**Collaborate or Perish: Networks and the Role of Third Party Activators in the Sustainable Innovation Journey**

Sustainability focused networks are proliferating in a variety of forms and with a broad range of actors – circular economy clusters, sustainable supply chains and product service systems are but three examples. A multilateral and collaborative approach to problem solving exists in the context of environmental sustainability, due to the 'wicked problems' posed (Roberts, 2000; Selman, 1998). Yet the very nature of sustainability transitions necessitates radical innovation involving systemic change and the emergence of new knowledge and networks (Van de Ven, Polley, Garud, & Venkataraman, 1999). Geels, Hekkert, and Jacobsson (2008) refer to this as the dynamics of 'sustainable innovation journeys'. Despite this, Patala, Hämäläinen, Jalkala, and Pesonen (2014) identify a paucity of research on the process of innovation in the context of sustainability.

The urgency, scale and complexity of these issues inevitably necessitate collaboration, often with unlikely partners in networked form such as NGOs, governments and universities to foster collaboration, access information and resources and reduce the risk associated with innovation. Beattie and Smith (2013) attest to this, noting that the autonomy of the firm has been superseded by the network as the primary mechanism for value creation.

Networks offer many advantages. They facilitate the sharing of information and acquisition of non-core capabilities, build knowledge and trust through relationships and can lead to the establishment of shared values and culture, a solid platform for innovation. Inter-organisational networks are seen as critical to innovation and particularly well suited to address the mega-problems confronting the global community.

In short, networks are seen as an essential component of both innovation and of sustainable development fostering collaboration, learning, establishing vision and values and bringing a longer term orientation to partnerships (Ghisellini, Cialani, & Ulgiati, 2015; Uzzi & Lancaster, 2003). Equally, innovation is seen as an essential ingredient of sustainable development and of network growth and longevity more broadly (Boons & Lüdeke-Freund, 2013; Schaltegger, Lüdeke-Freund, & Hansen, 2012).

The literature reveals significant gaps in our understanding of innovation networks, particularly in the context of multi-stakeholder collaborations in sustainability and the role of third party intermediaries in the innovation process. Reviewing this literature, this paper explores the nexus between innovation networks and sustainability, identifying key characteristics of these networks at different stages of the innovation process and highlighting the sometimes critical roles played by government and other parties external to the core network. Whilst a plethora of literature exists investigating the structure and characteristics of innovation networks, little of this knowledge has translated across to the field of sustainability. Indeed even within the core field of innovation networks, major gaps still exist in both the precise nature of networks and the process of innovation. Ojasalo (2008) validates this, noting that 'knowledge of the intersection (between business networks and innovation) is still scarce'.

With specific reference to the circular economy which provides much of the context for my research, Cohen-Rosenthal (2000) remarks that *networks* and *sustainability* *focused networks* have missed each other '.. like ships in the night'. Importantly, whilst Van Kleef and Roome (2007) emphasise the importance of a diverse range of actors to the sustainable innovation process, Hargreaves, Hielscher, Seyfang, and Smith (2013) observe that 'very little work has examined the role of intermediaries in sustainability niches and still less has examined the nature and extent of the roles they may play in helping grassroots innovations to develop and grow.'

Hence the primary objective of my research is to address these gaps in our knowledge of sustainability focused networks and the role of third parties in the innovation process. An initial literature review will explore the common characteristics of different types of sustainability-focused networks, including the little researched social aspects of these networks, together with the role played by third parties in shaping innovation across these networks. Building on the work of Provan, Fish, and Sydow (2007), Brass, Galaskiewicz, Greve, and Wenpin (2004) and Cooke and Morgan (1993) and drawing heavily from the broader network and innovation literatures, this first stage of my investigation incorporates the development of a theoretical framework of the characteristics of sustainability focused innovation networks for testing in the field. The testing of the core elements of this framework forms the key component of my fieldwork.

Analysing the research problem through the lens of social network theory and adopting an empirical approach to my study, I use purposive sampling of different types of sustainability networks recognised and awarded for their high levels of innovation. I adopt as my qualitative research strategy an instrumental case study approach across multiple cases. Three Australian case studies are investigated, one regional and two urban, all of which are supported to varying degrees by the New South Wales State Government . These comprise a regional, emerging biomass network; a metropolitan industrial ecology cluster; and an established responsible construction leadership group. Interviews provide the primary data source which is supplemented with information from organisational websites, third party evaluations and other sources. To date, more than 25 of a planned 45 semi-structured interviews have been completed with a broad range of actors from across the networks. Interviews have been recorded and transcribed and computer-assisted coding of the data is well underway using QDA’s NVivo 11 software. Additionally, a smaller number (ca. 10 to 15) of subsequent in-depth interviews with a range of stakeholders will explore and map in greater detail the role that third party actors play in this innovation process. It is anticipated that data collection will be completed by mid September 2016.

Clear and consistent themes are already emerging from an early analysis of the data, particularly in terms of the importance of a diverse actor network to the innovation process and the importance of a dominant business case above and beyond environmental and social concerns. Equally, the data is providing new insights into the characteristics of these innovation networks, notably the importance of what Provan et al. (2007) term an ‘anchor tenant’ or entrepreneur, as well as the ‘stepped’ and organic nature of the innovation pathway, especially where there is a strong community involvement in the project. Clearly the latter has significant implications for third parties in terms of the timing and type of potential interventions to the innovation process.

It is hoped that the development and empirical testing of a conceptual framework built upon previous research will extend our knowledge of sustainability focused innovation networks in two key ways. Firstly, it will increase our ability to design and build innovation networks of the future that will be better suited to address many of the wicked problems posed by sustainability. Importantly, it will also highlight the potential role that government and other third party actors can play and at what stage in supporting and stimulating sustainable innovations.