Cluster Business Processes Management with 3D Immersive Environments

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ABSTRACT

The purpose of the article is to present an innovative managerial approach for SME Cluster Management. Clusters contribute extensively in global economy and their role becomes increasingly more important for growth and prosperity in both developed and underdeveloped economies. At first the author presents the state of the art and contemporary approaches in cluster management and highlight the need for new managerial approaches and frameworks both methodology and technology based. The author then proposes a novel cluster management framework that takes into consideration issues concepts from disciplines as diverse as intellectual capital, cluster process management, cluster organizational management, the role of catalyst SMEs, 3D immersive environment technologies, social networking etc. The resulting proposed framework for SME Clustering is a 3D avatar based environment and framework for managing Geographically dispersed SME clusters.

Keywords:
3D Avatars, Business Process Management, Secondlife, SME Cluster Management, Social Networks

1. INTRODUCTION

In the last decades there has been a systematic and fundamental change in the way companies carry out innovation activities (Zeng et al. 2010). The locus of innovation is more likely to be centered in networks of learning rather than in individual firms (Powell et al., 1996). According to Ahuja (2000) networking means that firms form linkages to obtain access to assets (Nohria and Garcia- Pont, 1991), learn new skills (Kogut, 1988); manage their dependence upon other firms (Pfeffer and Salancik, 1978), or maintain parity with competitors (Garcia-Pont and Nohria, 1998).

Chesbrough and Crowther (2006) define two types of open innovation strategies: inbound and outbound open innovation. Although none of these modes of open innovation is new, in recent years inbound open innovation (e.g. Laursen and Salter, 2006) has gained space.

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Firms exchange knowledge in order to accomplish innovation. Through clusters they manage uncertainty and establish their growth, and in certain case their survival, by creating:

- Social norms,
- Innovation conventions and habits
- Dynamic exchange of knowledge between them

In terms of social norms, the social-network model argues that there is more order to inter-firm interactions and less order to intra-firm interactions than the economic models would imply (Granovetter, 1985). Theorists in this field have also introduced the “territory concept” (Camagni 2002) as a system of localized technological externalities, social relations and local governance which unites a group of companies.

Over the last two decades an extensive literature has emerged on the role of inter-firm networks and their impact upon innovation conventions and habits and its effect on firm performance (see a review in Hoang and Antoncic, 2003 and Santarelli and Vivarelli, 2007). SMEs are as innovative as larger firms despite employing less internal resources (Acs and Audretsch 1990). Nevertheless, not all SMEs embrace into this type of collaboration, (Huggins 2001).

Companies in clusters experience stronger growth and faster innovation than those outside clusters (Audretsch and Feldman, 1996b; Swann et al., 1998; Baptista, 2000; Klepper, 2007). According to Porter (1998: 80), Clusters affect competition in three broad ways: first, by increasing the productivity of companies based in the area; second, by driving the direction and pace of innovation, which underpins future productivity growth; and third, by stimulating the formation of new business, which expands and strengthens the cluster itself.

SMEs have proved to be important employment growth and innovation engines in high-tech sectors, both through existing firms and “New Technology Based Firms” (NTBFs) (Santarelli and Vivarelli, 2007).

2. CLUSTER GOVERNANCE IN ITS LIFE CYCLE AND PERFORMANCE ASSESSMENT

Cluster governance is aimed at facilitating and improving the innovation management process (Bahlmann and Huysman, 2008). Cluster governance is usually a continuous fine-tuning strategic process of major importance. Interactions depend heavily on continuous negotiation between participating firms in individual firm or cluster specific competence areas. (Cooke, 2005).

Cluster resources are obtained through informal inter-firm ties and personal interactions (Capello and Faggian, 2005), as well as through contractual (formal) ties, whose network structure affects the individual firm’s performance as argued by organizational theory (Gulati et al., 2000). There is little evidence of formal linkages on local contexts (Malmberg and Power, 2005). Traded interdependencies have received considerable attention in the field of strategic management alliances (e.g. Zaheer and Bell, 2005; Gulati et al., 2000; Gulati, 1999) but unfortunately much less in the cluster mainstream.

An effective governance system will be the result of a negotiated balancing set of principles and norms which shall:

- Match the culture and values of the individual firms,
- Be tight enough to provide a safety environment for intellectual capital (ic) to flow and ideally loose enough to foster innovation and the expansion of the cluster.
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