Knowledge Workers for Environmental Scanning and Organizational Learning

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Abstract

Nowadays, the environment has become more and more turbulent. In order to cope with the changes and trends of the environment, organizations must learn through its people. Environmental Scanning is an effective way for organizations to learn about their external environments, and formulate adaptive behaviours accordingly. This paper starts with the definitions of knowledge workers, environmental scanning as well as organizational learning. The requirements for being knowledge workers, and their important role for conducting environmental scanning and organizational learning are also presented. The implications for information professionals are highlighted at the last part of the paper, in terms of how to help organizations to conduct more effective environmental scanning and organizational learning.

Keywords: Knowledge Workers, Environmental Scanning, Organizational Learning

Introduction

Environment is viewed as the ultimate source of information, energy and materials, all of which is vital to the survival of an organization (Scott, 1987). Organizations survive by acquiring resources from the environment, and justify their continued existence according to the detected information. Especially in today’s turbulent environment, organizations are required to cope with the changes and trends of the environment, learn from their experience, and apply the knowledge to adjust their own behaviour, structure and positioning in a timely way. Environmental scanning is regarded as an effective way for organizational learning, which enables organizations to detect environmental signals and formulate adaptive behaviour accordingly. As an information-intensive process, environmental scanning could only be completed through knowledge workers.

Definitions of Key Terms

Knowledge Workers
The term “knowledge worker” was coined by Peter Drucker in 1959. It refers to “one who works primarily with information or one who develops and uses knowledge in the workplace” (Wikipedia, 2006). Laudon and Laudon (1999) divided information work into creating and processing information. Based on this statement, information workers are categorized into data workers and knowledge workers. Knowledge workers primarily create knowledge and information; while data workers primarily process and disseminate information. In knowledge management research, knowledge workers are prevalently defined as “the personnel who specialize in strategic information processing for executives” (Drucker, 1999). Through a research on the Japanese companies’ continual innovation and success, Nonaka and Takeuchi (1995) defined knowledge crew as “people involved in knowledge creation and management”, including knowledge practitioners, knowledge specialists, knowledge engineers and knowledge officers. From the above mentioned definitions, we can find that “knowledge worker” may have different context meanings; however, their main value is the same, that is their ability to collect, analyze information, create knowledge during the very flow of information and apply the knowledge acquired to make benefit to the organization. With the same resources, knowledge workers are expected to produce more.
Organizational Learning
Actually all organizations learn, no matter whether they are conscious about it or not. The fundamental purpose of organizational learning is to sustain their existence. Some firms learn passively without focused effort and consciousness about what they should learn; while others deliberately form a learning habit, developing capabilities and skills which are consistent with their objectives and plans (Kim, 1993). Giesecke and McNeil (2004) defined learning organization as an organization skilled at creating, acquiring, and transferring knowledge and at modifying its behaviour to reflect new knowledge and insights. The survival depends on how the organization learns to encapsulate, perceive, create organization-specific meaning, and take adaptive actions to such changes.
Learning organizations aim to create a harmonious studying and cooperating atmosphere, inspiring their staff to develop their skills, share knowledge and experience, and increase their adaptability to the changing environment, which may help the organizations themselves succeed in turbulent times. Staff are encouraged to be creative and willing to take risks and try new things. Communication is encouraged not only between staff levels but also between departments; therefore, the traditional inter-unit barriers are no longer exist.

Environmental Scanning as Organizational Learning
Environmental scanning is defined a systematic process dealing with information about events and relationships in a company’s outside environment, the knowledge of which would assist top management in its task of charting the company’s future course of action (Aguilar, 1967; Choo, 1993; Albright, 2004). Environmental scanning supports an organization’s efforts to learn about the changes and developments in the environment through acquisition, interpretation and use of information about events, trends, and relationships. The products of environmental scanning could be used for both short-term single-loop learning at the business level, such as price restructuring, change of advertising channel, and long-term double-loop learning, such as corporate strategy formulation, amendment of mission and vision statement. Choo (2001) analyzed organizational learning processes by considering the sense making, knowledge creating and decision making based on the four modes of environmental scanning as developed by Aguilar (1967). Moreover, he also pointed out that the process of environmental scanning is in line with organizational learning cycle. A summary and comparison of the two concepts are collated in Table 1, and the mapping exists in a continuum rather than distinct boundaries.

Requirements for Knowledge Workers
Technology-Literacy
Knowledge worker should be technology-literate. They can make contribution to the organization with their expertise on the correct applications of technology. They should be familiar with currently available technologies and keep pace with those newly developed. By evaluating the positive and negative consequences of each option, they understand the most suitable technology to the company. The availability of adequate technological infrastructure is also taken into consideration to ensure effective work. Furthermore, they should be aware of the importance of choosing a suitable time to apply technology, which may contribute a significant saving to the organization.

Information-Literacy
Nowadays, most employees may have already become computer-literate. They are able to manage word processing applications, build Excel worksheet, communicate through emails and make use of both intranet and Internet. However, having the ability to handle technology does not necessarily mean that they are information literate (Cheuk, 2002). Knowledge workers should process the abilities to identify information needs and to locate the best sources to gain accurate and current information, as well as the
abilities to present the information effectively to the intended audience after data mining and repackaging, which is extremely valuable to the overall success of the organization.

### Table 1: A Comparison of Organizational Learning Cycle (OLC) and Environmental Scanning Processes

<table>
<thead>
<tr>
<th>OLC Choo (2001)</th>
<th>Environmental Scanning Process</th>
<th>Key Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensing</td>
<td>Specify information needs</td>
<td>Identifying the environmental scanning needs of the organization</td>
</tr>
<tr>
<td></td>
<td>Specify information sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identify participants</td>
<td>Gathering information</td>
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<tr>
<td></td>
<td>Assign scanning tasks</td>
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<tr>
<td>Perception</td>
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<tr>
<td>Organization Memory</td>
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<tr>
<td>Interpretation</td>
<td>Dissemination of information</td>
<td>Communicate the results</td>
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<tr>
<td>Adaptive Behaviour</td>
<td>Making informed decisions</td>
<td>Actions taken to leverage on opportunities and minimize threats.</td>
</tr>
</tbody>
</table>
Knowledge Workers for Environmental Scanning and Organizational Learning

Knowledge Workers for Environmental Scanning

Environmental scanning is an information-intensive process, starting from identification of information needs and sources, to the collection, processing, storage and dissemination of information, and ending at the evaluation and use of environmental information, every key step of environmental scanning requires the corresponding technology and information skills.

- Identifying Scanning Needs: A good recognition of scanning needs is essential (Fraser, 1996), as they determine the scope and depth of scanning. As information-literate knowledge workers, employees should be able to identify and express their own need clearly. Person in-charge-of the aggregation of individual information needs should be capable in information processing and synthesizing, and conclude the organisation’s scanning need based on aggregation of individuals’ needs.
- Collecting Information: Knowledge workers would be able to realize the advantages and disadvantages of various kinds of information sources, and know how to select most appropriate source with consideration of the quality of information and the cost of collection. Moreover, information literate workers would be able to formulate a suitable search strategy which enables them to retrieve information effectively and legally.
- Organizing and Storing Information: The design and performance of the organisation and storage system, such as its creation of taxonomies, resource description and comprehensiveness, would highly affect the accessibility and retrieval of stored information. With information and technology literacy, knowledge workers know how to organize and store organizational information in properly and facilitate future retrieval and usage.
- Processing Information: Without proper information processing skills, the gathered information would be underutilized as “the organisation does not know what it knows” (O'Dell & Grayson, 1998). Knowledge workers are aware and capable of filtering, interpreting and synthesizing information, through their information and technology literacy skills.
- Distributing Information: Knowledge workers are aware of the importance of sharing information, and they are able to present the information to the right users in a right format in a timely manner.
- Evaluating and Using Information: As the end-users, knowledge workers would be able to use their evaluation skills to make judgement about the quantity and quality of information. A new round of scanning would be initiated for unqualified or insufficient information. Even if they are satisfied with information, they may still need to process and synthesize it based on the real-time situation, and then use it.

Knowledge Workers for Organizational Learning

Melissa (2004) pointed out ten ways to recognize a learning organization, which reflects that a learning organization takes human resources as the management kernel. And as all organizations are composed of individuals, the importance of individual learning for organizational learning is obvious.

The observation-assess-design-implement (OADI) cycle provides a clear connection between individual and organizational learning. Individual learning affect organizational learning cycle through their actions and the influence on the organization’s shared mental models. The intangible and invisible assets of an organization reside in individual mental models as their implicit and tacit knowledge, which collectively contribute to the shared mental models (Kim, 1993).

In single-loop learning, an organization responds to the environmental changes through its organizational action, which is composed of individual actions. Organizational double-loop learning occurs when the changes happened in individual mental models become incorporated into the organization through shared mental models (Figure 1).
Knowledge workers, through their own individual learning, facilitate effective learning occur at the organizational level. By improving their own skills of creating, acquiring and transferring knowledge, they enable their organization to modify its behavior according to the continuously changing information environment (Giesecke and McNeil, 2004).

![Figure 1: Organizational Single-loop and Double-loop Learning Cycles](Adapted from Kim (1993))

**Advantages of Knowledge Workers**

Synthesizing the role of knowledge workers in environmental scanning and organizational learning, it is natural to conclude the following advantages of knowledge workers, as they are better equipped with the essential skills, and are more willing to learn and develop their full potentials.

- Knowledge workers are innovative: They are more willing to take risks and try new things, which enables them to adopt new technologies and creative strategies; therefore helps them acquire and share information effectively and efficiently.
- Knowledge workers know how to deal with information: Through learning, they obtain knowledge about how to acquire information efficiently through a variety of sources; how to filter information by absorbing uncertainty; how to transform information into knowledge useful to the organizations; and how to manage information storage, etc.
- Knowledge workers are good at information sharing: Being aware of the importance of information sharing, they would like to sharing information with others in individual, group and organizational level, and they could successfully pass information onto those who need it.
Implications for Information Professionals

Since knowledge workers play such a significant role for organizations to survive and succeed in today’s turbulent environment, as information professionals, we should also prepare ourselves to help organizations conduct more effective and efficient environmental scanning and organizational learning. On the one hand, for small organizations short of human resources, we can help them conduct environmental scanning and organizational learning using our existing knowledge of information and technology. At the same time, we should also equip ourselves with more business and management skills, enabling ourselves to better understand the environmental signals and use them in a more effective manner. On the other hand, for large organizations, it would be more reasonable to help them transform employees to become knowledge workers, as there is an old Chinese saying “Give a man a fish, feed him for a day; teach a man to fish, feed him his entire life”.

- Instilling a New Information Culture: In a well-designed environment scanning system, employees are among well-connected information sources. Unfortunately, in practice, the majority of employees are unaware of the potential value of the information they come across, and they fail to pass it onto those who can make best use of it (Choo, 1998). Therefore, a new information culture emphasizing on raising information awareness and encouraging information sharing must be instilled within the organization. Appreciation and motivation are required for stimulating more frequent and better-quality information sharing.
- Setting Up a Platform for Information Sharing: Advanced information technologies are hired to set up a platform for information sharing: intranet for inner communication, intelligence database storing market trends, financial statistics and competitive intelligence. Formal meetings and informal conversations are organized for staff’s participation in organization’s strategy design. This platform will enable information sharing among different organizational levels and across various departments. All staff will get opportunities to make contribution to information sharing among the organization.
- Providing Training Courses: Training could be provided for both employees and managers to create the awareness towards the importance of information, and improve their information and technology literacy skills.

Conclusion

No organization could succeed without support from its employees. Especially, in current information-oriented age, knowledge worker is one of the most crucial determinants for the organization to survive with such rapid occurrences of changes and challenges. As a knowledge worker, one has to be both technology-literate and information-literate. He should not only be familiar with useful technologies, but also be able to identify the information needs, and has the ability and skills to collect, process, organization, store, evaluate and use information properly. Knowledge worker’s role in organizational learning cycle shows how an individual’s ideas and actions could affect the whole organization’s mental model. Their abilities on problem handling and information sharing lead to organizational innovation and productivity. With recognition of the critical role of knowledge works, information professionals better prepare themselves and work hand in hand with business organizations, to help them conduct effective environmental scanning and organizational learning, and more importantly, help them to transform employees into information and technology literate knowledge workers.
References


