.

Secondly, the outputs found from the case study organisation were similar to the outputs identified by the existing research - namely inconsistent take up of affordances, inconsistent compliance with the workplace guidelines and some similarities in their explanators. The primary differences in acceptance were in the mobility profiles of employees and their activity needs as opposed to the specifics that they are financial institutions. Since the ABW office is a type of innovative Third Generation workplace, this indicates that some results have the potential for generalisation beyond financial institutions to other current and future adopters of innovative Third Generation workplaces with similar mobility profiles and activity needs. This facilitates in explaining the phenomenon of why inconsistent acceptance of ABW was occurring or to avoid it in the future. The generalisation is critical as the adoption of innovative Third Generation workplaces are forecast to increase post-COVID19, as discussed in Section 8.8.

8.7 Implications of the findings

Given the research originates from a practical problem from CREM in practice, understanding the practical implications of the findings positions the contributions of this research to CREM in practice. These contributions are important in Corporate Real Estate Management because

it contributes to the existing theories on ABW Throughput, through the Implementation Process and Implementation Strategies for ABW offices, ABW Output through the provisions offered by the physical and functional ABW features and employees' acceptance of the Throughput and Output. The current literature on ABW has identified inconsistencies in employees' take up of affordances. However, these studies lacked in-depth holistic study of the ABW physical and functional features and the findings were fragmented across various studies, resulting in their inability to identify links between the role that ABW Throughputs and ABW Outputs play in employees' take up of affordances. Even though this thesis does not resolve the inconsistencies, the holistic detailed study established links between the ABW designed, the ABW Implementation Process and employees' acceptance of the ABW to better explain employees' inconsistent take up of affordances. This implies that studying ABW offices holistically is highly valuable as ABWs are complex and their physical and functional features are interrelated in their effects on employees' acceptance. Drawing on ABW as an innovation in the Third Generation workplace, these results have the potential to improve future innovative Third Generation workplace implementations to better achieve the Corporate Real Estate strategies that organisations set out to achieve and to facilitate in organisation's decision making in adopting them. This implication is important since it is forecast that innovative Third Generation workplaces will be increasingly adopted post-COVID19 and which can draw on the learnings from this research that are discussed in further depth in Section 8.8.

The findings also identify several theoretical implications for future workplace research. Firstly, the combination of the theories in the theoretical framework supported the defragmentation of the role of physical and functional ABW features, organisational and employee ABW acceptance in employees' take up of affordances that has never been done before. This implies the theoretical framework's effectiveness in studying employees' acceptance and take up off the affordances within the ABW. Individual theoretical implications for each theory was also found. This research provides evidence that employing the Employee Acceptance Model to investigate employees' affective, behavioural and cognitive responses is a more holistic approach that identifies explanations and consequences of employees' behaviour. Secondly, deploying the Theory of Affordance to investigate the affordances within workplaces provided a semi-grounded approach to investigate the affordances intended by the Architects and taken up by employees. They do not always align but employees' take up of well-supported affordances in Third Generation offices are fundamental to its success as a concept and the

achievement of ABW Strategic drivers. Lastly, the findings on the ABW Implementation Process of the ABW builds and extends on the existing ABW Implementation theories.

The practical implications of this work are that it demonstrated that the Provisions from the ABW (physical and functional ABW features) varied largely from one ABW to another in terms of the variety of worksettings offered and the workplace guidelines intended. These variants in ABW offices are a consequence of the ABW Implementation Process and Implementation Strategies that has a flow on effect onto employees' acceptance of them. As the concept of ABW relies on the worksettings supporting employees' activities well, each ABW designed should reflect this in both the variety of worksettings and workplace guidelines. Additionally, the needs and requirements of varying mobility profiles, especially the various needs of the low mobility profile teams, requires further attention in designing the ABW. This indicates that both the provisions from the ABW designed and end-user acceptance goes hand in hand in the achievement of ABW Strategic drivers. Data collection on end user feedback independent of the Provisions from the ABW neglects the fact that the underlying subject being studied may have large variants and compromise the external validity of the results. Post-moving into the ABW, active workplace management and maintenance of certain ABW features were found to be critical in the maintenance of employees' acceptance. Implications for equity issues within the workplace were found when space pressure was high resulting in challenges in finding a suitable preferred worksetting, such as amongst employees whom were unable to arrive early due to child-caring roles or when managers used their position to reserve worksettings (that did not comply with the guidelines).

8.8 Effect of COVID19 on office workplaces

COVID19 and the lockdowns imposed have been highly disruptive. It has required organisations to offer maximum flexibility and challenged traditional methods and philosophies of management that employees working from home are unproductive. COVID19 is likely to accelerate and expedite the transformation of workplaces compared to the historical speed of change of workplaces. For instance, Second Generation offices, such as Open-plan offices that emerged in the 1890s (Forty, 1986; Drucker, 1999), are still the predominant workplace in 2020.

Moving into post-COVID 19, it is more than likely that partial working from home will be a norm (Henry et al., 2020; Lang et al., 2020; Savills, 2020); that is a form of flexibility in terms of location and time that is currently supported in ABW offices. It is unlikely that organisations

will completely move to full time working from home rendering the physical workplace obsolete as offices provide face-to-face socialisation that creates a sense of community as they bond over the shared organisational culture and values that is lacking during COVID19 (Henry et al., 2020; Lang et al., 2020; Savills, 2020; Savills Real Estate Advisory, 2020). Working from home is reported to cause feelings of loneliness and not all activities are as well supported as in the office (Lang et al., 2020). From recent industry studies, it is found that certain activities, such as Focused Work, were better conducted at home, whereas, other activities, such as Collaboration and Brainstorming, Learning from Colleagues, Talent Development and Interconnectedness with company culture, were better supported in the office (Lang et al., 2020). Pre-COVID19, this research also found that some employees struggled to conduct Focused Work in the office and conducted Focused Work at home.

There are varying benefits derived from working from home and in the office in which it is more than likely, a combination of both is required for: a daily routine, mental health, physical health, quality family time, sense of belonging or pride in company, personal growth, work-life balance (Lang et al., 2020). This implies that in the future, employees may prioritise conducting certain activities when they are working from home, such as Focused Work, and others when they are at the office. However, it is very unlikely that worksettings supporting Focused Work can be eliminated from the office as some employees may not be able to eliminate Focused Work from their daily routine and may have to conduct some Focused Work when they are in the office. The affordances that employees intend to take up in the office should be designed into the workplace to ensure that there are sufficient worksettings to support the affordances that employees intend to take up, in which this research studies in depth and contributes towards.

As employees change their work practice to partially work from home and prioritise conducting certain affordances at the workplace, it is forecast that a majority of Second Generation workplaces will have to adapt to this change by adopting the innovative Third Generation workplaces. This is because innovative Third Generation workplace offers unassigned worksettings to utilise office space more efficiently and the variety of worksettings are designed to better support the affordances that employees undertake in the office.

COVID-19 has implications for our future workplaces in the short and medium to long-term. In the short-term, it is quite unlikely to make immediate large-scale physical workplace changes. However, to accommodate the social distancing requirements and restrictions set out by the

government authorities to ensure the safety of employees, it is most likely that adjustments to the workplace guidelines will be made and employees will have to be educated about these prior to re-entering the workplace. Learnings from this research can be drawn upon in designing the workplace guidelines and educating employees on them, as discussed in Chapter 7. A combination of small physical workplace changes and changes to workplace guidelines may include:

- Implementing Unassigned seating to ease sharing worksettings between teams and thorough cleaning (Henry et al., 2020; Lang et al., 2020);
- Occupancy of designated worksettings to ensure adequate social distancing (Savills, 2020; Savills Real Estate Advisory, 2020). These worksetting could be alternated depending on shifts so that those used in the previous shift could be cleaned in one shift and those unused in the previous shift can be used in the next shift;
- Roster for teams and their employees to come in only on designated days to avoid overcrowding and employees not being able to use suitable worksettings after commuting in (with a cleaning regime in between);
- Identify solutions for high risk areas, that are typically shared common areas, such as the printing room, kitchen and toilets, to reduce the risk, such as segmenting the floorplan, spacing out equipment and spread out eating times. Solutions to deal with equipment that are often shared may be required, such as the coffee machine may have to be replaced with a coffee cart or having one operator take coffee orders virtually and delivered to the employee's desks (Savills Real Estate Advisory, 2020);
- Planning flow of workplace (Savills Real Estate Advisory, 2020) to avoid overlap of 'flow' between segmented zones to segregate the workplace and reduce potential transmission;
- Adapting worksettings that cannot be used for their intended affordances, such as large Meeting Rooms or training rooms as gathering in crowds are discouraged, to support other affordances that employees may require (Savills Real Estate Advisory, 2020);
- Elevator capacity challenged due to social distancing that may cause queues and increase time taken to get to workstations. Scheduling arrival and departure times may be required and coordination with the landlord and other tenants may be required (if within a multi-tenanted building). Solutions to avoid unnecessary foot

traffic in and out of a building may be required, such as catering options for food and coffee (Savills, 2020; Savills Real Estate Advisory, 2020);

- Employ a worksetting search or utilisation system either digitally (using sensors) or analogue (signage) to indicate and communicate which worksetting are available, unavailable or require cleaning; and reduce unnecessary foot traffic in looking for suitable worksettings (Savills Real Estate Advisory, 2020);
- Identifying which affordances are allowed or restricted by the government restrictions to ensure that employees can undertake them safely (Savills, 2020; Savills Real Estate Advisory, 2020); and
- Identifying affordances that employees intend to take up when they come into the workplace to better support them.

Some of these aspects that were studied in this research are the implementation of Unassigned seating, identification of affordances that have to be designed into the workplace and employees' acceptance of the various affordances. Other offerings may include having unassigned car parks that employees coming in can book in advance so that employees have the option of avoiding commuting via public transport that potentially further exposes them to the virus. Overall, this requires far more active management and ongoing adaptation of innovation in the workplace as restrictions are eased. A trial run with one or two teams may facilitate employees easing back into the office for the initial few weeks.

In the medium to long-term, when hopefully there are no longer any government restrictions and organisations enter the new norm, workplaces require redesigning in terms of their physical and functional features to transition from Second Generation workplaces to COVID-appropriate innovative Third Generation workplaces. The redesigned workplace should reflect the permanent change in work patterns, such as the portion of employees working from home, and intended affordances that they take up at the workplace and at home. This research is applicable because for organisations to move from the workplace they have today to their future redesigned workplace that will suit their affordances, they will have to undergo an implementation process (Savills Real Estate Advisory, 2020) similar to the ABW Implementation Process studied. If the organisation and their employees have not yet trialed a combination of working from home and working in the office by the time the organisation would like to initiate the implementation of their new workplace, organisations may have to allow their employees to trial the combination as it is a big change to their work practice and it is unlikely that they will be able to provide an accurate response in *Step 3: Data collection to*

assess the situation if they had never experienced it before. This could be conducted as part of Step 3 to gather data on which affordances have to be designed into the new workplace. It is anticipated that ABWs will better adapt to the short-term changes discussed above at a lower cost compared to Second Generation offices as they are already practicing Unassigned seating that enables sharing of worksettings.

Additionally, in designing the new affordances to be accommodated into the new office, the current learnings from this research in terms of employees' acceptance of physical and functional features guiding and restricting the affordances taken up can be drawn upon. Similar to the contention in this research, in workplaces post-COVID 19, if worksettings do not support employees' affordances well, there will be little incentive for employees to take up the affordances that then affects the extent organisations achieve their CRE strategies. There is unlikely to be a one-size fits all physical and functional solution within organisations as these may vary depending on:

- Employees' type of work (Lang et al., 2020; Savills Real Estate Advisory, 2020);
- Activities taken up in their role on a daily basis (Lang et al., 2020; Savills Real Estate Advisory, 2020);
- Employees' age group or stage in their career that may affect their ability to work independently (Lang et al., 2020; Savills Real Estate Advisory, 2020);
- Ability to set up a safe home-office to work from home. This determines whether there are hazards compromising their physical health and whether they have a spare room or office such that there is a physical separation between their work and personal life affecting their mental health and work-life balance. A recent study found that more than 85% of respondents between 18-24 years old were lacking a physical separation (Lang *et al.*, 2020);
- Personality types (need for socialising) (Lang et al., 2020; Savills Real Estate Advisory, 2020); and
- Distance to commute to work and culture (Lang et al., 2020; Savills Real Estate Advisory, 2020).

Whilst the switch to Unassigned seating from Second Generation workplaces may lead organisations to pursue real estate cost-savings, cost savings may not necessarily be achieved due to:

1. A reallocation of Desk space to Collaboration worksettings as employees may predominantly go into the office for collaboration (Henry et al., 2020; Savills Real Estate Advisory, 2020);
2. More space required per employee to make employees feel 'safe' from infectious diseases at the workplace; and
3. Segmentation of floorplan to minimise sharing, such as having a few tea points or small kitchens shared by a few teams instead of one big kitchen shared by hundreds of employees.

If teams do not go into the office every day, it may be possible to have teams rotate such that more than one team may share the same neighbourhood but come in and occupy them on different days. This is possible through Unassigned seating and enables thorough overnight cleaning.

These speculations require further research to study and verify the impact of highly infectious diseases on office workplaces post-COVID19 in the short and medium to long-term as these are not apparent yet. Future areas of research should include studies on the Corporate Real Estate strategies organisations pursue and achieve as restrictions ease and post-COVID19. The economic impact of COVID19 may also impact the Corporate Real Estate strategies organisations pursued as some organisations may have to cut cost where possible and some organisations that have thrived during COVID19 may look to further invest into their workplace. Going forward, organisations may shift their Corporate Real Estate management and strategies to mitigate the risks from highly infectious diseases that has not been considered much traditionally. This may include taking on shorter-term and more flexible leases instead of the traditional long leases that lock them in.

8.9 Future areas of research

Several areas of future research have been identified to increase the generalisability of the results to ABW offices and other innovative Third Generation workplaces and to study the effects of highly infectious diseases on current and future innovative workplaces.

This research provides a framework to address and defragment inconsistencies in employees' take up of affordances, through studying employee and organisational ABW acceptance, that affects organisations' inconsistent achievement of Corporate Real Estate strategies. Future research to replicate the qualitative research design and theoretical framework will further validate the framework and increase the generalisability of the results. The framework validated in this research was only possible through a qualitative study but it provides the groundwork for quantitative studies on employees' acceptance of the ABW to be conducted in the future.

Further investigation of innovative workplaces in government and non-government sectors and across various locations globally with differing cultures is recommended. Innovative workplaces in government sectors are often not studied and government sectors occupy a large proportion of office buildings within cities. Based on the concepts presented in this research, adapting the investigations from qualitative to quantitative methodologies will increase the investigated population to extend the generalisability of the results. Additionally, further investigation of Third Generation workplaces and deploying this in offices for University academia staff should be investigated as the existing literature is indicating strong resistance towards them due to a mismatch of Unassigned seating with their activity needs.

Further research specifically on workplace guidelines should also be conducted due to the limited research on them and identification of workplace guidelines so far. This research demonstrated the influence that workplace guidelines have over employees' acceptance of ABW and warrants more investigation as it is the intangible feature of ABW offices that is often overlooked.

Additionally, the impact of highly infectious diseases, such as COVID19, on current and future innovative workplaces should be investigated. This includes the documentation and studying how organisations have reacted and are going to react to the workplace change in the short, medium and long-term. For instance, organisations' change in Corporate Real Estate strategy and implementation of them. The forecast effects of COVID19 on office workplaces were further discussed in Section 8.8.

Further areas of research may include the adaptability of innovative workplaces to reduce real estate wastage amidst a global pandemic to capitalise on the flexibility and multifunctionality of real estate. For instance, during COVID19, the majority of offices are fully vacant and high density residential apartments have turned into high risk infection areas as residents are

required to stay home within a densely packed building in a small confined space. Exploring the concept of multifunctional real estate to decrease the risk of infection whilst better utilising real estate warrants future research.

Part 6: Appendices

Appendix A: Paper produced from the research outputs

Sim, E., & Heywood, C. (2017). Towards a holistic assessment of employees' acceptance of innovative workplace designs. In R. Appel-Meulenbroek & J. Tuuli (Eds.), *24th Annual Conference of the European Real Estate Society - Workplace Research Track*. Delft, The Netherlands.

Sim, E., & Heywood, C. (2019). Activity Based Working Offices: One office type implemented three ways. In *Twenty Fifth Annual Pacific-Rim Real Estate Society Conference*. Melbourne, Australia. Retrieved from <http://www.prres.net/index.htm?http://www.prres.net/proceedings.htm>

Appendix B: Ethics documents

Plain Language Statement for Organisational participation

PLAIN LANGUAGE STATEMENT for *insert organisation name*

Ms Eileen Sim (PhD candidate)
Email: esi@student.unimelb.edu.au
Ph: 0468948232

Dr. Christopher Heywood (Supervisor)
Faculty of Architecture, Building and Planning
Email: c.heywood@unimelb.edu.au



Research Project (PhD level): Implementing Activity Based Working- Investigating how this innovation is taken up in organisations

Introduction

I am a PhD student at the University of Melbourne examining the relationship (if any) between the implementation process of Activity Based Working (ABW) offices and employees' acceptance of the ABW concepts. The specific ABW concepts of interest here are the large variety of workspaces and the workplace policies governing the ABW. My research aims to help organisations better realise their ABW goals by exploring if the implementation process of ABW affects employees' acceptance of the ABW and how it potentially affects employees' acceptance of the ABW. Effectively, this research proposes that employees' acceptance of the ABW will enable the achievement of organizational ABW goals.

What will the organisation's participation involve?

Should *insert organisation name* agree to participate; consent from the organization will have to be provided through their nominated organizational representative(s) to agree to participate in this research and to facilitate access to the organization. In summary, this includes providing approval and access to:

- organization documents related to the workplace;
- securing meeting spaces to conduct interviews with employees and a secure locker storage if the office is located outside Melbourne;
- the researcher and the janitor to take photographs of the workplace
- contact the employees, cleaning service provider and project consultants (workplace-related) in a manner deemed appropriate by the organization (eg. email, telephone); and
- conduct non-participation observation of workplaces.

Further consent to participate and to be audio-recorded will be gathered from all interviewees. The researcher will not collect or remove any confidential organization information outside of the ABW project without the organization's permission. The anticipated timeframe for data collection at the organization is approximately 3 months subject to the scheduling of interviews and employees' availability. Detailed material outlining the data collection methods is available on request.

How will my information be kept confidential?

All electronic documents will be stored securely in a password-protected computer. The names and contact details of the organization and all participants will be kept in password-protected computer files, all interview transcripts and audio recordings will be equally password-protected and the two will only be linked by myself. The hard copy data will be kept securely under lock and key in the Faculty of Architecture, Building and Planning for five years following the last publication from this research. It will then be destroyed via secure document destruction services at the University of Melbourne. The sample size is small so all measures will be actively taken to protect your confidentiality, as outlined above (subject to any legal requirements). Due to the small nature of the sample size, total anonymity cannot be guaranteed and it is possible that participants may be identifiable. The only information related to the organisation's identity that may be included in future research are the type of financial institution (eg. retail banking, investment banking), country that the ABW is located in (i.e. Australia), the approximate number of employees rounded off to the nearest hundred, the three departments to be studied (eg. legal, human resources) and the general type of work conducted by these three departments. Any photographs taken during the project by the researcher may be used for research outputs but photographs taken by the janitor will not be used for any research outputs. The photographs taken by the janitor will only be used to generate descriptions or photo memos. Photographs containing employees and private and confidential documents will be immediately de-identified through censoring and the original copy of the photographs will be deleted or destroyed through secure document destruction services at the University of Melbourne. Research outputs include the summary report, book chapter, books, PowerPoint slides, PhD thesis, conference papers, conference presentations, and journal articles. If I choose to include quotes from any interviews it will be cited anonymously with a pseudonym— actual names will not be included. Any direct quotes from the organizational documents

are unlikely and permission will be obtained prior to using it. We intend to protect the confidentiality of all information collected to the fullest possible extent.

How will I receive feedback?

As a token of appreciation for the organisation's participation in this research, a summary report and a PowerPoint presentation (at the organization) of the results collected will be offered to the organization 6-8 months after the data collection ends. The summary report will also be offered to all participating interviewees. To protect the identity of the organization, all summary reports will not include the name of the organization and any circulation and/or use of this summary report by the participating interviewees will require the permission of the student researcher and the organization. In addition to the PhD thesis, it is possible that the data that you provide may be used by the researchers for related workplace research in the future and the results may be presented at conferences, in published papers, book chapter and books. However, all information included will be cited anonymously. If interested, the organization will also be offered a copy of the future publications such as conferences and published papers from the data collected in this PhD research study for organizational learning. However, even if the mentioned organization in the published paper is the case study organization, this will not be made known to the organization because the information gathered from all participating organizations will be cited anonymously.

Participation is voluntary

No participating employees will be asked to provide personal information. Please be advised that both the organization and their employees' participation in this research is entirely voluntary and the organisation may choose to withdraw their participation in the research at any stage and also refuse any data collection if it wishes to do so. Should you wish to withdraw at any stage, or to withdraw any unprocessed data you have supplied, you are free to do so without prejudice.

Where can I get further information?

Should you require any further information, or have any concerns, please do not hesitate to contact either myself or my supervisor at the email addresses given above. This research project has been approved by the Human Research Ethics Committee of The University of Melbourne. If you have any concerns or complaints about the conduct of this research project, which you do not wish to discuss with the research team, you should contact the Manager, Human Research Ethics, Office for Research Ethics and Integrity, University of Melbourne, VIC 3010. Tel: +61 3 8344 2073 or Email: humanethics-complaints@unimelb.edu.au. All complaints will be treated confidentially. In any correspondence please provide the name of the research team or the name or ethics ID number of the research project.

How do I agree to participate?

If "insert organization name" is interested in participating, please contact myself through telephone or email to confirm your willingness to participate. I will then contact you to set up a meeting for further discussions on the research and your organisation's participation. Please also review the consent form to understand what you will be consenting to on behalf of the organization.

On the day of the meeting, written consent will be sought for the items in the consent form. Your consent form, once returned, will be stored confidentially and securely by myself, along with all interview related information.

Consent form for Organisational participation



FACULTY OF ARCHITECTURE, BUILDING AND PLANNING
Consent form for Case Study Organisation's Nominated Representative

RESEARCH PROJECT TITLE (PhD level): Implementing Activity Based Working (ABW)-
 Investigating how this innovation is taken up in organisations

Contact details of the researchers:

Ms Eileen Sim (PhD candidate and investigator)
 Email: esi@student.unimelb.edu.au
 Ph: 0468948232

Dr. Christopher Heywood (Supervisor)
 Faculty of Architecture, Building and Planning
 Email: c.heywood@unimelb.edu.au

Name of organizational representative: _____

On behalf of the (name of the organization),

1. I consent for (name of organization) to participate in this project, the details of which have been explained to me, and I have been provided with a written plain language statement to keep.
2. I have read and understand the plain language statement provided to me.
3. I understand that after I sign and return this consent form it will be retained by the researcher.
4. I understand that (name of organization)'s participation will involve providing access to the list included in the plain language statement. This includes contacting the entities proposed in a manner deemed appropriate by the organization (eg. email, telephone).
5. I agree that the researcher will not collect or remove any confidential organization information that is irrelevant to the PhD project proposed in the plain language statement.
6. I agree that the researcher may use the results as described in the plain language statement;
7. I agree for photographs and films containing employees and private and confidential documents to be immediately de-identified through censoring and the original copy of the photographs to be deleted or destroyed by the investigator using the University's secure document destruction services.
8. I acknowledge that:
 - (a) The possible effects of participating in this research as a case study organisation have been explained to my satisfaction;
 - (b) I have been informed that the organization is free to withdraw from the project at any time without explanation or prejudice and to withdraw any unprocessed data the organisation have provided;
 - (c) The project is for the purpose of research;
 - (d) I have been informed that the confidentiality of the information collected for this research will be safeguarded subject to any legal requirements;
 - (e) I have been informed that in addition to the organisation's consent, further consent will be sought from each interviewee for the interview to be audio-recorded and I understand that audio-recordings will be stored securely at University of Melbourne and will be destroyed five years after the last publication of the research;
 - (f) I have been informed that with my consent the documents and raw data collected from will be stored securely at the University of Melbourne and will be destroyed five years after the last publication of this research;

(g) All information sourced from the organisation will be cited anonymously using pseudonyms in any research outputs arising from the research and that total anonymity cannot be fully guaranteed due to the small sample size of financial institutions meaning that it is possible that the organisation may be identifiable;

(h) The only information related to the organisation's identity that may be included in future research are the type of financial institution (eg. retail banking, investment banking), country that the ABW is located, in (i.e. Australia), the approximate number of employees rounded off to the nearest hundred, the three departments to be studied (eg. legal, human resources) and the general type of work conducted by these three departments. Any further information related to the organisation's identity and any direct quotes from the organisation's documents will require written permission from the organization;

(j) Photographs taken by the janitor will not be used for any research outputs. Only descriptions of these photographs will be used for research outputs;

(k) Photographs of the various workplaces without any employees (or censored such that employees are not recognisable) may be used by the researcher to facilitate the discussion during the interviews and focus group interviews conducted and for research outputs. The photographs used for the research outputs will be restricted to the photographs taken by the researcher;

(m) I have been informed that a summary report, PowerPoint presentation of the organizational results and a copy of all publications related to this PhD research will be forwarded to me (on behalf of the organization) 6-8 months after the data collection ends, should I request this;

(n) Only the participating organization will receive a copy of the summary report and PowerPoint presentation of the organisation's results;

(o) Only the participating interviewees will receive a copy of the summary report of the organisation's results but any circulation and/or use of this summary report will require the permission of the student researcher and the organization;

(p) I have been informed that besides the summary report and PowerPoint presentation, the organization's identity in all future publications related to this PhD research will not be made known to anyone including the subject organization.

On behalf of the organization, I wish to receive the following documents from this PhD research (please tick)

☐ Summary project report and PowerPoint presentation

☐ All future publications related to this PhD research

If you ticked any of the above, please include your preferred channel of communication: (please tick) |

☐ email ☐ hard copy mailed

Email Address (or physical address):

Participant signature:

Date

Plain Language Statement for Interviewees

PLAIN LANGUAGE STATEMENT for Interviewees

Ms Eileen Sim (PhD student)
Email: esi@student.unimelb.edu.au
Ph: 0468948232

Dr. Christopher Heywood (Supervisor)
Faculty of Architecture, Building and Planning
Email: c.heywood@unimelb.edu.au



Research Project: Implementing Activity Based Working- Investigating how this innovation is taken up in organisations

Introduction

I am a PhD student at the University of Melbourne examining the relationship (if any) between the implementation process of Activity Based Working (ABW) offices and employees' acceptance of the ABW concepts. The specific ABW concepts of interest here are the large variety of workspaces and the workplace policies governing the ABW. My research aims to help organisations better realise their ABW goals by exploring if the implementation process of ABW affects employees' acceptance of the ABW and how it potentially affects employees' acceptance of the ABW. Effectively, this research proposes that employees' acceptance of the ABW will enable the achievement of organizational ABW goals.

What will I be asked to do?

Should you agree to participate, you would be interviewed by me. The relevant row of information will be ticked below.

	Phase	Time frame	Activity detail
☒	Phase 1: One-on-one interviews	60 minutes-90 minutes	Discussion on ABW implementation process, the various parties involved in the ABW implementation process, the ABW workplace policies and the activities that each workspace is designed to support.
☐	Phase 2: Focus group interviews	90 minutes	Discussion on your involvement in the ABW implementation process, your acceptance of the various ABW workspaces and your acceptance of the ABW workplace policies. This will include a rating activity with labelled cards and a brainstorming whiteboard activity.

There may be no direct benefit to you as a participant, other than your interest in this project and its outcomes. With your permission, the interview would be digitally recorded so that we can make an accurate record of what you say.

How will my information be kept confidential?

We intend to protect the confidentiality of your responses to the fullest possible extent. The names and contact details of all participants will be kept in password-protected computer files in a password-protected computer, all interview transcripts will be equally password-protected and the two will only be linked by myself. If I choose to include quotes from our interview it will be cited anonymously with a pseudonym— your name will not be included. The data (transcripts of our interview, which will not have your name included) will be kept securely in the Faculty of Architecture, Building and Planning for five years following the last publication from this research. It will then be destroyed via secure document destruction services at the University of Melbourne. The sample size is small so all measures will be actively taken to protect your confidentiality, as outlined above (subject to any legal requirements). However, due to the small nature of the sample size, total anonymity cannot be guaranteed it is possible that participants may be identifiable. We intend to protect the confidentiality of your responses to the fullest possible extent.

How will I receive feedback?

Within 6-8 months after the data collection at this case study organization has ended, a brief summary report of the findings will be made available to all participating interviewees by myself should you wish to receive a copy. This summary report will not include the organisation's name and any circulation and/or use of this summary report will require permission of both the student researcher and the organization. This is to protect the identity of the organization and all the participants involved. In addition to the PhD thesis, it is possible that the data you

Plain Language Statement – PhD Research – Implementing Activity Based Working- Investigating how this innovation is taken up in organisations
Ethics Application: 1648278.1

provide may be used by the researchers for related workplace research in the future and the results may be presented at conferences, in published papers, book chapter and books. However, all information included will be cited anonymously.

Participation is voluntary

You will not be asked to provide any personal information about yourself. Please be advised that your participation in this research is entirely voluntary and you may choose to withdraw your participation in the research at any stage and also refuse to answer any questions if you wish to do so. Should you wish to withdraw at any stage, or to withdraw any unprocessed data you have supplied, you are free to do so without prejudice.

Where can I get further information?

Should you require any further information, or have any concerns, please do not hesitate to contact either myself or my supervisor at the email addresses given above. This research project has been approved by the Human Research Ethics Committee of The University of Melbourne. If you have any concerns or complaints about the conduct of this research project, which you do not wish to discuss with the research team, you should contact the Manager, Human Research Ethics, Office for Research Ethics and Integrity, University of Melbourne, VIC 3010. Tel: +61 3 8344 2073 or Email: humanethics-complaints@unimelb.edu.au All complaints will be treated confidentially. In any correspondence please provide the name of the research team or the name or ethics ID number of the research project.

How do I agree to participate?

If you would like to participate, please contact myself through telephone or email to confirm your willingness to participate. I will then contact you to arrange a suitable time and place to conduct the interview. Please also review the consent form to understand what you will be consenting to on the day of the interview.

On the day of the interview, written consent will be sought for the items in the consent form and if you agree to your interview being audio recorded (not compulsory). Your consent form, once returned, will be stored confidentially and securely by myself, along with all interview related information.

Consent form for Interviewees

**FACULTY OF ARCHITECTURE, BUILDING AND PLANNING****Consent form for Interviewees (One-on-one and Focus Group)**

RESEARCH PROJECT TITLE (PhD level): Implementing Activity Based Working (ABW)-
Investigating how this innovation is taken up in organisations

Contact details of the researchers:

Ms Eileen Sim (PhD candidate and investigator)
Email: esi@student.unimelb.edu.au
Ph: 0468948232

Dr. Christopher Heywood (Supervisor)
Faculty of Architecture, Building and Planning
Email: c.heywood@unimelb.edu.au

Name of participant: _____

1. I consent to participate in this project, the details of which have been explained to me, and I have been provided with a written plain language statement to keep.
2. I have read and understand the plain language statement provided to me.
3. I understand that after I sign and return this consent form it will be retained by the researcher.
4. I understand that my participation will involve an interview and I agree that the researcher may use the results as described in the plain language statement.
5. I acknowledge that:
 - (a) the possible effects of participating in the interview have been explained to my satisfaction;
 - (b) I have been informed that I am free to withdraw from the project at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
 - (c) the project is for the purpose of research;
 - (d) I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements;
 - (e) I have been informed that with my consent the interview will be audio-recorded and I understand that audio-recordings will be stored at University of Melbourne and will be destroyed five years after the completion of the research;
 - (f) information sourced from me will be cited anonymously in any publications arising from the research and that total anonymity cannot be fully guaranteed due to the small sample size meaning that it is possible participants may be identifiable;
 - (g) I have been informed that a copy of the summary report with the research findings will be forwarded to me, should I request this;
 - (h) Should I request for a copy of the summary report, this summary report will not be circulated to anyone else and/or used without the consent of both the student researcher and the organization to protect the organization and all participants involved.

I consent to this interview being audio-recorded

(please tick) ☐ yes ☐ no

I wish to receive a copy of the summary project report from this PhD research

(please tick) ☐ yes ☐ no

If you wish to receive a copy of the summary report, please include your preferred channel of communication:

(please tick) ☐ email ☐ hard copy mailed

Email Address (or physical address): _____

Participant signature: _____

Date: _____

Consent Form – PhD Research – Implementing Activity Based Working- Investigating how this innovation is taken up in organisations

Ethics Application: 1648278.1

Appendix C: Research Instruments

C1: Stage 1 Interview guide

Each interview conducted began with the interview script below to gain consent prior to recording:

“Before we get started with the interview, here is a copy of the Plain Language Statement and the consent form which is the same copy in your email. Subject to your consent, it’d also be extremely valuable if I could audio record this interview with my mini recorder because we are likely to cover a large amount of information and I won’t be able to keep up through note-taking. The audio recording will only be for the purposes of this research and will not be shared with anyone else to protect your identity. I’ll give you a minute to go through these if you want to and to sign at the bottom of the consent form when you’re ready.

I would begin the audio recording now. During this interview, the two main themes I wanted to cover are the overall workplace concept and the implementation process followed by a discussion on some procedural items such as gathering documents, photographs, etc. There are a few other themes that I’d like to follow up on in a second interview if that’s okay with you such as post-moving in changes and evaluation.”

The interview themes were pre-determined based on the interviewee’s role in the organisation from email communications prior to meeting up face-to-face for the interview. Several generic questions were prepared for each interview theme to guide the interview. The interview themes and interview questions are as follows:

a) Rough idea of overall Workplace (approx. 10min)

1. *What would you call the workplace concept in this building and what type of workplace concept were the employees working in prior to transitioning to this workplace layout?*
2. *Could you please further describe how the *insert name of workplace* is designed or envisioned to function?*
3. *Are there any workplace guidelines in the *insert name of workplace*? If so, what are they?*
4. *How were these workplace guidelines determined and what is their purpose?*
5. *Have there been any non-compliance with the workplace guidelines?*
6. *What happens if employees do not comply with the workplace guidelines? Are there any that are enforced?*

7. *What was the ratio of employee-workstation that this office was designed for?*
8. *What were the primary drivers to transition to *insert name of workplace*?*
9. *How does the workplace designed meet these drivers/ strategies?*
10. *How does the new ABW concept differ from the previous workplace?*

b) Overall Implementation Process (approx. 40-50min)

1. *When did you come on board with the project?*
2. *Alright, I understand that the implementation process may be quite complex and long. To facilitate in explaining it, why don't we start with an overview on the stages undertaken in this process? We would then continue with a more detailed discussion on each of these stages. To assist us, I'll just sketch it very briefly here on these A3 papers. Would you like to begin from the time in which you first learnt about this project or were involved and we'll go in sequential order from there?*
3. *Thank you very much. I would now like to explore each of these stages individually to learn more about them. To assist us with that, I have prepared a few dot points on this cue card for each stage and I'll give you a minute to review it.*

Dot points on cue card:

- **Aim/ purpose** of the stage
 - **How** was this aim achieved?/ What happened during this stage?
 - What were the **end-result/ output(s)** of this stage?
 - Why was this stage and its outputs **important**?
 - **Who** was involved and what were their **roles**?
 - What are some **challenges** encountered during this stage?
 - How **long** did this stage go on for?
 - (If relevant) How was this stage **evaluated**?
4. *Were employees involved in any of these stages? If so, which stages were employees involved in? What group of employees were involved in this step (department, rank)? How were they involved in this step?*

c) Workplace Design process

1. *What was the design process to develop the workplace and the worksettings?*
2. *Was there any data collected prior to designing the workplace and the worksettings? If so, what type of data?*

3. *Did employees provide input or were engaged in the design process? Who were engaged or involved?*
4. *How were employees' feedback incorporated into the design?*
5. *Were there any pilots? Were there any changes made to the workplace design after the pilot was conducted?*

d) Workplace Change and Communication process

1. *When did the change and communication process begin? What are the chronological steps that followed?*
2. *What was the change and communication strategy?*
3. *What were the communication channels employed? Or How was change communicated?*
4. *Who was involved in the change and communication process?*
5. *Was the pilot part of the Workplace Change and Communication process?*

e) Culture initiatives

1. *Were there any organisational cultural change initiatives concurrently? If so, what were they?*
2. *How was the cultural change initiative promoted/ rolled out?*
3. *How does the new organisational culture differ from the previous organisational culture?*
4. *Did the workplace change initiatives complement the organisational change or vice versa?*
5. *How did they complement each other?*

f) Identifying the different activities each of these worksetting are meant to support

- *Can you specify the intended activities to be supported in this worksetting? (as shown in the A4-size image)*
- *What worksetting features or How does the design support the activities described?*
- *Are there any other worksettings that are missing from this menu? What activities were they designed for?*

Note: A4-size images of each worksetting were prepared prior to the interview.

g) Gathering docs (5min)

- *As part of the research, I hope to analyse some documentation that fully captures the type of office workplace layout here and that reflects the implementation process. Do*

you know of any such documents and how I can access them? eg. functional brief, floor plan, meeting minutes from the workplace change team, design brief, workplace evaluation results, promotional material, emails, workshop presentation slides, etc.

h) Verifying my document analysis results

- *Can I get you to review the ABW Implementation Process that I have documented? Please do let me know if there any errors or missing steps from the process?*
- *Is it correct that this happened before... (insert name of step) followed by... (insert name of step)?*

i) Corporate real estate strategies and organisational strategies

1. *What are the organisational corporate real estate strategies for the ABW project?*
2. *Were these real estate strategies designed to align with any business strategies? If so, what were the business strategies at that point in time?*
3. *How does the final workplace design meet these drivers/ strategies?*
4. *How has the business strategies changed over time? (May not be able to answer depending on how long he monitored the project after he was done)*
5. *Has the real estate strategies been able to respond/ align/ support the changes in the business strategies during your years in *insert name of organisation* since the relocation into the ABW? How so?*

j) Workplace evaluation

1. *How was the workplace evaluated (eg. surveys, etc.)?*
2. *What were evaluated in the workplace evaluations?*
3. *When were these evaluations conducted? Was it a once off or ongoing basis post-moving in?*
4. *By memory, what were the results of the evaluations post moving in?*
5. *Do you think the ABW project met the organisation's expectations? If so, in what ways? Were there any aspects of the project that did not meet the organisation's expectations?*
6. *Did the organisation make changes after reviewing the workplace evaluation?*
7. *Would I be able to gain access to these evaluations?*
8. *What are some workplace or building-related issues or challenges that you have faced in your involvement with the ABW post-moving in? Anything from high level to operational stuff.*

k) Changes made after moving in

1. *Were there any changes made to the workplace after moving in? What were the changes?*
2. *What triggered these changes? Was it the workplace evaluation results or...?*
3. *Were there any reminders/ follow ups on behavioural protocols like 'how to work' or 'how to use the workplace' issued to the employees after moving in?*
4. *Has there been any physical rearrangements or reallocation of work area to business units? How is this done?*

l) Scoping for FCG

1. *What departments will you describe as low mobility such that they are mostly at their Desks within the ABW?*
2. *What departments will you describe as being medium mobility such that they are mobile within the ABW?*
3. *What departments will you describe as being high mobility such that they are mobile within and outside the ABW?*

m) Day to day management issues of the workplace

1. *Are there any day-to-day issues that come up regularly in managing the flexible workplace? For example, cups being left everywhere, personal belongings left everywhere, etc.*
2. *What are the issues that you encounter?*
3. *How do you deal with them?*

n) Briefing for new employees on the ABW office

1. *Are there any briefing for employees that are new to the ABW?*
2. *If so, how are these briefings conducted? Who conducts these briefings and who are involved?*

o) Utilization

1. *Is the worksetting-employee ratio monitored and managed? If so, how?*

C2: Stage 2 Method 3: Focus Group Interview guide

Focus group timeframe: 1.5 hour⁴¹¹ (adjusted based on orgn)

Note: The entire focus group interview is complemented with PowerPoint slides.

Introduction (10min)

1) Research introduction and consent forms-

Firstly, I'll explain my research very quickly and where today's session fits into. My research is about studying how 'Activity Based Working' office are taken up from 2 levels- organisational and employee level. At the organisational level, I'm interested in how the workplace concept is implemented or rolled out, whereas, from the employee level, I'm interested in how employees interact with the workplace. Clearly, today's session is about your interaction with the workplace- from an affective, behavioural and cognitive perspective. So basically, how you feel, what you think or know and how you use the workplace. When I say workplace, I'm referring to the workplace concept that you have here and when I say worksetting, I'm referring to the various settings in the workplace like the open desks, the booths, Meeting Rooms, etc.

*Before I proceed, I'll need everyone's permission by signing the consent form in front of you. You should have an electronic copy of the consent form and plain language statement in your emails too. The data that I collect here will be made anonymous (eg. Organisational name, building and your identities will not be made known) so you can be as critical and open as possible because any information that you can contribute will not be linked back to you and it will help all of us in the property world to further improve the design of future workplaces. This also means that even though I'm highly appreciative of the time and effort that you've put into being here, it'd be best if we do not mention yours or *insert organisation's name*'s participation in this research as it may compromise the anonymity of it all. You may withdraw your participation at any time too. I will be offering *insert organisation's name* a presentation and a report. As a token of appreciation of your time and effort for being here today, I am also offering you a copy of the summary report either through email or hard copy. As I won't be able to take notes as quickly as I'd like, I'd like to obtain consent to audio-record*

⁴¹¹ It is expected that every organisation will be slightly different. For example, some organisations may not have a Neighbourhood assigned to each department. In that case, Activity 1 may have to be adjusted to meet the allocated timeframe. Additionally, some organisations may have less employee involvement in the implementation process. Thus, Activity 2 may be shorter than anticipated.

this focus group interview too. All of these are for the purposes of research to help both the academic and professional world better understand ABW to further improve the future of our workplaces. I'd now give everyone a minute to sign the consent form if you haven't already- I'd need your name on the top, followed by your consent to audio record, whether you'd like to receive a copy of the project summary and your signature.

After I have verified everyone's consent and collected the consent forms, the participants are informed that the audio recording has now started.

I have prepared one colour of pen for each of you, so please stick to this colour throughout the whole focus group.

A quick icebreaker for everyone to introduce themselves is conducted.

2) Structure of today's focus group interview session-

Activity 1 is about your involvement in the implementation process based on your involvement in it, Activity 2 and 3 are about your interaction with the workplace in terms of the guidelines and the worksettings. As there is plenty that I'd like to gather, we'll have to restrict the amount of time per activity. That's 15 minutes each for Activity 1 and 2; and 45 minutes for Activity 3.

I have designed this focus group interview to be as interactive as possible whilst collecting information as efficient as possible.

Without further ado, I'd like to commence Activity 1. If I go too fast, please stop me.

Activity 1: Employee involvement in the implementation process of the Workplace (15min)

Aim: Identify and discuss employees' thoughts and feelings about the implementation process, their involvement and if this influenced the way they used the various workspaces.

Tools: Implementation Process timeline- PowerPoint slides

Questions to be asked:

1. Do you generally work in this building on a daily basis? Whereabouts are you located on this floorplan? (1-2min)

2. On a weekly basis at work, how much time do you spend at your desk?

Display PowerPoint slide with a summary on the ABW Implementation Process from the information gathered in Stage 1

1. *To get an understanding of who underwent the relocation process to this building, can I get you to reflect on whether you were with your team relocating here or were they already in this building when you started work here? (1-2min)*
2. *Prior to moving into the building or commencing working here, were you involved in any of these steps? (goes through each step one by one)*
3. *What did you learn from your involvement in this implementation step? (5min)*
4. *Before moving into this building, did you or your team have any concerns about how you were going to work in the ABW?*
 - *How were these concerns address?*
5. *Did participating in this implementation step influenced the way you use the various worksettings? If yes, how so?*
6. *Lastly, will you have preferred more employee engagement or involvement about how to use the workplace and its various worksettings?*

Activity 2: Employees' interaction with the workplace- Guidelines (15min)

Aim: Identify and discuss employees' knowledge of the workplace guidelines, how they learnt about it and their affective, cognitive and behavioural responses towards these.

Tools: Workplace guidelines worksheet in the following subsection

Action: Distribute workplace guidelines worksheet

1. *Can I please get each of you to write down all the office workplace guidelines that you are aware of without discussing them? These are guidelines that guide how you use the worksettings- independent of whether you comply with them or not. After you are done writing down all the guidelines that you are aware of, I'd like you to indicate whether you comply with this guideline and whether you like or dislike the guideline and why. Please answer this worksheet honestly because I'll be storing them back in this sealed envelope after this and only I will have access to these.*

Action: After collecting all of them without reviewing them and storing them in sealed envelope, proceed with discussion.

Discussion:

1. *What affects your compliance with the guidelines?*
2. *Are there any guidelines that you find challenging to comply with and Why?*
3. *Did this change over time (eg. Initially easy to comply but now more challenging)? Why do you think so?*
4. *How did you learn about these guidelines?*
5. *How do you feel/ think about the ABW in general?*

Activity 3: Employees' interaction with the workplace- worksettings and workplace in general (45min)

Tools: A3 posters of the various worksettings, activity stickers

Aim: Identify and discuss employees' affective, cognitive and behavioural responses towards the various worksettings

Worksetting posters (15-20min)

Instructions on worksetting posters:

To understand your acceptance of the worksettings, we'll begin with these posters around the room followed by a verbal discussion on each worksetting. If we could all just gather around this poster here, it'd make a lot more sense to you when I explain what to indicate on each poster:

1) How this worksetting make you feel- You'd just have to fill up the sentence saying.. I feelon a scale of 1- very negative to 5- very positive or M- Mixed feelings; because the feature of this worksetting (could be you know, the openness, colours, etc.) makes me feel..... (for example, happy, connected, frustrated).

2) For the second part of the poster, I'd like you to indicate what activities you perform at this worksetting, how frequently you perform that activity there, how well the worksetting supports your activity and the suitability of worksetting to the Activity.

I have prepared a general list of potential activities on the set of stickers under each poster to indicate the activities that you perform here. So you can peel off the stickers and stick it in the empty space here. I've got some stuck on already to speed it up a little bit. If there are some

activities that you perform there that I have not provided, please feel free to write it on the poster. That's all you'd have to do on each poster.

We'll work through them on a rotational basis. After you're done with each poster, I'd get you to move on to the next poster until everyone has had a chance to provide their opinion on each worksetting here. If you are not the first person working on the poster, some activities might have already been stuck on so you'd just have to move on to the second and third column and use the subsequent row (point with finger).

I've allocated 10-15 minutes for you to put your responses on these posters so that's about 1-2 minutes each. I'll just spread everyone out a little bit. I'll be here to assist if you need me.

Discussion: max 20 min

Alright, we'll now begin our discussion of each of these worksettings..

1. *Why don't we start our discussion with this worksetting and activity: I can see that some people think that this 'Activity' is suited to this worksetting but rated the level of support quite poorly- why is this the case? [Low support, Yes suited; or High support, Not suited]*
2. *(Check if any discrepancy or low ratings for Column 3; if Yes,) - Just very quickly, I can see that *name of person* rated this worksetting 2 for *name of activity* compared to this person. Can I just get *name of person* to explain why you think this worksetting does not support *name of activity*?*
3. *Do you have any other comments about *name of worksetting*/ How do you find this worksetting (eg. Availability, location, tech)?*
4. *Besides the list of activities that you've already indicated here, are there any other activities from this remaining list that you think are suited to this worksetting/ that you intend to perform here? (because of it's... ability to...)*
5. *Where do you normally conduct focus work- eg. Work in which requires 100% concentration without any distractions?*
6. *Where do you take your phone calls? If you are at your desk, do you go to a different worksetting?*
7. *Is there a certain area or worksetting that you find particularly noisy? How do you deal with the noise in your work area?*

Also, acknowledge the activities that are suited and performed well.

Before we close, I have a few more general questions for you about the workplace:

In general, do you have any comments in relation to the following and whether it affects your ability to perform a certain activity:

- 1. The Layout and Worksettings positioning;*
- 2. The provision of equipment or worksetting variety and quantity;*
- 3. Some other settings that are outside of your Neighbourhood*
- 4. Last but not least, what is your favourite worksetting? And least favourite?*

Focus Group Interview Activity 2 worksheet

Activity 2: Workplace Guidelines worksheet

No.	Workplace guidelines (on how to use the worksettings) that I am aware of Eg. Clean-desk policy	Do you comply with this guideline? (Circle the relevant response)	Do you like or dislike this guideline? Why? (Circle the relevant response)
1		No Sometimes Yes	because Dislike Neutral Like =
2		No Sometimes Yes	because Dislike Neutral Like =
3		No Sometimes Yes	because Dislike Neutral Like =
4		No Sometimes Yes	because Dislike Neutral Like =
5		No Sometimes Yes	because Dislike Neutral Like =
6		No Sometimes Yes	because Dislike Neutral Like =
7		No Sometimes Yes	because Dislike Neutral Like =
8		No Sometimes Yes	because Dislike Neutral Like =
9		No Sometimes Yes	because Dislike Neutral Like =

Activity 3 worksetting poster sample

Name of worksetting: *insert name of worksetting*

picture of worksetting inserted

How does this worksetting make you feel?

I will rate it a (M- Mixed, 1- very negative, 2- negative, 3- neutral, 4- positive, 5- very positive) because the (feature- e.g. Openness, colours, technology, adjustable chairs/ tables etc.) makes me feel..... (e.g. Happy, frustrated, enjoyment, worried, etc.)

E.g. I will rate it a 3 because the openness that makes me feel happy and connected to my team.

1) I will rate it a because the makes me feel

2) I will rate it a because the makes me feel

3) I will rate it a because the makes me feel

4) I will rate it a because the makes me feel

5) I will rate it a because the makes me feel

6) I will rate it a because the makes me feel

	Activity that you perform here	Frequency of use of this worksetting for this activity (D- daily, W-weekly, M-monthly, N- never)	How well does this workplace support this activity? (1- Very unsatisfied, 2- Unsatisfied, 3- Neutral, 4- Good, 5- Excellent)	Suitability of worksetting to Activity (No, Yes)	Do you intend to stop or continue using the worksetting for this activity in the future? (Stop, Continue)
1.		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
2.		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
3.		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
4.		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
5.		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
6.		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
7.		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue
		D, W, M, N	1, 2, 3, 4, 5	No Yes	Stop Continue

C3: Stage 2 Observation Schedule sample

Observation date:				
Workplace area:				
Timeslot				
Workstation label	1) No of emp (0.5 for not present)	2) type of activity there (letter for activity they are conducting there);	3) Items left at workstation (employee absent);	4) Other comments/ observations
0.5W-2				
0.5Ph				
0.6W-2				
1K			Anchor sign	
2K			Containers	
			Cup or glass	
3W			Earphones	
4K	0.5		Food	
5W	0.5*2		Hangbag or bagp	
	0.5*3		Jacket or coat or c	
5iiM-6	0.5*4		Laptop	
	0.5*5			
6M-8	1			
7Fr	2			
8FR	3			
9FR				

Chatting/ interaction/ co

Earphones

Monitor screen

Phone headpiece

Phone- mobile, workline

Projector

Video conference

Whiteboard

Appendix D: Worksetting varieties and features defined

Defining the features highlighted across all worksettings

Across all three organisations, nine worksettings were identified and eight features were raised as influential on participant's affective reactions towards the worksettings. The focus of the worksettings are on the internal work area that are exclusive to employees instead of the external area that are accessible by clients (Christina Bodin Danielsson, 2013). The eight features are:

- Enclosure - the extent in which the worksetting is open or enclosed that will determine the level of audio and visual privacy afforded. This ranged from floor-to-ceiling enclosure to impermanent enclosure with varying height. The more floor-to-ceiling enclosure and softer materials used, the more audio privacy is afforded. Visual privacy was dependent on the material used where transparent glass enclosure afforded far less visual privacy than a solid enclosure;
- Chairs - The two main categories of chairs identified are formal and informal. The formal chairs are typically ergonomic chairs that employees use at their desk for long periods of working. The informal chairs are either stools, couches or non-ergonomic chairs designed to be used for short periods.;
- Desks - As most worksettings had a different type and size of desk, the desks were differentiated into whether it was a 'standard' desk size that is defined as a desk that is appropriate to the worksetting size such that all occupying users are able to place their laptops, documents or notebooks comfortably on the desk even when the worksetting is at full capacity, unlike 'small desks' that may only fit either a laptop or a notebook. Some desks were also height adjustable or the surface of the desk had a whiteboard coating that enabled it to function as a whiteboard.
- Location – This refers to the worksetting positioning on the ABW floorplan in relation to other worksettings and internal circulation routes. These are differentiated into three main categories:
 - (i) Major circulation routes (along the circulation route intended by the architects for employees to move around without entering other teams' neighbourhoods);
 - (ii) Minor circulation routes (along the circulation route for teams to move around within their own neighbourhoods); or

- (iii) Window periphery (adjacent to the windows).
- Technology and Visual Display Management (VDM) - The technology and VDM tools provided at each worksetting ranged from the availability and type of display screen such as no display, monitor (s), TV display screen, or Projector. Some worksettings also had devices set up to support Audio and Video conferencing, whiteboards for employees to write on, pin-up boards for employees to put up paper work and laptop charging stations. Certain worksettings were bookable through Microsoft Outlook and had a Room booking panel outside the worksetting for instant bookings or 'check in' for their room booking. All employees in B2 and B3 had at least one laptop in which some employees had additional technological tools. Within B1, the employees had either a laptop or used the Virtual Desktop Infrastructure (VDI) that is a virtual desktop hosted on a centralised server such that computers at the workplace are shared. Each Desk in B1 is set up to accommodate either of them.
- Lighting - Whilst most worksettings relied on ceiling lighting, some worksettings had additional lighting.
- Size – Worksetting size was divided into three categories based on the number of users they could accommodate: Small (up to four employees); Medium (five to eight employees) and Large (more than eight employees). Even though van Meel, Martens and Ree (2010) identified Small (for two to four employees) and Large (more than four employees) worksettings, the participants often referred to Medium sized meeting spaces as worksettings that accommodated five to eight employees.
- Flexibility - Flexibility referred to worksettings that are not semi-permanent and were designed to be mobilised or reconfigured quickly other than just moving chairs around.

Some worksettings have more than one relevant feature because the one type of worksetting may have had sub-variation. For example, B3 had varying Outside Neighbourhood Non-confidential worksettings ranging from semi-enclosed non-adjustable small desks and open standard desks.

These individual type of worksettings are described below in comparison with van Meel, Martens and Ree (2010) below.

Worksettings description

Meeting Rooms

Meeting Rooms are one of the only two fully enclosed worksettings identified. Most Meeting Rooms have at least one glass panel to avoid making users feel too enclosed. These glass panels are transparent in all three organisations but some Meeting Rooms in B2 had roller blinds that users could roll down. Unlike B2 and B3 that had a range of Meeting Rooms at various locations, all of B1's Meeting Rooms faced internally to the work area, were located towards the building core and had no windows looking outside of the building. Most Meeting Rooms were set up formally except for a few Meeting Rooms in B2 that were set up casually with couches and some non-adjustable small desks. Unlike B2 and B3, some small rooms in B1 did not have a display screen. Larger rooms often had a Projector instead of a TV display screen. Most Meeting Rooms had either whiteboards and/ or pin up boards to facilitate brainstorming or visualisation of paper material. All three organisations managed the rooms with Microsoft Outlook that syncs with the room booking panels fitted outside the rooms in B2 and B3. B2's room booking panel also allowed others to 'release' rooms back into the system and the system automatically released rooms if nobody 'checks-in' within fifteen minutes of their booking time to allow others to use it for the remainder of the booking. Unlike B2 and B3, B1 did not have any medium sized rooms in the internal work area but had some in the external area.

In addition to the internal Meeting Rooms, all three organisations had more Meeting Rooms in the external area known as Customer Suites. Unlike B2, B1 and B3 had a strict guideline that employees were not allowed to use the Customer Suites unless they were meeting a client. The Customer Suite bookings are managed by the Concierge or Property Team. Any internal use of the Customer Suites in B1 and B3 required a business case approval. Even though B2 was more flexible with their Customer Suite policy, not many employees are inclined to use them as they would have to take the elevator down to a different floor, exit the secured area and its availability could not be easily checked. The majority of participants were in a non-customer facing role, the Customer Suites were used by few and the feedback from the Customer Suites will be discussed alongside the Meeting Rooms.

Outside Neighbourhood Non-confidential Worksetting

These are defined as collaboration areas outside the allocated neighbourhoods within the ABW. These are not just the eating areas around the Kitchen but are areas that the architects

designed to provide teams with an alternative casual space outside of their neighbourhood that were non-bookable and unenclosed.

In B1, this was a large area on one end of the floorplate consisting of approximately four separate worksettings that are reconfigurable by employees and was similar to van Meel, Martens and Ree's (2010) Work Lounges and Meeting Points. Since B2 was mainly designed as a 'neighbourhood-based' space, they had less Outside Neighbourhood Non-confidential worksettings relative to B1 and B3. B2's worksetting was similar to van Meel, Martens and Ree's (2010) Small Meeting Spaces as it had three floor-to-ceiling enclosures. B3 had the largest variety of Outside Neighbourhood Non-confidential Worksetting similar to van Meel, Martens and Ree's (2010) Work Lounges, Meeting Points, Small and Large Meeting Spaces. Some of B3's worksettings were sit or stand, had display screens and had a varying level of enclosure and were more concentrated towards the Kitchen or major circulation area. Both B1 and B3 had whiteboards that served as a barrier and writing surface but B1's whiteboards were also mobile.

Study Booth

As per van Meel, Martens and Ree's (2010) definition of a Study Booth, the Study Booths in B2 and B3 are a small, fully enclosed space with floor-to-ceiling enclosure with nothing similar in B1. They resembled a Desk worksetting with a non-adjustable desk but placed in a small enclosed room. Unlike van Meel, Martens and Ree's (2010) definition that Study Booths are for one person without any technology, the Study Booths in B2 and B3 were fitted out with monitors, B3 had Audio Video Conference devices and B2 had some two person Study Booths. B2 had more Study Booths located along major circulation routes unlike B3's that were generally along minor circulation routes that does not have as much foot traffic.

Desks

As Desks accommodates a majority of an employee's daily work, they are the main worksetting available in the largest proportion in all three organisations. The Desks were allocated to neighbourhoods and had an ergonomic chair. Whilst all the Desks in B1 were the same with a low enclosure, B2 and B3 had a variety of Desks with varying levels of enclosure, desk size, aesthetics and sit-to-stand options. The varying enclosure height resembled van Meel, Martens and Ree's (2010) description of an Open office (no enclosure) and Cubicles (three floor-to-standing height enclosure within the open environment). B3 also had some two person Cubicles and some desks with whiteboards as enclosure. B2's individual Cubicle-like

desks were evaluated separately from the Open plan desks and will be notated as 'Cub' in the relevant tables.

Only B2 had physical signage to indicate which Desks belonged to which teams through stickers on the table and standing signs. In B3, only the anchor team's Desks had a sticker on the table indicating that those Desks were specially set up and were not to be reconfigured due to the landline phones. In terms of height adjustability, most desks in all three organisations were height adjustable to suit different seating heights but only 15% in B2 and 30% in B3 were sit-to-stand height adjustable.

In terms of technology and fitouts available at the desks, B2 and B3 had similar technology fitted out in which each desk had one monitor to comply with the environmental ratings of the building and a laptop arm with wires for users to plug in. B1 had two monitors on all Desks. Unlike B1 and B3, B2 had no keyboard and mouse provided at each desk. The technology on each desk in B1 were fitted out with a desktop or laptop docking station as interchanging between the two caused too many technology issues.

Conferencing Pods

These are semi-enclosed worksettings that are specifically designed and fitted to support video and audio conferencing that are only available in B1 and B3, not B2. The Conferencing Pods in B3 had three floor-to-standing height enclosure, whilst the Conferencing Pods in B1 resembled a small house without a door. Whilst B1's Conferencing Pods were to be shared by everyone, B3's Conferencing Pods was located at a far end of the floorplate for exclusive use by a team that had virtual clients and were only bookable by them. B3's Conferencing Pods were only for individuals working on monitors using headphones, whereas, B1's Conferencing Pods were for medium sized groups, had a TV screen and video conferencing technology. Thus, the Conferencing Pods in B3 were set up more like a long-term individual worksetting compared to B1's that is set up like a short-term semi-enclosed meeting space. This is one worksetting variety that was not identified by van Meel, Martens and Ree (2010) and varied markedly across the two organisations.

Neighbourhood Collaboration Areas

The Neighbourhood Collaboration Areas are significantly different across all three organisations but seems to fall under van Meel, Martens and Ree's (2010) description of Small and Large Meeting spaces within close proximity or within the neighbourhoods in which

participants can quickly retreat to. Whilst both B1 and B3 predominantly only had one type of Neighbourhood

Collaboration worksetting, B2 had three types that were distinguished into 'Network Table', 'Nest' and 'The Edge'. B1's worksetting had no technology, resembled an angle-adjustable whiteboard table and mobile stools. B3's worksetting was a semi-circular table attached to a wall with a TV display screen without chairs for users to stand around which is similar to B2's 'Network Table' except B2's Network Table is trapezoidal, had chairs and the TV screen was on a floor-to-standing height enclosure. B2's 'The Edge' had a two-sided corner couch with walls behind, a round table and stools. In B3, one neighbourhood had a worksetting similar to 'The Edge' in B2 but was slightly larger. The Nest in B2 is at the centre of every neighbourhood and was a floor-to-ceiling semi-transparent enclosure holding a TV display screen and whiteboards with pin-up boards on the other side and a U-shaped seating area surrounding the Display screen with small laptop tables.

Library

All three organisations had a Library but B2 had removed it due to underutilisation and space pressure. There are several differences between the Library in B1 and B3 as B1's Library was next to the major circulation route with only floor-to-standing height enclosure, had small desks with monitors and chairs facing each other in pairs. The Library in B1 was open and was located in between a printer area and employees' lockers. There were a few coat hangers in the Library effectively turning it into a cloak room. On the other hand, the Library in B3 was a secluded technology-free room on an upper floor with cubicle-like desks and had individual occasional chairs with a view overlooking the city.

Drop-in Points

Only B2 had this worksetting that consisted of long, non-adjustable wooden tables with non-ergonomic, café-style chairs. These were positioned in high thoroughfare areas next to the Kitchen and lifts, outside the toilets and lifts and were not part of neighbourhoods. Powercords were available for users to charge their devices.

Kitchen

In every Kitchen, the minimum fitouts was a Kitchen benchtop fitted out with microwave ovens, sink, dishwasher and fridges. B2 and B3's setup was similar in which they had one main Kitchen and 2 smaller Kitchens at other areas on the floor, whereas, B1 only had one Kitchen that was like the smaller Kitchens in B2 and B3. The main Kitchen in B2 and B3 also had a

barista style coffee machine. Additionally, both B2 and B3 had separate catering Kitchens, whereas, B1 had no separate catering Kitchen and employees had to share their Kitchen with the caterers whenever there was an event. All three organisations had circular desks accommodating up to 4 employees but B2 and B3 had a much larger floor area with various seating areas in addition to those that also helped to accommodate overflows. B2 and B3 also had an external open air area in which employees can step outside for fresh air (a separate floor in B2 and located next to the smaller Kitchen in B3). The Kitchens in B1 were internal with no lookout windows, B2's was facing the building's atrium and B3's had lookout windows.

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