

Exploring knowledge innovation culture: role of library and information centres

Dr. M. NATARAJAN

National Institute of Science Communication And Information Resources (NISCAIR)

14, Satsang Vihar Marg New Delhi – 110067, INDIA.

m_natarajan@hotmail.com

Abstract

The purpose of this article is to focus on the definition, meaning and functions of innovation, knowledge innovation, organizational innovation management and knowledge innovation culture. The need and strategy to be followed by library and information centers are discussed. It would emphasize on innovation in terms of being the development and implementation of new ideas by people over time engage in transactions with others in an institutional context and Knowledge innovation has been the creation, evolution, exchange and application of new ideas into marketable goods and services for the success of an enterprise, for the vitality of the nation's economy and for the advancement of the society. Information extraction plays an important role in coping with the huge collections in digital information and bringing innovations in library services. The general aspect of innovation management techniques like technology watch, search, marketing aspects, management of intellectual property rights in digital library creation and quality management will be discussed. Service innovation depends on ambiguous designing and using knowledge. It will be discussing the concept of organizational management as the development or adoption of an idea or behaviour into business operations that is new to the whole organization. Some of the core values and concepts identified by these will be discussed like continuous innovation, system adaptability, and leadership, value of people, focus on customer, continuous learning and use of knowledge in library environment.

The knowledge innovation culture in libraries will depend upon the value, behaviour and institutional system, which gains competitive advantages and sustainable development of libraries through knowledge creation. The three underlying themes are fundamental to the new infrastructure needed to create prosperity in this new economy viz. i) Knowledge as expandable source of economic wealth, by recognition that the inherent intellectual assets ii) Successful innovation, which depends on converting knowledge flows into goods and services and iii) Collaboration, replaces the competitive (win/lose) paradigm, which is prevalent in many businesses today, with win/win benefits based on pooling competencies - knowledge, know-how and skills. It would discuss the demonstrative needed capability for the library professionals in the new changing innovative management area.

Keywords: Knowledge innovation, innovation culture, information extraction, continuous learning, organizational management, CSIR, INFLIBNET.

Introduction

The evolution of the "digital age" has prompted profound changes in the library and information service environment, which includes: changes in economy, education and learning, scholarly exchange, and information technology (Tam and Robertson, 2002). Libraries have to take those challenges by various measures including organizational culture innovation. Organizational culture represents a major source of competitive advantage for organizations to achieve their objectives (DeLong and Fahey, 2000). To satisfy the customer's unlimited expectations, organisations need to orientate themselves to their customers' wants, as well as latent needs, and as a result provide products and services which are perceived to be valuable. Becoming an innovative organization is a means to compete in this dynamic and changing business environment (Dooley and Sullivan, 2003). As innovation is one of the paths to maintaining growing and promising organizational performance (Cottam et al., 2001), it is also pinpointed as an essential element for sustaining competitiveness and ensuring an organization's future potential (Krause, 2004). It is a more or less linear engagement with finalizing a predetermined artifact or service and is based on the ability to exploit scientific competencies accommodated by the focal firm. A series of industries are more or less entangled with their ability to manage and explore scientific know-how. Science-based innovation must always imply some kind of systematic risk-taking and that scientific work of necessity implies a certain degree of indeterminate factors that must be taken into account. This article explores the knowledge innovation culture in libraries.

Definitions

Innovation - Van de Ven (1986) defines innovation in terms of being “[t]he development and implementation of new ideas by people who over time engage in transactions with others in an institutional context”. He continues: “An Innovation is a new idea, which may be a recombination of old ideas, a scheme that challenges the present order, a formula, or a unique approach which is perceived as new by the individuals involved”. Innovations thus respond to a variety of new contributions ranging from new artifacts to more intangible outcomes such as new ideas or “combinations of ideas”. Damanpour (1992) offers innovations as “[t]he adoption of an idea or behaviour, whether a system, policy, program, device, process, product or service, that is new to the adopting organization”. Slappendel (1996) emphasizes that the term innovation is used to denote both the outcome but and the process of innovating: It is also used to refer to the process through which new ideas, objects and practices are created, developed, or reinvented. Wolfe (1994) writes: “Innovation cannot be understood without careful attention to the personal, organizational, technological, and environmental contexts within which it takes place”.

Organisational Culture - It is a pattern of common assumptions, values, beliefs, attitudes that influences organizational behavior (Schein, 1985, 1992, 2004). According to Schein, organizational culture exists at three levels from outer to inner:

1. *Artifacts*, which are visible manifestations of underlying cultural assumptions, such as behavior patterns, rituals, physical environment, stories and myths.
2. *Espoused values*, which are the shared values of the organization, such as the strategies, goals and philosophies.
3. *Basic underlying assumptions*, which are the invisible but identifiable reasons why group members perceive, think, and feel the way they do about certain issues, such as the unconscious, taken-for-granted beliefs, perceptions, thoughts and feelings.

Library culture is the summation of the material wealth and spiritual wealth created in the operation of libraries. It also occurs at three levels from outer to inner: material culture, institutional culture, and spiritual culture. Material culture of libraries is the carrier and representation of library culture, such as library sign, building, layout, hall decoration, bookshelf arrangement, and document setting. Institutional culture of libraries is the institutional ideologies and adaptive thinking modes and behavior rules accepted or enjoyed by staffs, which have been shaped or are being shaped in the operation of libraries, such as development goal, leadership system, and rules and regulations; spiritual culture of libraries is the standard of value and basic idea which guides staffs, such as thought of operating libraries, core value, management mode and method, image, ethics, and work style (Sheng, 2005).

Knowledge Innovation - Amidon (1993) defined “knowledge innovation” as “the creation, evolution, exchange and application of new ideas into marketable goods and services for the excellence of an enterprise, the vitality of a nation’s economy and the advancement of society as a whole” Now, it is generally accepted that knowledge innovation is the whole process of knowledge generation, creation and use.

Knowledge Innovation Culture (KIC) - KIC of libraries can be defined as a kind of value, behavior and institutional system, which gains competitive advantages and sustainable development of libraries through knowledge creation. It reflects essentially the effect of knowledge innovation thought, method and means on institutional culture and spiritual culture of libraries.

Organisational Innovation Management (OIM) - Keegan and Turner (2002), defined OIM as, management of innovative ideas is an important step towards effective organizational innovation project management. It is addressed as a kind of managerial method, which provides an organization with an underlying momentum for innovation, encouraging and facilitating the development of innovative ideas in a company.

Innovation Management Techniques

Innovation support tools - These tools are software that contribute to knowledge generation. The different features include:

- technical database where patents, articles and research projects are recorded. By using this kind of tool, an R&D professional tries to acquire existing knowledge in order to apply it to a new context (combination). This category may include digital specialized libraries;

- graphic simulation features, which can facilitate internalization. Internalization (Nonaka and Takeuchi, 1995) is the process that enriches explicit knowledge, adding to it tacit knowledge, most frequently through usage and experience, but also through simulation;
- combinatory tools, which help to consider unusual possibilities in the design of innovations, supporting the creativity process. Tech Optimizer, a package made by Invention Machine, is an example.

Organisational Management Concepts

The critical OIM factors are developed by firstly determining a set of core values and concepts, which forms the basic philosophy of organization-wide OIM practice. These values and concepts are the embedded behaviours found in innovative organizations. Seven core values and concepts are identified, namely continuous innovation, system adaptability, leadership, value of people, focus on customer, continuous learning and use of knowledge and they are discussed as follows:

(1) Continuous innovation can happen radically or incrementally depending on the extent of the changes. Integrating this concept into an organization's mission or belief system is essential in establishing a clear direction for a firm (Tang, 1998).

(2) System adaptability. The ability of organizations to adapt to change is essential for the successful management of innovation projects. It refers to the organisation's flexibility to accommodate changes and their ability to cope with changes due to the development and implementation of innovative ideas.

(3) Leadership. It is a strong predictor for the realization of innovative ideas and management of organizational innovation (Lee and Chang, 2006) as innovation begins with top management who believe organizational innovation is the way to survival. For example, top management has to set directions, create values and establish expectations for the benefit of the organizations (Tang, 1999) and be able to inspire and motivate the entire work force and encourage involvement, development and learning for the employees (Borgelt and Falk, 2007).

(4) Value of people. Human resources play a critical role in driving companies' success as people are the source of innovative ideas. As a result, human competence in an innovative organization should be emphasized and focused on. People are the important assets in organization innovation management. Their voices and ideas should be heard and respected even though the ideas may not be able to make an instant impact on the organization (Martins and Terblanche, 2003).

(5) Focus on customers. Understanding existing customer need and forecasting future customer needs are essential in gaining customer loyalty. Focus on the customer is therefore the underlying goal for management of organizational innovation (Krause, 2004). The motivation for creating an innovative culture (Lemon and Sahota, 2003), developing innovation strategy (Ong et al., 2003) and acquiring external knowledge, (Souitaris, 2002) to create something new and valuable to their existing or potential customers.

(6) Continuous learning. Personal creativity can be acquired and organizational innovation capabilities can be enhanced through continuous learning. An organization's stock of knowledge is created, communicated and expanded through the continuous learning process which is why innovative organizations provide on-the-job training and ongoing and experimental learning to appropriate employees (Larsen et al., 1991). A learning culture should be promoted in an innovative organization (Guan and Ma, 2003) with continuous reviewing of different aspects.

(7) Use of knowledge. This includes processes and practices concerned with the creation, acquisition, capture, sharing and application of knowledge and skills (Swan et al., 1999). Management of organizational innovation can be enhanced by a good knowledge management system (KMS) that is able to facilitate the capture of new information, and interpret this for the organization (Prasracos et al., 2002) and maintain it in knowledge bases (Chanal, 2004).

Council of Scientific and Industrial Research (CSIR) libraries explored the KIC by establishing the CSIR E-journals consortium to serve the scientific communities and researchers by making them available approximately 5400 full text journal articles. They also physically procure / acquire the print version of the same journals, as per the subject discipline of the laboratory. Knowledge generation is done, not only by acquiring those, but also by interaction among researchers within the laboratories through discussions, monthly meetings, seminars, etc. Similarly the Information Library Network (INFLIBNET), Ahmedabad has established an e-journals consortium among University Grants Commission (UGC) approved libraries for providing the knowledge to the academic community with the students for innovate new ideas from the existing literature. Even though the libraries are located

at different locations, they are able to share their resources and innovate new ideas by collaboration and new KIC, which is of much useful to the community.

KIC is being explored in all kinds of libraries, wherein the libraries are making their collection in digital environment for ease of use, anytime anywhere accessibility, with access to similar types of organisations' contents by web links. Most of the libraries have established consortium approach for exploring the knowledge sharing culture among them. The KS concept, which is from the libraries by way of resource sharing and in e-environment, the way of giving / extending access to the e-content to everyone. The monthly meetings, annual meetings, seminars, conferences other types of group meetings help the library professional to share their ideas for betterment of their functioning. Staffs are motivated by their (Head) library professionals in their meetings for implementation of new types of services to their users.

Strategy by KIC

The most important five factors, which affect the development of KIC in libraries, are:

- i. environment development
- ii. organizational structure innovation
- iii. fostering trust and cooperation
- iv. organizational learning and
- v. human resources development.

The development of hard environment aims at providing the material basis for knowledge innovation, including establishing KMS and knowledge network in libraries. Intranets have emerged as one of today's most effective ways of sharing information and knowledge in organizations. The development of soft environment mainly consists of four aspects: The first is to set up the vision of knowledge innovation in libraries. Since knowledge is the main input elements of a learning organization and if libraries want to create values or improve services by activities of knowledge innovation, a common goal and mission must be cultivated for all of individuals and teams, and the exciting development prospects must be explained by many efficient methods. The second is to foster the spirit and consciousness of daring to run risk and do innovation.

Libraries must form the ethos of daring to run risk and do innovation and encourage staffs to learn something which cannot be acquired in favorable circumstances, and build up knowledge and skills through denying themselves. The third is to set up incentive mechanisms to encourage staffs to participate in knowledge exchange, sharing, and creation. The fourth is to create a kind of atmosphere allowing failure.

Improving trust and cooperation - libraries must take the road of cooperation and development. The first is to make staffs acquainted with the scientific ideas about trust and cooperation. Furthermore, librarians always realize the general benefits of cooperation. Creating a kind of learning culture - the culture of learning organization places great emphasis on learning and knowledge, creating an atmosphere of trust within which individuals feel empowered to experiment with new approaches to business, often resulting in the development of new core competencies.

Shaping knowledge-based team organization - knowledge management and knowledge innovation team should be set up in libraries for the future. They are the formal groups, which are composed of the collaborative individuals with the purpose of creation, dissemination, and use of knowledge. It mainly consists of resource development team, information and knowledge service team, technology support and developing team, top management team, and other temporary teams.

Enhancing human resource development and cultivating knowledge innovation Talents - right set up the idea of human-oriented management in libraries. Human-oriented management in libraries has two meanings: one is the management of readers or users as service objects; the other is the management of staffs as service entities. Second, pay more cares to staffs. Effective knowledge innovation puts particular demands on the way people relate to each other in libraries. Third, determine the qualities of library director and staffs, which satisfy the demand of knowledge innovation. Fourth, strengthen invests in human capital of libraries by reinforcing professional education, improving vocational training systems, and designing staffs' vocational career.

KIC Dependency in Libraries

KIC of libraries has abundant meaning as follows:

- Knowledge creation - With accelerating changes by the development of knowledge economics and information technologies, libraries have to establish value of innovation and creation, regard knowledge creation as the basic means, discard conservatism, closing and rigidity, encourage innovation and attempt, allow of fail, highlight changes, opening and agility, and pursue excellence. Knowledge creation of libraries takes place in various ways, not only including changes about management thought, manage system, and manage mode, but also innovations about work content, service mode and self-development of librarians.
- Knowledge sharing (KS) as bridge. An organization's ability to effectively leverage its knowledge is highly dependent on its people, who actually create, share, and use the knowledge. Leveraging knowledge is only possible when people can share the knowledge they have and build on the knowledge of others (Ipe, 2003).
- Based on trust and cooperation. The development of KIC must be founded on trust and cooperation between libraries and users, among libraries, and within interior staffs. In view of library inner work, trust and cooperation are the prerequisites for librarians to take part in knowledge management and knowledge creation. By trust and cooperation, librarians contribute their own knowledge, skill and experience, and go on true cooperation, so that others gain new knowledge, skill and enrich their tacit knowledge, which results in improvement of library's intellectual capital and staff capacity of solving problems and doing knowledge creation.
- Powered by organizational learning. Cohen and Levinthal (1990) argue that knowledge expansion is dependent upon learning intensity, and prior learning of the concepts, which they refer to as an organization's absorptive capacity.
- Focusing on human-oriented. Without users' demand, library would lose the foundation of existence. Library management was used to pay attention to users, just limited human-oriented to users, facilitating users and focusing on users, while took little account of librarians. The core of libraries' KIC lies in human-oriented, which can not only embody humanism care to staffs from systems that are beneficial to or inspire with staff work, learning and living, such as open and fair post-employed rules, scientific rules for work post responsibility, fair rules for wage and honorarium allocation, learning rules suited to individual, but also incarnate humanism spirit of management, in which a kind of harmonious, friendly, united and cooperative atmosphere can be formed, and provide the best conditions for staffs to work, learn and study, such as optimizing work environment, equipping entertainment facilities, enriching spare time activity. (Sheng and Sun 2007).

Conclusion

It is a long-term, arduous and very complicated task to develop the KIC of libraries, which cannot be accomplished in an action. A lot of strategies can be adopted to develop KIC of libraries, which consists of establishing the environment beneficial to knowledge innovation, creating a learning culture, shaping knowledge-based team organization, improving trust and cooperation, enhancing human resource development and cultivating knowledge innovation talents. The main objective of this study is to identify the types of innovations predominant in the service sector and the degree of their innovativeness and how these types and degree of innovation relate to innovation performance and innovation management practices employed to implement innovation. Knowledge Innovation culture and its dependencies in libraries are discussed for knowledge creation, sharing, trust and cooperation. In India, KIC has been introduced in few research libraries and in academic libraries. The creation of Institutional repositories also coming up in selected libraries, wherein the KIC depends upon the staff for the creation of digital repository. It suggests that KIC should come into force in KM related activities, wherever it may be. Further it is felt that library professionals shall play a key role for the creation of Innovation centers in every organization.

Acknowledgements: The author acknowledge with thanks to the Director and Head, ETD of NISCAIR for having encouraged and extended the facility to write this paper.

References

1. Amidon, D.M. (1993). Knowledge innovation: the common language. *Journal of Technology Studies*, 19 (2), 15-21.
2. Borgelt, K., & Falk, I. (2007). The leadership/management conundrum: innovation or risk management?. *Leadership & Organizational Development Journal*, 28 (2), 122-136.
3. Carvalho, Rodrigo Baroni de & Ferreira, Marta Araújo Tavares (2001). Using information technology to support knowledge conversion processes. *Information Research*, 7(1) [Available at <http://InformationR.net/ir/7-1/paper118.html>]
4. Chanal, V. (2004). Innovation management and organizational learning: a discursive approach. *European Journal of Innovation Management*, 7(1), 56-64.
5. Cohen, W.M., & Levinthal, D.A. (1990). Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128-152.
6. Cottam, A., Ensor, J., & Band, C.(2001). A benchmark study of strategic commitment to innovation. *European Journal of Innovation Management*, 4(2), 88-94.
7. Damanpour, F. (1992). Organization size and innovation. *Organization Studies*, 13(3), 375-402.
8. DeLong, D.W., & Fahey, L. (2000). Diagnosing culture barriers to knowledge management. *The Academy of Management Executive*, 14(4), 113-127.
9. Dooley, L., & Sullivan, D.O.(2003). Developing a software infrastructure to support systematic innovation through effective management. *Technovation*, 23, 689-704.
10. Goyal, Sonia & Pitt, Michael (2007). Determining the role of innovation management in facilities management. *Facilities*, 25 (1/2), 48–60.
11. Guan, J. & Ma, N. (2003). Innovative capability and export performance of Chinese firms. *Technovation*, 23, 737-747.
12. Ipe, M. (2003). Knowledge sharing in organizations: a conceptual framework. *Human Resource Development Review*, 2 (4), 337-359.
13. Keegan, A., & Turner, J.R. (2002). The management of innovation in project-based firms. *Long Range Planning*, 25, 367-388.
14. Krause, D.E. (2004). Influence-based leadership as a determinant of the inclination to innovate and of innovation-related behaviors: an empirical investigation. *The Leadership Quarterly*, 15 (1), 79-102.
15. Larsen, H.H., O'Driscoll, M.P., & Humphries, M. (1991). Technological innovation and the development of managerial competencies. *Technovation*, 11(7), 419-428.
16. Lee, Y.D., & Chang, H.M. (2006). Leadership style and innovation ability: an empirical study of Taiwanese wire and cable companies. *Journal of American Academy of Business*, 9(2), 218-223.
17. Lemon, M., & Sahota, P.S. (2003). Organizational culture as a knowledge repository for increased innovative capacity. *Technovation*, 24 (6), 483-498.
18. Martins, E.C., & Terblanche, F. (2003). Building organizational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, 6 (1), 64-74.
19. Nonaka, I., & Takeuchi, K. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press, Oxford.
20. Ong, C.h., Wan, D., & Chng, S.H. (2003). Factors affecting individual innovation: an examination within a Japanese subsidiary in Singapore. *Technovation*, 23 (7), 617-631.
21. Prasracos, G., & others. (2002). An integrated framework for managing change in the new competitive landscape. *European Management Journal*, 20 (1), 55-71.
22. Schein, E.H. (1985). *Organizational Culture and Leadership*. Jossey-Bass Publishers, San Francisco, CA.
23. Sheng, X.P. (2005). *Research of library management innovation based on knowledge management*. PhD dissertation, Graduate School of Chinese Academy of Sciences, Beijing.

24. Sheng, Xiaoping., & Sun, Lin (2007). Developing knowledge innovation culture of libraries. *Library Management*, 28(1/2), 36–52.
25. Slappendel, C. (1996). Perspectives on innovation in organizations. *Organization Studies*, 17 (1), 107-129.
26. Souitaris, V. (2002). Firm-specific competencies determining technological innovation: a survey in Greece. *R&D Management*. 32 (1), 61-77.
27. Styhre, Alexander (2006). Science-based innovation as systematic risk-taking. *European Journal of Innovation Management*, 9(3), 300–311.
28. Swan, J., and Others. (1999). Knowledge management and innovation: networked and networking. *Journal of Knowledge Management*, 3(4), 262-275.
29. Tam, L.W.H., & Robertson, A.C. (2002). Managing change: libraries and information services in the digital age. *Library Management*, 23(8/9), 369-377.
30. Tang, H.K. (1998). An integrative model of innovation in organizations. *Technovation*, 18(5), 297-309.
31. Tang, H.K. (1999). An inventory of organizational innovativeness. *Technovation*, 19, 41-51.
32. Van de Ven, A. (1986). Central problems in the management of innovation. *Management Science*, 32(5), 590-607.
33. Wolfe, R.A. (1994). Organization innovation: review critique and suggested research directions. *Journal of Management Studies*, 31(3), 405-431.
34. Wong, Shui-Yee & Chin, Kwai-Sang (2007). Organisational innovation management. *Industrial Management & Data Systems*, 107(9), 1290–1315.