

## Chapter XII

# Rhizomic Network Analysis: Toward a Better Understanding of Knowledge Dynamics of Innovation in Business Networks

Alexandra Steinberg  
*Ecole de Management—Lyon, France*

### ABSTRACT

*There is a general consensus that networks and community interaction provide a critical mechanism for innovation. Of recent years, we have seen a growth of interest in the role of social networks, partly fuelled by the fact that the contemporary business world has become more dynamic, complex, and global. Today an increasing number of people work in geographically dispersed networks and across organisational boundaries. With this comes the need to re-think the ways in which innovation emerges across locations, enterprises, and geographies and consequentially, how this can be analysed. However, methods for the analysis of social networks have yet to better understand knowledge dynamics of innovation. It is argued for the need to (1) switch the unit of analysis from individuals' ideas to social construction of knowledge and (2) use the Deleuzo-Guattarian rhizomic view on networks to reveal not only the dynamics of meaning creation, but also those of meaning disruption, both essential conditions for the emergence of new concepts. A new approach, rhizomic network analysis (RNA) is explored, which aims to move analysis beyond mere description of relationship structures towards enabling the differentiation of the type of knowledge dynamics emergent. An example of an entrepreneurial business network is used to illustrate this approach.*

## INTRODUCTION

In recent years, there has been a growth of online networking sites, and one area that is expanding in the use of these networks is the corporate environment. Businesses are beginning to use online networks as a means to connecting employees and helping them to build profiles. This makes them searchable and be connected to other business professionals. Specifically in **e-business**, since the dotcom crash<sup>1</sup> in 2000, new online business networks have attracted large numbers of entrepreneurs to sign up to their Web sites. These are networks that connect entrepreneurial businesses by industry, functions, geography, and/or areas of interest. Examples in the English speaking arena are Ecademy.com, Ryze.com, and LinkedIn.com.

There is a growing interdisciplinary theoretical and methodological debate about ways in which communities and community interaction via networks can be best explained as a critical mechanism for innovation and knowledge management. On the one hand, there is general consensus that networks have gained a new significance due to the modern challenges of an increasingly complex and global world (e.g., Castells, 1996, Wittel, 2001). Yet, on the other hand, opinions are divided as to how social networks can be best captured analytically and understood in terms of the dynamics they engender for knowledge creation (e.g., Duguid, 2005; Snowden, 2005).

One of the central controversies revolves around social network analysis as perhaps one of the most influential research streams in modern sociology, information science, and organisational studies on the study of social communities in and across organisations (Carley & Hill, 2001; Cross & Parker, 2004). It has brought forward an industry of methods, software, and measurement tools and has provided various business applications of network analysis to describe and compare the structural characteristics of business networks across functional and geographical boundaries of

organisations (Caldwell, 2006a; Caldwell 2006b; Chung, Hossain, & Davis, 2005; Krebs, 2005). It mainly stems from network theories that study structural representations of relations between objects (Borgatti & Everett, 1999). Social network analysis enables analysis of relation characteristics in networks, which, in turn, can provide insights into communication and information exchange structures and/or into the extent to which different functional organisational areas are integrated in terms of their information exchange processes.

Nonetheless, social network analysis has been widely criticised for its one-sided structural and individualist perspective on **knowledge**, creating a very atomistic view on networks as aggregation of individuals and on **knowledge** creation as a series of interaction processes between people as “knowledge unit holders.” These drawbacks have been well summarised by Weissman (2000) in respect of organisation and society and by Snowden (2005) in terms of methods of analysis.

However, despite notable exceptions (Snowden, 2005), there have only been few attempts to forward alternative methods allowing us to generate insights into the social and dynamic characteristics of **knowledge** creation in networks. Despite strong arguments for the urgent need to better conceptualise the informal, social **knowledge** processes, and critiques of the economic underpinning view on **knowledge** (Duguid, 2005), actual alternatives that tackle the dynamic nature of **knowledge** in **innovation** are rare.

Perhaps the most prominent contribution in this arena has been made by social theorists concerned with organisational learning and **knowledge** creation in communities (e.g., Brown & Duguid, 2001; Lave & Wenger, 1991; Nonaka & Nishiguchi, 2001; Senge, 1990; Weick, 2002). Authors oppose individualist economic accounts of **knowledge** creation and argue that **knowledge** is created in inter-subjective, local interpretation processes in work practice (Weick, 2002). In a similar vein, with regard to networks, scholars argue that social **knowledge** creation processes need be located in

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