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## **Adapting to a marketised system: Network analysis of a personalisation scheme in early implementation**

### **Abstract**

As governments worldwide turn to personalised budgets and market based solutions for the distribution of care services, the care sector is challenged to adapt to new ways of working. The Australian National Disability Insurance Scheme (NDIS) is an example of a personalised funding scheme that began full implementation in July 2016. It is presented as providing greater choice and control for people with lifelong disability in Australia. It is argued that the changes to the disability care sector that result from the NDIS will have profound impacts for the care sector, and also the quality of care and wellbeing of individuals with a disability. Once established, the NDIS will join similar schemes in the UK and Europe as one of the most extensive public service markets in the world in terms of numbers of clients, geographical spread and potential for service innovation. This paper reports on a network analysis of service provider adaptation in two locations; providing early insight into the implementation challenges facing the NDIS and the reconstruction of the disability service market. It demonstrates that organisations are facing challenges in adapting to the new market context and seek advice about adaptation from a stratified set of sources.

**Keywords:** Social policy, Welfare benefits, Personalisation, Health and Social Policy Implementation

### **What is known about the topic:**

- Personalised funding schemes are gaining prominence worldwide

- Personalised systems bring new market conditions to the care sector, providing a challenge to service provider adaptation

#### **What this paper adds:**

- NDIS service providers use a stratified set of actors to seek advice about adapting to the new NDIS conditions
- The way that service providers adapt to new market conditions will have important impacts for the structure of the care sector

#### **Introduction**

Internationally there has been a trend towards personalisation of care and social services (Dickinson & Glasby, 2010; Needham, 2010a). While attempts at personalisation are varied, the goals of a personalised system can generally be characterised as striving for a set of services that address a participant's care needs specifically (or 'personally') (Dickinson & Glasby, 2010). There are many ways to achieve personalisation, but an increasingly utilised aspect of the personalisation agenda is 'individualised budgets' in which funds are given directly to individuals rather than to provider organisations. The logic behind this is that these individuals can then purchase the services they desire directly from a 'market' of providers, creating more choice and control for individuals (Needham, 2010b). This is believed to lead to better care outcomes (Australian Productivity Commission, 2011; Sims & Cabrita Gulyurtlu, 2014). In Australia, an 'inequitable and piecemeal' disability care sector is in the process of being replaced with an 'individualised' or 'personalised' approach (such as that outlined above) in the form of the National Disability Insurance Scheme (NDIS) (Australian Productivity Commission, 2011). The NDIS has been labelled the biggest reform in a generation, and the scale of this reform presents challenges and some risks to government, care industry and end users alike including the maintenance of care quality and the equitable distribution of care (Australian Productivity Commission, 2011; Malbon, Carey, & Dickinson, 2016; Productivity Commission, 2017).

This paper employs a mixed method approach, combining social network analysis and qualitative interviewing to explore if and how organisations in the sector are adapting to the personalised approach to disability services. We found that adaptation can be challenging for care organisations, particularly regarding financial sustainability. Information about potential ways to adapt to the NDIS will be important for allowing care service organisations to continue to provide care, this includes strategic information, regulatory compliance information, administration information (ie: invoicing, payments) and information relating to staffing decisions. In examining information sharing networks we identified that it is likely that only a few key individuals are providing information on how to adapt to the NDIS. Rather than a network 'web' as we would expect to see in a highly collaborative network our results show a stratified or 'spiralling' network. This means that organisations that are not in contact with key individuals (whether through forums or personal connection) could be at risk of closure, disrupting the sector overall and posing problems for care quality and availability.

### **Context: The Australia National Disability Insurance Scheme**

The Australian NDIS has been described as one of the most significant reforms to Australian social protection policies to date, and is certainly the most significant currently under implementation by the Australian government (Carey & Matthews, 2017; Dickinson & Carey, 2017). At the core of the NDIS is a goal to increase choice and control of care services (distinct from health services providers through the health care system) for people with severe and lifelong disability in Australia, and increase the quality of care provided. When the NDIS is fully implemented it is expected to include an estimated 440,000 people at a cost of approximately \$22 billion per year (Australian Productivity Commission, 2011). In this context, increased choice and control are to be achieved through the allocation of personalised budgets for disability care and the marketization of support delivery previously delivered by State and Territory governments, thereby creating a new public service market (LeGrand, 2007). Eligible individuals will be allocated public monies (which can be self-managed or held by the administering organisation the National Disability Insurance Agency) to select registered service providers from a market to provide them with

care. This is social insurance delivered according to market rules, and constitutes new public service market arrangements for disability care provision in Australia.

While the federal government is responsible for the implementation of the NDIS and the rules that structure the new public service market, adapting to the new conditions of this market is largely the responsibility of service providers and the care service sector. The implementation of the NDIS is to take place over five years (July 2013-June 2018) including a three-year trial phase in seven areas across Australia and a two-year transition phase where trial sites are expanded to cover all eligible individuals across Australia. The way that service providers adapt to the NDIS has important implications for care quality and access, making the adaptation of service providers to the NDIS crucial for the scheme's success. Successful adaptation by service providers to the new NDIS public service market is far from guaranteed. Indeed, it was recognised that a certain number of service organisations would not be able to adapt to the more business driven methods of working required by providers with the introduction of market pressures, with implications for the availability of care for people with disability (Australian Productivity Commission, 2011). Using social network analysis we investigate how service providers are seeking advice and information about adaptation to the NDIS, and the challenges they face in adapting. This is important because the reliability of information and advice about the NDIS and potential adaptation strategies have far reaching consequences for the success of the scheme. Ideally, information about adaptation to the NDIS should be shared under a collaborative and collegial set of relationships between service providers and other actors which helps to protect against the failure to adapt (and cessation of care services) that lead to thin markets and market failure (Carey, et al., 2017).

### **Mixed methods: Social network analysis and qualitative interviews**

This study used a mixed-methods approach combining social network analysis with qualitative interview data to attempt to map the adaptation of disability support service/care networks to new NDIS arrangements at two sites. The mixed method approach combining network analysis with qualitative data is best practice for social network analysis; the network analysis provides quantitative insight into network structure, complemented by qualitative data that provides insight into why a network

might be structured in this way (Domínguez & Hollstein, 2014). The UNSW Human Research Ethics Committee approved the study (code HC16396). The sites selected for analysis were the Australian Capital Territory (ACT) and North East Melbourne (NEMA) districts. The ACT was a trial site for the NDIS and the Scheme has been implemented slowly there since 2014. NEMA is not a trial site, and it commenced full implementation in July 2016.

Social network analysis has been used successfully across a range of fields germane to our purposes including: to explore disease support (Dipple & Evans, 1998), to map support for people with long term conditions (Banbury et al., 2017); to measure the flow of embedded resources such as advice and information that individuals and organisations draw on through social networks; and to map the emerging contours and dynamism of service delivery networks (Considine, Lewis, & O’Sullivan, 2011; Lewis & Alexander, 2013; Lin, 1999). The approach is apt for the case study because the way that service providers gather their information represents the use of existing networks and the construction of new relationship ties. Through network analysis, which provides a set of appropriate and well-developed analytical tools and concepts about network structure, we can gain insight into the structure of those networks, the mix of actors and the kind of network it is (Southon, Perkins, & Galler, 2005).

The social network analysis component of the study was used to explore the information that service providers access through their individual networks (known as ‘ego networks’) while delivering services to clients under the NDIS, and to map the entire service delivery network structure (known as the ‘global network’) as it evolved in each jurisdiction. ‘Name generator’ questions were used to ask which specific people our respondents called on for information such as strategic information about developments within their sector, and who they consult when adapting their business to the new market. Name generators are often used to measure socially embedded resources or information by asking respondents to list people or organisations they draw on for help in a given context. For example, who they go to ‘to discuss personal matters’ (Marsden, 1987); who they go to ‘for advice on a work related matter’ (Considine, Lewis and Alexander, 2009); or who they go to for action on a local issue (Alexander, 2015). This ‘core network’ question is then often supplemented by further ‘name interpretation’ questions to illicit further details about

the nature of the social tie and the characteristics of egos (source of the tie) and alters (tie receiver). Participants were asked who they had spoken to about adapting their organisation to the NDIS. This quantitative network data was supplemented with interview material to enable us to explore in more detail what drives and what hinders adaptation to the new NDIS conditions. In both the network analysis and the interviews the informant's views were taken to represent organisational rather than personal responses.

Participants in the research were service providers based in the ACT and NEMA. Using a list of registered providers available on the NDIS website (National Disability Insurance Agency, 2017), we emailed a social network analysis survey invitation to all registered providers. In addition, a link to the survey was circulated through online newsletters from ACTCOSS (Australian Capital Territory Council of Social Services), and NDS (National Disability Services, the industry peak body).

Participation in the survey by service providers in ACT was reasonable (n=29), but participation by service providers in NEMA was low (n=9) and we could not draw strong conclusions from the quantitative data alone, as elaborated in the findings section. At the time of sampling there were 1103 providers registered in the ACT, however many of these providers are not actually providing services and simply registered in the ACT as it was a trial site for the NDIS. By registering in the trial site early these organisations were able to gain insight into how the NDIS process worked before it rolled out nationally, offering a learning opportunity for them but distorting the apparent number of active providers in the ACT. While we don't have access to specific information about the number of active providers in the ACT, we do know that "80-90% of payments made by the NDIA are received by 25% of providers" (COAG Disability Reform Council, 2018, p. 3), suggesting many registered providers are not active. We do not claim that we have measured a global network, but rather that our sample gives insight into the mix of actors currently sharing information resources about adaption to the NDIS.

Participants in the semi-structured interviews were drawn from the same list and invited to participate via email and phone call. For the interview sample; purposive

sampling was employed to target larger providers with more complex organisational structures, as opposed to single employee organisations such as independent occupational therapists as these larger organisation are most difficult to rebuild once lost to the sector. While this was the target, we still interviewed service providers as small as a single employee (n=2). Semi-structured phone interviews were held with participating service provider organisations across the ACT and NEMA sites (n=29). Representatives from participating service provider organisations were asked about their organisation's adaptation to the NDIS, and about the experience of the implementation of the NDIS more broadly. Interviews were recorded and transcribed verbatim. Data was analysed by three authors (EM, DR, GC) using a thematic approach (Blaikie, 2010). 'Like' data were clustered into categories and subcategories. These categories were linked and connections between them drawn to form substantive themes via discussion between authors (Strauss, 1987). Through this process we identified data that showed the adaptation to the new system of competition for clients that the NDIS introduced, as well as data that helped to explain and further articulate the network analysis findings.

## **Findings**

The findings for the social network analysis are presented first, and serve as a prelude to the discussion of the interview responses by service providers to the new conditions of NDIS public service market, which extend and provide further context for the social network analysis findings.

### *Network analysis*

The ACT adaptation network (Figure 1) is a graphical representation of the ties between service providers in this site relating to conversations about adaptation of their organisation to the NDIS reform (n=29). The NDIS reform began as a trial in the ACT in July 2014, and had been running for approximately two years at the time of sampling. Support for adaptation to the NDIS market was offered by the federal government, state government and the peak body National Disability Services (NDS), and took the form of forums, online information, email communication and informal phone conversations (National Disability Services, 2017). A total of 41% of survey participants identified the NDIS website as the major source of information about the

NDIS reform. This information is mediated by discussions with the peak body (NDS) and others in the network (Figure 1) as discussed below.

INSERT FIGURE 1

Figure 1. Australian Capital Territory (ACT) adaptation network

In Figure 1, each node represents an individual within the network, with the arrow indicating the direction of adaptation advice seeking. Nodes have been colour-coded according to seven different types of organisations evident across the sector (Table 1), with node size representing the number of nominations as a source of adaptation advice. While the peak body, advocacy organisations, and government employees were not targeted in the survey, a mix of these organisations appear in the network. Directed ties - people that are spoken to about adaptation - are fairly evenly split across sectors, with just under 25% of ties directed towards people classified as 'business'; 'community'; or 'government' as shown in Table 2. People in the peak and advocacy classification were the next frequently consulted at 12.7% and 9.7 % respectively (see Table 2). The result, while not an entire (global) representation of the network, demonstrates a network of information sharing about this marketised reform that has been mediated through civil society organisations and industry peak bodies with additional representation from civil society such as community organisations, and advocacy organisations.

INSERT TABLE 1

Table 1: Description of actor categories in network analysis

INSERT FIGURE 2

Figure 2: Tie destinations for adaptation conversations in ACT

INSERT TABLE 2

Table 2: In-degree ties for adaptation conversations in ACT adaptation network

In-degree centrality provides an indication of the prominence of an individual actor in a given network and is based on the number of ties directed towards that individual (Considine, Lewis and Alexander, 2009). When we consider the top 10 actors ranked by in-degree and by perceived importance as a source of information (Table 3), the local representative for the peak body for disability services (node 305) not only received the most nominations but was also most highly ranked as an important source of information about adaptation (ranked: 1,2,2,2,2,3,3,3,4,4,5,5). Nodes '79' (business) and '32' (peak) were also highly ranked in terms of importance by those who nominated them, but not necessarily the most frequently mentioned overall.

INSERT TABLE 3

Table 3: Top 10 Actors ranked by in-degree scores in ACT adaptation network

Overall, this data suggests that advice seeking about adaptation to the NDIS is stratified through NDIS government employees, the peak body and/or advocates, then spiralling out to providers themselves. Consequently, information about adaptation may rely on a few key individuals such as the representatives for the peak body and local NDIS employees. As will be discussed in the following section, this accords with the interview data that describes forums run by NDIS and the peak body as a primary location for information sharing and network connection. In a sector that has high levels of collaboration we might expect to see a 'web' network structure, but the network we have found is stratified; with representatives from the peak body and government central and information flow outwards towards providers. This supports the argument of this paper that the introduction of a client centred competitive environment is the latest in a series of market-based policies, including competitive contracting and quasi-markets, that diminish collaboration and collegiality in NDIS sites. By shifting the rules around competition within the disability service sector to a client centred competitive environment the NDIS acts to reshape the business strategies that providers use to deliver care (Sims & Cabrita Gulyurtlu, 2014).

It should be noted that the network data from NEMA was sparse and disconnected due to low survey responses at this site (N=9). Due to the low level of responses we found that we could not draw insightful information from the network data. During our interviews we scoped out possible reasons that the network data was sparse at the NEMA site, and we concluded that service providers were busy transitioning to the NDIS in their area at the time of study, and the stress and high workload associated with this adaption left little time for participating in research. This is in contrast to the ACT, where the NDIS trial has been in place for three years. Furthermore, this time pressured experience by providers during the roll out of the NDIS suggests that other time-consuming tasks such as participating in networks that aid adaptation may also be reduced at this time. While we do not present the network analysis from NEMA, we will present the interview data that gives qualitative insight into the adaptation to the new system of competition by clients for service providers in the NEMA area.

#### *Advice and information seeking about adaptation*

The findings from the ACT network analysis demonstrate a stratified or ‘spiralling’ network structure, with NDS actors and government actors as primary sources of knowledge about the conditions of NDIS, and therefore a primary source for understanding how to best adapt to new NDIS conditions. Within the stratified structure, the discussions about adaptation to the NDIS involved a mix of actors from community organisations; businesses, advocacy organisations, government, consultancies and researchers. (Only one participant included clients and client’s families in their discussions of the adaptation of her business to the NDIS market.) In particular, the NDS, as the peak body for disability service in Australia, was supportive of service provider adaptation in a variety of ways including through CEO forums. Many participants identified CEO forums as a site for collaboration and sharing information about adaptation to the NDIS market:

There was a fabulous discussion and talk about [how to adapt to the NDIS]. And certainly locally the local office of the NDS, National Disability Services, they put a lot of stuff in health, and they're still holding regular forums for CEO's and they'll start to talk through the issues, and things like that.  
[ACT\_P5]

Communication between ACT service providers and the NDIA occurred mainly through the NDS, a peak body organisation well placed to collate service provider's concerns and requests:

So there was a number of workshops, meetings open to pretty much the whole sector. The NDS set up some CEO forums where, sort of, executive management were able to come and voice some of their concerns. The Agency [NDIA] was invited continually to that forum as well. I think [NDS employee] was pretty determined to get that message across to the Agency. [ACT\_P9]

The rapid pace of change during implementation means that providers were forced to pay close attention to the information coming from the NDIA via the NDIA website and through forums, and then confirm their understandings with other service providers. Most of their conversations on adaptation were confined to forums facilitated by NDS. The qualitative findings about NDS and NDIS forums accords with the social network analysis results, which show a stratified or 'spiralling' network structure with the NDS peak body and government actors as central and communicating information out to providers.

Decisions are made at the NDIA level and then filter down through services... you've always got to make sure you're on your NDIA website watching for if there's been any changes. [ACT\_P13]

Qualitative data from the NEMA site suggests that a similar network structure could emerge at this site, as service providers named NDS and CEO forums as an important source of information and site for advice seeking on adaptation:

The majority of support to all not for profit in the north-east transition site has been through National Disability Services. [NEMA\_P9]

... we participated in those meetings on a monthly basis and it was really good at sharing information and receiving really valuable information that we can tell to our clients and families. [NEMA\_P6]

Notably, the NDIA also contacted organisations that were adapting effectively to the new NDIS market as exemplars for other service provider organisations. The willingness of such service providers to share their internal systems, such as their quoting system, demonstrates continued goodwill and collegiality in the sector. Though, it can also be argued that being made an exemplar of good practice is also good for attracting business:

Although we were quite confident in the way we're quoting and the NDIA loved our quoting systems to the point where they're telling people to come and see us to see how we quoted, which became a bit of a competitive edge if you want... but anyway, which we shared. [ACT\_P12]

We also found examples of service providers sharing information about adaptation with other organisations that they have good relationships with:

Look we've got really good relationships, with other companies like [organisation name], because we work closely with them, with a couple of our contracts, so yeah, because we've known each other for years and if people do have problems we'll just jump on the phone and have a general chat with each other... I say "I do this" and they'll say "oh I do this" so it's just general, it's not official, it's just us sort of talking one-on-one. [NEMA\_P4]

Overall, the interviews raised questions about how organisations are adapting. Some organisations faced serious financial pressures:

I would say that as a whole, my organisation has been a little bit slow in getting that financial sustainability stuff happening. We are a bit behind the eight ball on that. I wouldn't say that we've been very savvy... At the moment we're still playing catch up to get to that financial sustainability point. We're still tightening. I think we started out very flexible and realised that we weren't making enough money, so we had to tighten up. [ACT\_P10]

We are actually making a large loss on NDIS services. We are reviewing all of that at the moment. I'm in discussion with some fairly high up officials in the NDIS. We've been saying from the word 'go' that it's not sustainable... delivering services under the NDIS is a loss making venture... We've already seen providers withdraw in the ACT from providing services. Even though the NDIA loves to quote that services have increased, if they actually drilled down and rang say, all the providers, that are registered for direct support and found out how many are doing it there would be a very different picture. [ACT\_P7]

This poses a serious risk to the scheme as a whole. If organisations cannot remain financially viable they will exit the market place and cease providing services on the NDIS, leaving gaps in terms of care services.

The financial challenges faced by service providers adapting to the NDIS has been exacerbated by implementation issues amongst the NDIA (the main implementation agency within government). In particular, the NDIA experienced a serious IT crash during the time the research was conducted. The malfunction of the online portal through which service providers are paid resulted in delays in payments for weeks:

I think that the portal failure has alerted everyone, or should have alerted everyone to what a significant risk it is to business. In the transition site we were very lucky because it failed right at the beginning, so none of our business suffered but in the event that they upgrade the portal in two to three years and there's another failure which will likely happen: we will all be significantly impacted from a business perspective because our income will be affected, the capacity for us to implement plans, to document outcomes, to do all of those things will be impacted as we saw in the trial sites when the portal went down. [NEMA\_P9]

As this participant notes, the implementation of individual care plans will ultimately suffer if organisations cannot adapt. Adaptation is being made more difficult by capacity issues within the NDIA, which have been much commented upon in government reports (Australian National Audit Office, 2016; Productivity Commission, 2017)

## **Discussion**

As one of the largest and most significant public sector reforms in Australian history, the NDIS represents a substantial opportunity for understanding the benefits, challenges, and evolution of a choice-based market reform. Findings from social network analysis combined with qualitative interview data has been utilised to explore how organisations have adapted to the introduction of a public service market.

The social network analysis, while stopping short of an analysis of the entire network (ie: the 'global' network), gives an indication of the mix of actors in conversations about service provider adaptation to the NDIS reform and the structure of this network. In particular, it demonstrates a stratified structure that shows the peak body and government actors in the centre and information 'spiralling out' to service providers. Participating in the discussion are service providers, advocacy organisations, government and business. We note that only one service provider included clients and client's families into their discussions about adaptation of their organisation to the NDIS, suggesting that people with disability may not be active in this conversation space unless employed by a participating organisation.

The move to personalised funding and the changes in the structure of the public service market has had flow on effects for the business strategies that providers use to deliver care and, in turn, the quality and range of care provided (Sims & Cabrera Gulyurtlu, 2014). In particular, the ability of organisations to adapt to the new individualised approach to funding, particularly with regards to financial sustainability and weathering 'shocks' such as the IT system failure that left some service providers without payments for their work for many weeks, provides challenges to service provider adaptation with flow on implications for care quality and consistency. These findings are in line with other work on the impacts of personalised schemes on service provider delivery of care services (Foster, Harris, Jackson, Morgan, & Glendinning, 2006). If organisations drop out of the market, a whole host of care services may cease to exist (Carey et al., 2017). It is important to keep established providers in the market as they have experience in working with people with a disability. Service providers have noted "time is money" and organisations without sufficient budgets to allow for extra staff hours to deal with

crisis or adaptation situations may end up being unable to provide any care in this area.

The maintenance of care continuity through preventing significant closures in the sector is especially important in relation to people living with disadvantage, as the NDIS has the potential to exacerbate inequities if not implemented with consideration to the different needs of groups of people, such as of people in remote and regional areas, people with psychological or mental disabilities, and people in areas of 'thin' or failing markets (Carey, Malbon, Nevile, Llywellyn, & Reeders, 2017). Future research will need to examine if this trend continues and how organisations might be responding in terms of changing staff allocations and utilising resources. Additionally it will be vitally important to examine the impacts of any sectoral changes on both care continuity and care outcomes for clients, especially given that a competitive environment has been shown to result in fragmented healthcare delivery (Hood, 1995).

## **Conclusion**

In this piece, we have explored the ways that service providers organisations are seeking information about adaptation of their businesses to the NDIS, Australia's most recent foray into personalised budgets for care. Using social network analysis we found that service provider organisations are seeking advice about adaptation from a stratified set of individuals. The implementing agency (NDIA) and the national peak body for disability services (NDS) are situated as key information holders and sharers of advice about adaptation. The findings of the social network analysis were complemented by qualitative interviews that found that service providers valued the CEO forums hosted by NDS as major sources of information about adaptation, and also 'checked back' with other service provider organisations about strategies for adaptation. The successful adaptation of service providers to the NDIS is crucial for maintaining a robust service market of care for people with disability. With the further marketization of health and social care, the ways in which service providers adapt to continue to provide safe and quality care is of upmost importance for people with disability in Australia. We found that service provider organisations were challenged by the adaptation to the new public service market, leaving the scheme

vulnerable to thin markets and the potential for inequitable distribution of care for people with disability within Australia.

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| <b>Actor Category</b> | <b>Description</b>   |
|-----------------------|--|
| Government            | Actors who work for state or federal government such as the NDIA   |
| Business              | Actors who work for a service provider that is a for-profit organisation   |
| Community             | Actors who work for a service provider that is a not-for-profit, charity or faith based organisation             |
| Advocacy              | Actors who work for an advocacy organisation   |
| Consultancy           | Actors who work as business consultants  |
| Peak Body             | Actors who work for National Disability Services, the peak body for service providers in Australia               |
| Other                 | Actors in this category included people with disability, university researchers, friends and unidentified people |

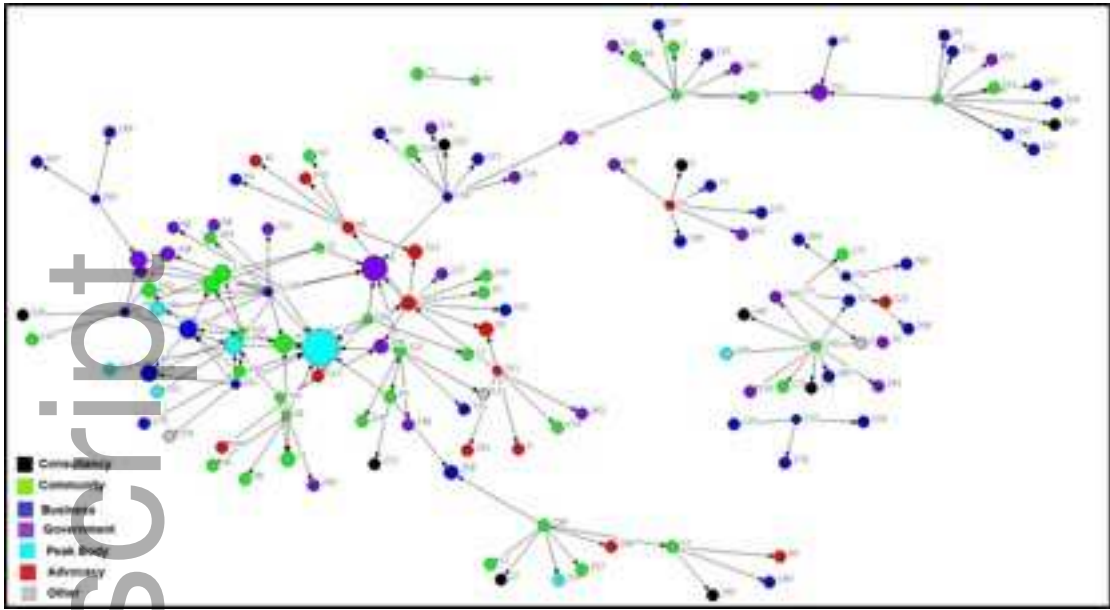
Table 1: Description of actor categories in network analysis

| <b>Org Type</b> | <b>In-Degree Ties<br/>(raw)</b> | <b>In-Degree Ties<br/>(%)</b> |
|-----------------|---------------------------------|-------------------------------|
| Advocacy        | 16                              | 9.70                          |
| Business        | 38                              | 23.03                         |
| Community       | 41                              | 24.85                         |
| Consultancy     | 9                               | 5.45                          |
| Government      | 37                              | 22.42                         |
| Peak            | 21                              | 12.73                         |
| Other           | 3                               | 1.82                          |

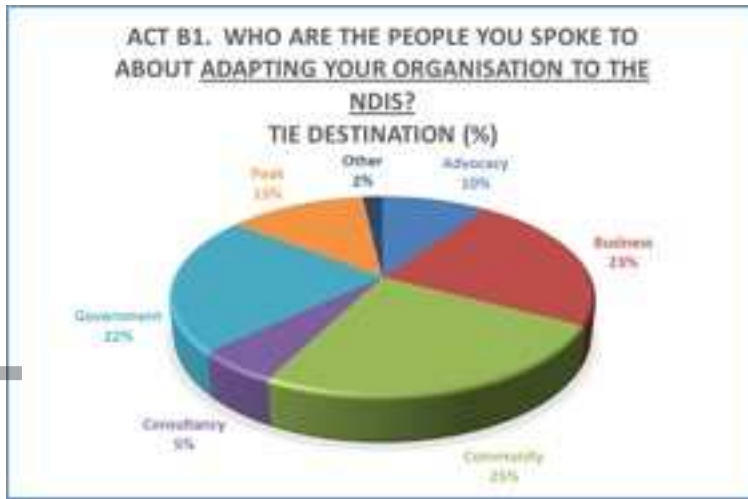
Table 2: In-degree ties for adaptation conversations in ACT adaptation network

| <b>Rank</b> | <b>Node</b> | <b>Sector</b> | <b>In-degree (raw)</b> |
|-------------|-------------|---------------|------------------------|
| 1           | 305         | Peak          | 12                     |
| 2           | 8           | Government    | 7                      |
| 3           | 79          | Business      | 4                      |
| 4           | 32          | Peak          | 4                      |
| 5           | 45          | Community     | 4                      |
| 6           | 105         | Community     | 3                      |
| 7           | 116         | Government    | 3                      |
| 8           | 174         | Community     | 3                      |
| 9           | 211         | Government    | 3                      |
| 10          | 324         | Business      | 3                      |

Table 3: Top 10 Actors ranked by in-degree scores in ACT adaptation network



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