Chapter 2.38
Learning Networks and Service–Oriented Architectures

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INTRODUCTION

The value of knowledge assets in creating competitive advantage and subsequently wealth through innovation has never been greater (Teece, 1998). It is increasingly being acknowledged that the resources and the competencies developed within the organisation as well as the mechanisms for building up and reconfiguring these competencies is the only defence against a fierce competition (Penrose, 1959; Prahalad & Hamel, 1990; Teece, Pisano & Shuen, 1997). However, the nature of knowledge production has changed dramatically over the last years. According to Gibbons et al. (1994), the knowledge production has moved from mode 1 to mode 2. The new mode:

*   requires transdisciplinary approaches
*   is characterised by heterogeneity of skills
*   is context-sensitive involving an intense interaction between producers and users of knowledge

The highly complex and rapidly changing character of contemporary knowledge production makes it almost impossible for single organisations to acquire the full set of required skills. Even large corporations with abundant resources need to turn to other organisations in order to cope with new knowledge requirements. Learning through networking with other firms gives the opportunity not only to share expenses and resources, but more significantly, to listen to new ideas, challenge one's own inherent assumptions, and embrace new perspectives.

The challenge associated with this is to set up an infrastructure to support shared learning and reflection on a regular and sustainable basis. To answer this problem, the mechanism of the so-called learning networks (LN) has been introduced. Learning networks do not refer to networks of organisations where learning simply happens—as is the case with every network—but to interorganisational networks where structures have been established with the primary purpose

of increasing the participants' knowledge. These networks:

- involve representatives of different organisations, mainly but not exclusively, private firms
- are formally established with clear and defined boundaries for participation
- have an explicit structure for operation with regular processes that can be mapped to the learning cycle
- have a primary learning target—some specific learning/knowledge which the network is going to enable
- can assess the learning outcomes which feed back to the operation of the network.

The formal character of the network provides an institutionalised organisational platform which represents a permanent structure for identifying knowledge gaps and satisfying knowledge needs, allows evaluation, and accumulates experience regarding the support required by learners. More significantly, the lasting character of membership in learning networks facilitates the development of trust relationships among learners.

Information technology can play a critical role in supporting LNs. Yet, the majority of current KM systems have been designed under the assumption that they will be used within a single organisation or that a single organisation will be responsible for their operation. KM systems appropriate for interorganisational use dictates that several challenges are met. For example, interorganisational information systems must not only provide reliable infrastructures for the organisation itself but also must be capable of sharing resources seamlessly within their network of learning partnerships. These operating conditions demand that such systems are both flexible and operate transparently. Over the past few years, service-oriented architectures have emerged as a framework that addresses this requirement both effectively and

efficiently. In this article, we discuss the current use of Web-based service architectures to support LNs and then outline future trends.

BACKGROUND

The new rules of competition (Teece, 1998) have demanded from organisations to build a concrete strategy for learning and continuous change (Argyris & Schon, 1996). Initially, loads of competent tutors and specialised trainers stormed the companies and apparently their resources, delivering high-quality training courses and material. It was only when Orr (1990a, 1990b) observed technicians in Xerox that it was realized that real value learning is intrinsically blended with communities which:

- make their own decisions
- practice the acquired knowledge
- improvise their approaches

In a similar vein, Lave and Wenger (1991) have talked of situated learning—learning that is intrinsically linked to the environment where it is situated—while Cook and Brown (1999) regard organisational learning governed by epistemology of practice rather than epistemology of possession (i.e., knowledge is fundamentally associated with practice and cannot be transferred as a commodity). These contributions have made Stamps (2000) wonder whether "learning is social [and] training is irrelevant" and Wenger (1998, 2000) suggest that real value learning can only happen in "communities of practice." Behind all these approaches, there is the notion that knowledge management cannot be separated from the tacit knowledge (Polanyi, 1966), that is, the knowledge we possess but we cannot tell. Nonaka and Takeuchi (1995) observed the process of knowledge creation within an organisation to conclude that knowledge is generated by regular exchanges between tacit and

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