

Towards a More Holistic Understanding of Whole Organizational Networks: Anthropological Approaches in Evolving Markets

Nicola Mountford and Threase Kessie

University College Dublin, Ireland

nicola.mountford@ucd.ie

threase.kessie@ucd.ie

Abstract: As markets become increasingly complex it is more and more important that we understand their underlying market networks. While much research has been conducted into the inter-relationships and impacts between the firm and the network, less attention has been paid to the study of the whole network itself. Understanding the origins, structures, and potential futures of whole market networks is vital to the understanding of whole markets. This is particularly the case in light of the multiplicity of societal and institutional conditions attached to an increasingly globalized economy. The insertion of technology into incumbent markets such as finance or healthcare causes market and network evolutions that firms must understand if they are to navigate them safely. Traditional business research methods are, however, often locked to the firm perspective through case study approaches, or quantitative network analyses. Despite some recent methods that take a more situated, biographical approach, a bird's eye view of the whole network remains elusive. Anthropological methods offer assistance - both in making sense of the evolution of the network within the market context, and in understanding the intricacies of such networks. Unfortunately, the concept of network analysis remains disconnected across disciplines apart from some exceptions such as Berthod, Grothe-Hammer and Sydow's (2016) combining of social network analysis with ethnographic research methods to produce 'Network Ethnographies.' We build on that approach, combining market network research methods with ethnographic research methods, illustrated through case examples from our research in the connected health domain. We illustrate ethnography's potential for in-depth capture of network detail, showing how ethnographic methods can be used to understand each player's position and function within that system, as well as reflecting the life and culture of the whole network.

Keywords: whole networks, inter-organizational networks, evolving markets, connected health, network ethnography, anthropological research methods.

1. Introduction

This paper stems from research conducted by the first author that sought to understand the evolution of inter-organizational networks in an evolving market, that of connected health (sometimes referred to as eHealth). The field of healthcare is struggling to respond to an unprecedented exogenous shock. Demographic changes in the form of an increasingly ageing population, coupled with resource constraints as previously fatal conditions become increasingly chronic, are placing crippling pressure on healthcare resources. One solution to this challenge is being sought through the integration of healthcare organizations and systems, aided by the application of appropriate technologies (Mountford et al, 2017). Resulting care model and associated business model changes are having evolutionary effects on organizational networks within the market. Traditional methods for the study of organizational networks relied on the researcher being able to observe and track dyadic relationships between identifiable market actors. This approach proved to be impossible, however, in connected health markets where the actors within the field were in constant flux. Connected health markets are currently characterized by the arrival of multiple types of new players. Multi-national technology companies such as Apple and Google, more powerful patient representative organizations, broker organizations, new government agencies and others are entering the fray. They join existing players in the form of healthcare provider and payer organizations who are also in a state of change that includes the consolidation, elevation or elimination of existing organizations. Turning to anthropology offered a different access point to the understanding of this evolving network. This paper aims to bring the reader along the journey taken by the first author to understand how traditional market studies approaches to the study of organizational networks could be combined with anthropological approaches, and in particular ethnographic approaches, to gain a more holistic understanding of the evolving network.

Why is it important to understand the evolving network in the process of evolution? Existing methods allow us to access the network post hoc – is this not good enough? Our concern is that retro-active views of organizational networks may fail to capture and appreciate the decisions and inflexion points that made the network what it is. They may offer a superficial, point-in-time view of the network rather than the layered

excavation required to unearth the preceding versions and understand why elements of those died or thrived. We live in an increasingly networked world – technologically (e.g. Giustiniano and Bolici, 2012), internationally (e.g. Fortwengel and Jackson, 2016) and in terms of the design and delivery of market offerings (e.g. Camarinha-Matos et al, 2009). For organizations, policy makers and public service providers, understanding how to shape and create particular kinds of organizational networks may allow them to in turn shape markets that are more efficient, effective or egalitarian. Methods that allow us to gain these insights and understandings can only add to our ability as researchers to give more complete information to those who seek to effect such change.

Network researchers seek to unravel the puzzle of the organizational network using a variety of methodological approaches and taking a range of different perspectives. There are those who seek to understand the place of the organization in the network, those who focus on the impact of the network on the organization, and those that set out to elucidate the impact an organization can have on a network. This paper addresses a fourth category of network research – that concerned with ‘whole networks’ (Kilduff & Tsai, 2003) (see Figure 1, and Provan, Fish and Sydow, 2007 for a review of these four types of network research). Methodological issues have contributed to such whole networks being a category of network research that is “frequently discussed but seldom empirically studied”. These methodological challenges include the scale of the unit of analysis (the network can consist of 30-50 organizations or more), the issue of network bounding (when seeking to understand the whole of the network it is difficult to know where to stop including organizations), and the need for longer analysis periods (to understand the whole network requires understanding its evolution over time) (Provan, Fish and Sydow, 2007, p. 480). Other methodological issues are not confined to the study of whole networks but are nevertheless exacerbated in that context. Easton (1995), for example, surfaces issues around the connectedness of networks, and the problems of representativeness and choice of sampling unit that it creates. Likewise, Halinen and Tornroos (2005) distinguish four major challenges of network case research including problems of boundaries, complexity, time, and case comparisons. The latter authors ultimately confess that: *“In choosing an appropriate theoretical perspective for the study, the researcher always loses something of a network as real-life system. This is probably, however, the only way to handle the complexity in research”* (Halinen and Tornroos, 2005, p.1287).

This paper focuses on the evolving market, and therefore the evolving market network. We posit that in such an emergent context, the reality of the market is largely constructed by each actor for themselves based on their network positions, experiences, and beliefs around the market’s future paths and potential. Reality in this context is subjective, dependent on perspective, and can only be truly understood through in-depth qualitative approaches which “elucidate and explain complexity” (Neergaard, 2007, p. 256). Given the dynamic and emergent nature of the context under study, methodological approaches should capture and reflect this dynamism to “understand and represent the experiences and actions of people as they engage and live through situations” (Elliot, Fisher, and Rennie, 1999). This philosophy leads us to focus on naturalistic data gathered through actors’ everyday settings and activities, and research methodologies that can provide a deep insight into such a phenomenon. As a result, we turn to ethnographic research methods to help understand this concept of the whole network.

		Dependent Variable, or Outcome Focus	
		Individual Organization	Collective of Organizations
Independent Variable, or Input Focus	Organization	Impact of organization on other organizations through interaction	Impact of organization on network
	Network	Impact of network on organization	Whole Networks (network level interactions)

Figure 1: A typology of network research, Adapted from Provan, Fish, and Sydow, 2007

We respond to the methodological gap in whole network studies, offering a methodology (and associated methods) that seeks to measure more of the network reality, through the complexity-acknowledging, qualitative approaches of anthropology's ethnographic methodology. We encourage network researchers to acknowledge that, although a researcher cannot measure everything, this is a "statement about research design, not a statement about reality" (Padgett and Powell, 2012, p.11).

In the next section we review and discuss current methodological approaches in market network research. We then surface any remaining methodological gaps including the identification of the network boundary; the sourcing of data and identification of informants, organizations and network nodes; and the challenge of dealing with the multiple levels inherent in network research. We go on to investigate how anthropological methods may offer solutions to filling some of those gaps. Finally we discuss how these approaches may impact future research in the market studies arena and further afield and suggest an agenda for future network research employing such methods.

2. Current methodological approaches in market network research

Bitektine and Miller (2015) offer a model of organizational research that consists of three main inputs: the theoretical framework, legitimate research methods, and available empirical data. The theoretical framework is offered, within this model, as a determinant of the scope of relevant research questions that can be asked in the context of a given research school or paradigm. Legitimate research methods are those that are mandated by the researcher community to which the researcher belongs, or wishes to belong, and are linked to the chosen paradigm. We will discuss existing methods using these three lenses seeking to provide an illustrative rather than exhaustive overview of the current state of play with regard to inter-organizational network research methods in relation to the understanding of whole networks.

2.1 Theoretical frameworks

Theoretical frameworks in the area of organizational network research have remained largely locked to the firm perspective (Provan, Fish, and Sydow, 2007). The Industrial Marketing and Purchasing Group has developed detailed theoretical models surrounding business to business relationships, underpinned by the ARA (Actors, Resources, and Activities) model (Hakansson and Johansson, 1992). This approach conceptualises business to business relationships in terms of Actor bonds, Resource ties, and Activity links. However, something is missing in the translation of such theoretical models to practical application. A search of the literature suggests that "rather few studies explicitly use either of the models to provide explanations of events" (Lenney and Easton, 2009:554). Lenney and Easton seek to address this gap through the addition of the concept of commitments, agreements made between actors whether these be specific or general, operational or strategic. In the nascent networks that we seek to investigate, however, such clearly stated commitments are conspicuous by their absence.

2.2 Legitimate research methods

Given that inter-organizational network theoretical perspectives remain firm-centred, so too do the research methods that are considered legitimate in the pursuit of answering the questions that remain within such schools of thought. Case study methods (Yin, 2003) are therefore popular and seminal articles, such as those by Eisenhardt (1989) and Perry (1998), aim to elucidate case study methods specific to the marketing and business discipline. While certainly achieving this goal, they have made little impact on issues faced by network researchers (Halinen and Tornroos, 2005). More recent methods have begun to move beyond the single site study to a more biographical approach (Williams and Pollock, 2012). However, achieving a holistic, bird's eye view of this concept of the whole network is still challenging. Organizational researchers have recognised the increasing popularity of markets (Ahrne, Aspers, and Brunsson, 2015), the increasing complexity of market environments (Child and Rodrigues, 2011) and the rise of network responses to these challenges (Achrol, 1997).

2.3 Available empirical data

In seeking to make robust contributions in these areas, researchers have employed centring concepts such as the "focal organization", "focal technology", and "critical events." Such methods involve the identification of a focal point in the research. We contend that, in the emergent network environment, this approach limits the researcher's understanding to a point where findings and conclusions become difficult to apply in any whole-market context. Quantitative approaches to network analysis are well established and detailed, at both

individual, (Fernandez and Weinberg, 1997; Seidel, Polzer, and Stewart, 2000) and organizational levels (Ahuja 2000; Stuart, Hoang, and Hybels, 1999). Numbers, however, typically define either positions or amounts – something it is difficult to do with accuracy or credibility in this emergent, holistic context. To represent a network, we need to know how to bound it, its constituents, who they connect to and how connections form and change. How do we identify the organizations within the nodes of the network? Do we focus on those organizations that are active participants within the network and understand its relationships and activities? Or do we look to organizations that sit on the edge or outside the network when we would expect to see them within. Can we learn more from understanding why they do not engage? To understand the network, the node or the organization, we often need to speak to the individual. How do we decide which individuals to include? Do we include network-facing individuals or those who see both sides of the network?

3. Remaining challenges and the promise of ethnography

There are challenges that remain in getting to grips with the whole network, long after we have employed the methodological might of existing scholarship. These are best surfaced and discussed through the use of an illustrative case study. We therefore, reference our research in the area of connected health. We identify some of the more striking outstanding practical questions that we encountered in our research in the Connected Health domain, combine these with the challenges raised in the literature discussed above, and group and define whole networks research challenges in a practice-based fashion. We focus on operational decisions that must be made by the individual researcher, discuss existing guidance in dealing with such questions, surface remaining methodological gaps, and investigate how ethnographic approaches might assist. To explain connected health, we must first describe the changing field of healthcare. The population over 60 is expected to increase from 287 million in 2013 to 417m in 2050 to 440m in 2100 (UN, 2017). As people live longer, associated healthcare costs will increase to unsustainable levels. Current health and social care systems are not equipped for an epidemic of age-related illnesses and injuries. Public health care expenditure in the EU27 is projected to increase from 7.1% of GDP in 2010 to 8.4% in 2060 (European Commission, 2012). Fortunately, rapidly advancing technology capabilities and increasing societal digital literacy provide an opportunity to lessen the burden of rising costs by aggregating and sharing healthcare information. Technology in the home and community can gather continuous health-related data (e.g. activity and sleep), and increasing capabilities in communications and analytics give a more complete picture of health in ways previously not possible. Advances in wearable sensing devices, mobile computing technologies, and cloud services further diminish technical barriers to progress in this area. Connected Health combines these state-of-the-art technologies, tools, methodologies, and analytics to create a new health management model by connecting people and actionable information in a health care system that gathers, links, interprets, and consolidates information from various sources. Patients are the centre of this health management model, accessing and controlling their own healthcare information to make informed decisions about their own care and treatment. Faster, more accurate communication between GPs, hospitals, allied healthcare, and other stakeholders means that clinicians can make contextual decisions and communicate health and treatment options to patients. Connected Health creates an environment where patients are treated in the best location by the best practitioner using the most relevant and efficient methods saving money and lives while ensuring a better quality of life during and post-treatment (Caulfield and Donnelly, 2013).

Connected health requires changes in market actors, organizational links (as patient and information flows change), reimbursement and payment mechanisms, and institutional norms such as medical professionalism (Battilana and Casciaro, 2012). Such changes disrupt existing market networks and demand new ones. It is in this context that we go on to discuss the methodological challenges faced in seeking to understand these new and evolving networks.

3.1 Dealing with multiple levels

The study of market networks traditionally deals with at least four levels of measurement and analysis: market, network, organization, and individual (Figure 2). Organisations and networks may, of course, have numerous layers embedded within them. In the following sections, we will discuss network bounding and data sourcing in such contexts. For the moment, however, we focus on how we can theorize and measure at the correct levels ensuring a robustness that accounts for field level. Existing research practice recognizes that level effects mean factors may impact at more than one level. It is also possible to translate between levels - operationalizing a construct at a level is not the same as measuring the construct's variables at that level. It is often necessary, or preferable, to measure at one level and aggregate to another (Bollen and Lennox, 1991).

For example, in order to measure organizational involvement in a market network we can look to MOUs and partnership agreements at the organizational level, or we may interview informants, gathering data at the individual level which will be aggregated at the organizational level. There are numerous ways we can then complete the aggregation process, as captured within Chan’s (1998) typology of compilation models. The theories that we wish to build, however, concern the whole network and so should be built at the meso level. And while it is possible to operationalise whole network constructs at micro and organizational levels, it is difficult to do so in a robust and complete fashion.

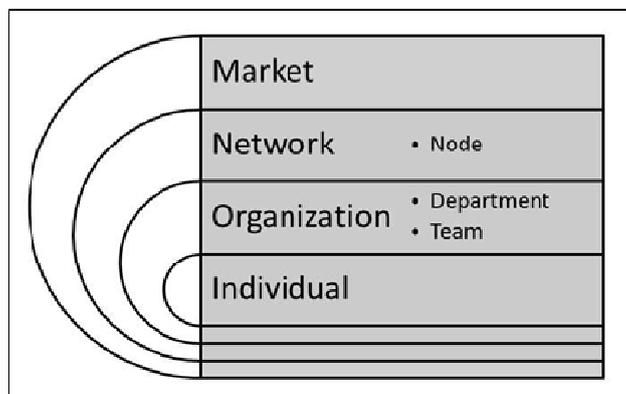


Figure 2: Levels in market network research

Provan and colleagues offer guidance in respect of whole networks, suggesting that we include “only those organisations that interact with one another to achieve a common purpose” (Provan, Fish, and Sydow, 2007, p.482). In the nascent market network, however, such common purpose is absent. The process of coming to that common view is the very phenomenon we wish to study. While such approaches have added tremendous methodological clarity to the understanding of networks, they are difficult to apply to the study of network emergence in a nascent market. When we use ethnography to holistically interpret the structure of such layers and their inter-relationships we should allow the rigour of such established methodologies to inform our processes. Nevertheless, anthropology releases us to some extent from the theoretical straitjacket of more prescriptive approaches.

Anthropologists understand that communities are “messy,” as Heather Zempel (2012) has stated. Thus, it is difficult to identify where networks begin and end, and who belongs inside and outside of these “boundaries” (Hannerz, 1992). Whatever level we aim to build theory at, the ethnographer is forced to begin engagement with the network at the individual level (Pollard 2009; Schieffelin 2005; Wolcott, 1999). The unveiling of the connections between network nodes can only be achieved by working up through the levels. The researcher, as ethnographer, enters the environment as an individual and interacts with other individuals. It is only over time, they can understand the interconnectedness of the nodes and the structure of the networks. Conducting such participant observation requires the dedication of time and an immense amount of planning (Giurchescu, 1999). Nevertheless, to attain a thorough view of the whole network it is imperative the researcher knows the community being studied.

In our research within the connected health field, we found that through individual interviews we built a picture of an organization’s role in, and attitude towards, Irish connected health organizational networks. Understanding both individual and organizational roles and attitudes allowed us a better understanding of the whole networks involved. An initial attempt to access an understanding of the whole network at the whole network level through observations of network events proved useful but ultimately lacking in the level of detail required to fully understand the network and build relevant theory. For example, it was the understanding gained at an individual level that allowed us to build a theory of partnered governance approaches to connected health networks at a whole network level as we improved our understanding of the respective roles of public and private organizational actors within such networks.

3.2 The network boundary

To robustly theorize a network, we must first map out its boundaries (Laumann, Marsden and Prensky, 1992). Identifying the extent and boundaries for any research study is strongly linked to the generalizability of the

study. Analysing distinct, formal networks is simple as membership is clear. In quantitative analyses, clear approaches (and software programs) exist to guide research and sample selection (see, for example Chung-Wen, Ruehli, and Brennan, as early as 1975). Connection and flow measures used by network researchers have included information, materials, financial resources, services and social support (Provan, Fish, and Sydow, 2007).

Investigating less formal but established market networks still benefits from guidance throughout the literature. For example, Gebauer, Paiola, and Sacconi (2013), select firms based on industry, and type of products manufactured, while Moller and Rajala (2007) identify the network based on the “underlying system through which it produces value” (Moller and Rajala, 2007, p. 898). Barabasi’s (2002) classification of networks into centralized, decentralized, and distributed, articulates levels of connectedness, but still relies on the identification of ‘hub firms’ and ‘ties.’ Within existing markets, we can identify groups of suppliers, purchasers, consumers, payers, influencers etc., building a picture of the network and its boundaries. The methodological gap becomes evident when we look to a nascent market where the membership of these categories is uncertain.

As we are primarily interested in understanding and elucidating elements of the evolving connected health market, the research design challenges that form the basis of this paper relate to descriptive studies rather than those that are experimental or quasi-experimental (Bickman and Rog, 2009). In the nascent connected health market we are as yet uncertain who the suppliers and payers will be (Lhachimi and Siegrist, 2015). Traditional suppliers such as hospitals and primary care physicians, vie with technological giants such as Apple and Google (Das, 2014). Insurers and governments have traditionally borne the brunt of healthcare payments, but increasing predictive ability may change the face of health insurance (Joly et al., 2014), while privatisation might combat the accelerating healthcare costs of an ageing demographic (Maarse, 2006). Like Easton, and Halinen and Tornroos, we therefore experienced difficulty bounding the network under study. In a study of the New York connected health market network, the first author asked 29 informants, whether there was such a thing as an “eHealth market.” Responses varied from positive – “Of course, that’s what we do”; to negative – “It’s all healthcare” to confused – “what do you mean by eHealth?” Networks are inherently about connectedness, making it difficult to draw the line between network and context. The network researcher faces the dilemma of trying to comprehend who belongs inside and outside the network.

Ethnographic research into nascent communities may guide our understanding of how to bound such networks (Heath, Fuller, and Johnston, 2009). Within anthropology, ethnographers typically spend time with people to develop an understanding of the minute aspects of their life (Whitehead, 2005). Ethnographic research involves the ethnographer immersing themselves into the physical community studied through Participant Observation (DeWalt and DeWalt, 2002:1). Participant observation can help understand emerging networks, such as online gaming communities. Anthropologist Tom Boellstorff suggested that understanding emerging virtual networks began with the creation of the first virtual world in the 1970s (Boellstorff, 2008). This ethnographic approach - determining the initiation or development of a network through understanding its initial purpose - can greatly help to understand the nascent connected health network and inform its subsequent analysis. Boellstorff discusses how communities develop within such ‘new’ social environments, tracing their evolution from being a place of interaction, to becoming communities in their own right. Time is important when attempting to understand how networks are bounded (Boellstorff, 2008). It is only with time that these places start to be seen as communities and it is time that allows a community to grow, develop, and become valued by those involved, and indeed those who are not.

Given the connected nature of networks, researchers have largely accepted snowballing and triangulation with secondary data as suitable methods to define the boundaries of the network (Rampersad, Quester, and Troshani, 2010). Snowballing within ethnographic research involves: “identifying participants based on the recommendation of other members of the selected sample” (Ortiz, 2003, p. 40). Such a casual approach to identifying a line of sampling may, however, bias the ethnographer’s view of the network, and therefore their findings as to the nature of that network. Informants identified using this approach may well recommend others with similar viewpoints and ideologies as their own. While snowballing holds a use within ethnographic research, in the case of understanding the network, we confine this to the identification of boundaries and internal networks, rather than the selection of informants. By blending the snowballing approach and participant observation the ethnographer may lay claim to more intense rigour, increasing both validity and generalisability.

In seeking to identify the boundaries of the Irish connected health market, therefore, the first author attended meetings of the Irish connected health ecosystem, health 2.0 networking meetings, open events at the national connected health technology research centre and other one off events that linked healthcare and technology. In doing so she identified the different types of organizations and individuals involved in the shaping of the Irish connected health market including previously unconsidered actors such as an umbrella organization for patient representative organizations who were training patient advocates who would work with both commercial and policy actors on issues such as re-imburement and innovation. This observation was combined with a wide range of one on one interviews at the end of which informants were asked to identify individuals or organizations that they felt were making an impact on the direction or adoption of connected health models in Ireland. This helped to identify organization types that may otherwise have been overlooked such as small indigenous technology companies who were driving innovative services and associated payment models, pushing the boundaries of the organizational network out into elements of the technology industry that would previously have remained separate to healthcare.

3.3 Sourcing data: Choosing nodes, organizations and individuals

At this point we have employed anthropological approaches to deal with the multiple levels inherent in whole network research and to resolve some of the questions around the bounding of such a network. There remain, nevertheless, outstanding challenges around the selection of informants within the bounded sample. As we are theorizing emerging networks, an accurate quantification of the network population is impossible as an emerging population is unknowable (Levin-Rozalis, 2004). We can never, therefore, aspire to representative samples that are generalizable to that unknowable population, such as those offered by largely quantitative methods that employ random or probability samples (Tashakkori and Teddlie, 2003a). A network consists of multiple clusters, cliques, and nodes, each of which may contain several organizations and individuals. The density of the ties in a network increases over time (Venkatramen and Lee, 2004), and different networks age differently (Provan, Fish, and Sydow, 2007). The study of whole networks therefore consciously turns away from any kind of convenience sampling of nodes, organizations or individual informants (Patton, 1990). We propose, rather, that dynamic sampling approaches are required to keep pace with this changing network.

Throughout the literature, advice exists on issues like data saturation, a cycle of source identification, data gathering, data analysis, theme/issue saturation checks and a return to source identification and more data gathering where it seemed new concepts were still emerging (Mason, 2010), although the necessity to achieve data saturation in all qualitative research contexts has more recently been questioned (O'Reilly and Parker, 2013). Sampling techniques like purposive sampling, quota-based sampling and snowballing are well covered in the literature (see Gentles, Charles, Ploeg, and McKibbon's 2015 Qualitative Report article for a comprehensive overview of sampling as discussed throughout the methods literature). Purposive sampling chooses participants according to preselected criteria relevant to a research question; while quota-based sampling quantifies participants chosen under specific criteria. Both are based on the premise that we can identify those people believed to experience, know about, or have insights into the research topic.

These methods predetermine the view of the network that will be achieved, based on the researcher's preconceptions of who is important. This sampling bias is not to be equated with researcher subjectivity which is an essential and unavoidable element of an ethnographic approach (Roulston and Shelton, 2015). Rather, in the particular context of a nascent market, such an approach blinds the researcher to derogations from traditional relationships and the development of new networks or versions of networks that will dramatically impact the nature of the market. Snowballing, while more appropriate in terms of their ability to uncover hidden populations, may still lack the rigour of a more theoretical, purposive approach as discussed above.

Ethnography may address this imbalance, in part through the use of semi-structured interviews. Ethnographic interviews are not straightforward (Skinner, 2012). Consideration should be given to selecting interviewees and their potential to contribute to the research being conducted as "although almost anyone can become an informant, not everyone makes a good informant" (Spradley, 2016, p.45). Recruiting informants can be difficult and the temptation, for experienced and novice researchers alike, is to recruit as many as possible, as soon as possible. However, when making sense of the structure of a network, it is essential to dedicate time to informant selection. "Good informants" for ethnographic interviews demonstrate "(1) thorough enculturation, (2) current involvement, (3) an unfamiliar cultural scene, (4) adequate time" (Spradley, 2016, p. 46). These criteria are employed below in order to analyse the effectiveness of the ethnographic interview in understanding the whole network-

- *Thorough enculturation*: Interviews should be conducted with informants who understand the intricacies of their own culture (Back, 1955), which for whole networks means the culture of the network itself. While extremely knowledgeable informants may at first glance seem ideal, there are dangers of which the network ethnographer should be aware (Spradley, 2016). Firstly, the informant may be so familiar with the network they take aspects of it for granted (Spradley, 2016). Secondly, over time knowledgeable informants may develop a bias and report the network based on personal preferences rather than offering a whole network perspective (Spradley, 2016; LeCompte and Goetz 1982). To address these issues, it is suggested here that the ethnographer should 1) Interview as many knowledgeable informants as necessary to reach saturation, 2) Develop a network structure from interviews with knowledgeable informants, noting the similarities and differences between their accounts to test for bias, and finally 3) interview numerous less knowledgeable players in the network and build up the structure of the network from here. Interviewing less knowledgeable network participants can produce valuable insights (Spradley, 2016). Despite the fact that, in isolation they may possess less information than more knowledgeable informants, together they may in fact hold less bias.
- *Current involvement*: Selecting interviewees who are currently involved in the field being researched is especially important when considering the development of something as ever-changing as the market network. Interviewing an informant who has been retired for several years will yield outdated information on the network, and as a result lead the ethnographer on a path of inquiry which is irrelevant for the network in its current form (Spradley, 2016). In our research in the connected health field, however, we did find that two very recently retired network members made for excellent informants. Each had been active within the network up until 3 months previously. They remained thoroughly encultured and offered an up-to-date view of the network, but were no longer as burdened by personal or organizational agendas. This freed them up to offer a more holistic and less biased view of the whole network.
- *An unfamiliar cultural scene*: To date we have focused largely on the informant. The knowledge and experience of the ethnographer is, however, as important as the perceived ‘quality’ of the interviewee. If the ethnographer is over-familiar with the network, they will take much of it “for granted” (Spradley, 2016, p. 49). The ethnographer with little experience of the network will ask basic questions, such as “Who do you think are the people involved in the network?” , whereas, someone with more experience of the network might already know players involved and lead with a question like “What do you think X’s role is in the network?” (Spradley, 2016). Such a line of questioning presumes that the ethnographer and the interviewee have the same understanding of the network. As such, the ethnographer has the potential to shape, and bias the understanding of the network they present (Le Compte and Goetz, 1982). The first author’s investigation of the Irish and New York connected health market networks illustrated this danger. In Ireland, she was a member of the connected health network and set out to study it with accumulated knowledge and a perspective whereas she had no prior knowledge of the New York connected health network and was starting with a clean slate in terms of knowledge gathering. Contrary to expectation, it took a much shorter period of time to gather a holistic view of the New York network than the Irish network. Knowing little meant that the author began by reading around the field, consulting field experts, and scoping out the boundaries of the network. Informants were approached with no prior relationship or expectation and leads were followed without exception. In the Irish market the author was hampered by prior relationships, informants who skipped over chunks of data assuming that the author already had this information, and a reluctance to share information that might be considered sensitive, despite confidentiality assurances. The author confesses to having found it difficult to separate herself out from the field and the network, and acknowledges the need for copious reflective techniques to address this imbalance.
- *Adequate time*: Time plays a major role in successful and informative ethnographic interviews. As ethnography relies on spending time exposed to a specific social phenomenon, it is necessary to conduct several interviews with an interviewee (Westby, Burda, and Mehta, 2003). This allows for a trusting relationship to develop (Heyl, 2001). This trust may help the ethnographer attain a more truthful view of the network. With time between interviews, the ethnographer can consider interviewees responses, and conduct additional research on select topics (Spradley, 2016). The ethnographer can also pose additional questions and seek clarification on unclear topics (Leech,

2002). While being a complicated method, the interview holds the potential to greatly assist in sourcing market network data. Core considerations should be limiting bias and creating a view of the network which is well-rounded and accounts for as many players as possible.

4. Conclusions

As our world changes, so too must our research methodologies. As we answer more of the market's questions, the challenge is to find ways of addressing those most complex questions that remain. Complex questions require complex methodologies but they do not necessarily require us to compromise. As we have stated, the notion of the whole network demands a different mode of inquiry than other forms of market. It is our suggestion that to understand the complexity of the whole network we do not need to reinvent the wheel. Pre-existing methodologies such as ethnography have been addressing and shedding light on complex societal questions for decades, such as the purpose of language, and the notion of hierarchy within society.

Answering whole network questions may well be crucial to the maintenance of societal good in the face of increasing technology, globalization and marketization. Organizational networks in their widest sense include non commercial actors such as government and their agents, non governmental organizations and civil society organizations. Understanding how these players can defend or re-insert public good considerations through the maintenance or development of network norms and institutions is crucial. Such understandings can inform both government and organizational policy.

As illustrated throughout this paper, ethnography may help us bound, understand, and ultimately theorize the whole network. By utilising research methods such as participant observation and semi-structured interviews insight can be attained into what is an inherently complex phenomenon. We do not suggest ethnography as a panacea for all market network research ills. Rather we set out some of the elements of this approach that may resolve some practical issues for the market network researcher. In doing so we exhort such researchers to have courage and not retreat from the challenge of understanding the whole network.

Acknowledgements

The authors would like to thank our anonymous reviewers as well as participants at the 16th ECRM conference in Dublin Ireland for comments and feedback that much improved this paper.

The authors have received funding from the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie grant agreement No 722012 , CATCH [Cancer: Activating Technology for Connected Health]

References

- Achrol, R. S., 1997. Changes in the theory of interorganizational relations in marketing: Toward a network paradigm. *Journal of the Academy of Marketing Science*, 25, 56-71.
- Ahrne, G., Aspers, P., and Brunsson, N., 2015. The Organization of Markets. *Organization Studies*, Vol. 36(1) 7–27
- Ahuja, G., 2000. Collaboration Networks, Structural Holes, and Innovation: A Longitudinal Study. *Administrative Science Quarterly*, 45, 425-455.
- Back, K., 1955. "Field Methods and Techniques: The Well Informed Informant," *Human Organisation*, 14(4), 30-33.
- Barabasi, A. L., 2002. *Linked: The new science of networks*, Perseus Publishing, Cambridge.
- Battilana, J. and Casciaro, T., 2012. Change agents, networks, and institutions: A contingency theory of organizational change. *Academy of Management Journal*, 55, 381-398.
- Berthod, O., Grothe-Hammer, M. and Jorg S., 2016. "Network Ethnography: A Mixed Method Approach for the Study of Practices in Interorganizational Settings", *Organisational Research Methods*, 1-25.
- Bickman, L. and Rog, D. J., 2009. Applied Research Design - A Practical Approach. In: BICKMAN, L. & ROG, D. J. (eds.), *The SAGE Handbook of Applied Social Research Methods*. Thousand Oaks, CA: SAGE Publications.
- Boellstorff, T., 2008. *Coming of Age in Second Life: An Anthropologist Explores the Virtually Human*, Princeton University Press, Princeton.
- Bollen, K. A., and Lennox, R., 1991. Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 110, 305–314.
- Camarinha-Matos, L.M., Afsarmanesh, H., Galeano, N. and Molina, A., 2009. Collaborative networked organizations – Concepts and practice in manufacturing enterprises, *Computers & Industrial Engineering*, vol. 57, no. 1, pp. 46-60
- Caulfield, B.M. and Donnelly, S.C., 2013. What is Connected Health and why will it change your practice?, *Quarterly Journal of Medicine* 106 (8): 703-707.

- Chan, D., 1998. Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models, *Journal of Applied Psychology*, 83, 234-246
- Child, J. and Rodrigues, S. B., 2011. How Organizations Engage with External Complexity: A Political Action Perspective. *Organization Studies*, 32, 803-824.
- Chung-Wen H., Ruehli, A., and Brennan, P., 1975. The modified nodal approach to network analysis, *IEEE Transactions on Circuits and Systems*, 22(6).
- Knox, H., Savage, M. and Harvey, P., 2006. Social networks and the study of relations: networks as method, metaphor and form, *Economy and Society*, 35:1, 113-140.
- Das, R., 2014. Healthcare Beware! New Intruders are Coming - Introducing the New Gold Rush, *Forbes*, 19th May, 2014, <http://onforb.es/1k0dly1>, Accessed 9/2/17.
- De Bakker, F. and Den Hond, F., 2008. Introducing the Politics of Stakeholder Influence, *Business and Society*, 47:1, 8-20.
- DeWalt, K. and DeWalt, B., 2002. *Participant Observation: A Guide for Fieldworkers*, AltaMira Press, Plymouth.
- Den Hond, F., Rehbein, K., deBakker, F. and Kooijmans-van Lankweld, H., 2014. Playing on two chessboards: Reputation effects between Corporate Social Responsibility (CSR) and Corporate Political Activity (CPA), *Journal of Management Studies*, 51:5 790.
- Easton, G., 1995. Methodology and industrial networks, in K. Möller, D.T. Wilson (Eds.), *Business marketing: an interaction and network perspective*, Kluwer Academic Publishing, Norwell (MA) pp. 411–491.
- Eisenhardt, K., 1989. Building theories from case study research, *Academy of Management Review*, 14 (4) pp. 532–550.
- Elliot, R., Fisher, C.T., and Rennie, D.L., 1999. Evolving Guidelines for Publication of Qualitative Research Studies in Psychology and Related Fields, *British Journal of Clinical Psychology*, 38:215-29.
- European Commission, 2012. *Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060)*, European Commission, Brussels
- Fernandez, R. M. and Weinberg, N., 1997. Sifting and Sorting: Personal Contacts and Hiring in a Retail Bank. *American Sociological Review*, 62:883-902.
- Fortwengel, J. and Jackson, G., 2016. Legitimizing the apprenticeship practice in a distant environment: Institutional entrepreneurship through inter-organizational networks, *Journal of World Business*, vol. 51, no. 6, pp. 895-909
- Gebauer, H., Paiola, M., Saccani, N., 2013. Characterizing service networks for moving from products to solutions, *Industrial Marketing Management*, 42 (1), 31-46
(<http://www.sciencedirect.com/science/article/pii/S001985011200185X>)
- Keywords: Service networks; Products and services; Solutions; Dynamic and operational capabilities; Manufacturing firms
- Gentles, S. J., Charles, C., Ploeg, J., and McKibbon, K. A., 2015. Sampling in qualitative research: Insights from an overview of the methods literature. *The Qualitative Report*, 20(11), 1772-1789.
- Giurchescu, Anca, 1999. Past and Present in Field Research, In Buckland, T (Ed) *Dance in the Field: Theory, Methods and Issues in Dance Ethnography*. Palgrave Macmillan, London.
- Giustiniano, L. and Bolici, F., 2012. Organizational Trust in a Networked World: Analysis of the Interplay between Social Factors and Information and Communication Technology, *Journal of Information, Communication and Ethics in Society*, vol. 10, no. 3, pp. 187-202.
- Glaser, B.G. and Strauss, A.L., (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine Publishing Company, Chicago.
- Hakansson, H., and Johanson, J., 1992. A model of industrial networks, In B. Axelsson & G. Easton (Eds.), *Industrial networks: a new view of reality* Routledge, London.
- Halinen, A., and Tornroos, J., 2005. Using case methods in the study of contemporary business networks, *Journal of Business Research*, 58(9):1285–1297.
- Hammersley and Atkinson, 2007. *Ethnography, Principles in Practice*, 3rd Ed, Routledge, London & New York.
- Hannerz, U., 1992. *Cultural Complexity: Studies in the Social Organisation of Meaning*. Columbia University Press: New York.
- Heath, S., Fuller, A., and Johnston, B., 2009. Chasing Shadows: Defining Network Boundaries in Qualitative Social Network Analysis. *Qualitative Research*, 9(5):645-661.
- Joly, Y., Burton, H., Knoppers, B. M., Feze, I. N., Dent, T., Pashayan, N., Chowdhury, S., Foulkes, W., Hall, A., Hamet, P., Kirwan, N., Macdonald, A., Simard, J., and Van Hoyweghen, I., 2014. Life insurance: genomic stratification and risk classification. *European Journal of Human Genetics*, 22, 575-579.
- Kilduff, M. and Tsai, W., 2003. *Social Networks and Organizations*, Sage Publications, Thousand Oaks, CA
- Laumann, E.O., Marsden, P.V., and Prensky, D., 1992. The boundary specification problem in network analysis, in Freeman, L.C., White, D.R., and Kimball Romney, A., *Research Methods in Social Network Analysis*, Transaction Publishers, New Brunswick, NJ, USA
- Lenney, P. and Easton, G., 2009. Actors, resources, activities and commitments, *Industrial Marketing Management*, 38:553-561.
- LeCompte, M. and Goetz, J., 1982. Problems of Reliability and Validity in Ethnographic Research, *Review of Educational Research*, 52(1):31-60.
- Leech, B., 2002. Asking Questions: Techniques for Semi-Structured Interviews, *PSOnline*, December, 665-668.
- Levin-Rozalis, M., 2004. Searching for the Unknowable: A Process of Detection — Abductive Research Generated by Projective Techniques. *International Journal of Qualitative Methods*, 3, 1-18.

- Lhachimi, S. K. and Siegrist, J., 2015. Health Care Markets: Theory and Empirical Evidence, in Wright, James D. *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)*. Oxford: Elsevier.
- Maarse, H., 2006. The Privatization of Health Care in Europe: An Eight-Country Analysis. *Journal of Health Politics, Policy and Law*, 31, 981-1014.
- Mason, M., 2010. Sample Size and Saturation in PhD Studies Using Qualitative Interviews, *Forum: Qualitative Social Research*, 11 (3), Article 8.
- Moller, K. and Rajala, A., 2007. Rise of strategic nets — New modes of value creation, *Industrial Marketing Management* 36:895–908.
- Mountford, N., Chouvarda, I., Isomursu, M., and Caulfield, B.: Vectors and drivers of connected health in Europe: a foundation for integrated care. *ICIC17: 17th International Conference on Integrated Care*, Dublin, Ireland, 8-10 May 2017. 2017-05-10. Available at: <http://hdl.handle.net/10197/8522>
- Neergard, H., 2007. Sampling in Entrepreneurial Settings, in *Handbook of Qualitative Research Methods in Entrepreneurship*, Edward Elgar, Cheltenham.
- O'Reilly, M. & Parker, N., 2013, 'Unsatisfactory Saturation': a critical exploration of the notion of saturated sample sizes in qualitative research, *Qualitative Research*, vol. 13, no. 2, pp. 190-197.
- Ortiz, A., 2003. The Ethnographic Interview. In Stage, F. and Manning, K. (Eds.) *Research in the College Context: Approaches and Methods*, Brunner-Routledge, New York.
- Padgett, J.F. and Powell, W.W., 2012. *The Emergence of Organizations and Markets*. Princeton University Press, Princeton.
- Patton, M., 1990. *Qualitative evaluation and research methods*, Beverly Hills, CA: Sage.
- Perry, C., 1998. Processes of a case study methodology for postgraduate research in marketing, *European Journal of Marketing*, 32 (9/10):785–802.
- Pollard, A., 2009. Field of Screams: Difficulty and Ethnographic Fieldwork, *Anthropology Matters*, 11(2): 1-24.
- Provan, K. G., Fish, A., and Sydow, J., 2007. Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks, *Journal of Management*, 33, 479
- Rampersad, G., Quester, P., and Troshani, I., 2010. Managing innovation networks: Exploratory evidence from ICT, biotechnology and nanotechnology networks, *Industrial Marketing Management* 39:793–805.
- Roulston, K., and Shelton, S.A., 2015. Reconceptualizing Bias in Teaching Qualitative Research Methods, *Qualitative Inquiry* 21 (4), 332-342
- Schieffelin, E., 2005. *The Sorrow of the Lonely and The Burning of the Dancers*. Palgrave Macmillan: New York.
- Seidel, M.-D. L., Polzer, J. T. and Stewart, K. J., 2000. Friends in High Places: The Effects of Social Networks on Discrimination in Salary Negotiations. *Administrative Science Quarterly*, 45:1-24.
- Skinner, J. (ed), 2012. A Four Part Introduction to the Interview. *The Interview: An Ethnographic Approach*, Bloomsbury, London & New York.
- Spradley, J., 2016. *The Ethnographic Interview*, Waveland Press Inc., Illinois.
- Stuart, T. E., Hoang, H. and Hybels, R. C., 1999. Interorganizational Endorsements and the Performance of Entrepreneurial Ventures. *Administrative Science Quarterly*, 44:315-349.
- Tashakkori, A., and Teddlie, C. (Eds.), 2003a. *Handbook of mixed methods in social & behavioral research*. Thousand Oaks, CA: Sage.
- Turner, V., 1969. *The Ritual Process: Structure and Anti Structure*, Aldine Publishing Company, Chicago.
- Yin, R.K., 2003. *Case Study Research: Design and Methods*, 3rd Ed, Sage Publications, California, New York and New Delhi.
- United Nations world population prospects 2017 at http://esa.un.org/unpd/wpp/Documentation/pdf/WPP2012_Volume-I_Comprehensive-Tables.pdf
- Venkatraman, N., and Lee, C., 2004. Preferential Linkage and Network Evolution: A Conceptual Model and Empirical Test in the U.S. Video Game Sector. *The Academy of Management Journal*, 47(6), 876-892.
- Westby, C., Burda, A. and Mehta, Z., 2003. Asking the Right Questions in the Right Ways: Strategies for Ethnographic Interviewing, *The ASHA leader*, 8:4-17.
- Whitehead, T., 2005. Basic Classical Ethnographic Research Methods, *Ethnographically Informed Community and Cultural Assessment Research Systems Working Paper Series*. Available at: <http://www.cusag.umd.edu/documents/workingpapers/classicalethnomethods.pdf>. Accessed: 15/2/17.
- Williams, R., and Pollock, N., 2012. Moving beyond the single site implementation study, *Information Systems Research*, 23:1, 1-22.
- Wolcott, H. (1999) *Ethnography: A Way of Seeing*. AltaMira Press: Oxford.
- Zempel, Heather (2012) *Community is Messy: The Perils and Promise of Small Group Ministry*, Intervarsity Press, Illinois.