Exploring Change and Knowledge Management in Developing Countries: The Case of Iranian SMEs

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ABSTRACT

The main target of this research is to discuss two important strategic management disciplines in some Iranian SMEs. Change management and knowledge management will be discussed simultaneously for taking insight into the topic. Based on review of recent literature, this paper has identified major factors of both knowledge and change management disciplines in the field. For the research methodology, a structured survey has been implemented by the authors. The outcome of the research can be implemented as a guideline for change management during KM programs. This study provides an integrated perspective of critical issues for both knowledge and change disciplines in the organizations especially in SMEs of developing countries. It gives invaluable information and guidelines which hopefully will help the leaders to mange essential changes for accomplishing knowledge management through their organizations.

Keywords: Knowledge management, Change management, SME, Iran.

INTRODUCTION

If there is an even more ubiquitous topic writing about change, whether it is books, practitioner or academic journals, the topic of change is sure to be one of the most researched and well-published subjects (Washington and Hacker, 2005).

Attempts to impose order on what Weick and Quinn (1999) call "the sheer sprawl of the change management literature" have led to attempts at classification of change as either "discontinuous and episodic" or "continuous and emergent" (Treleaven and Sykes, 2005).

If there is one constant in the real business world, it is surely the change. Some researchers such as Attaran (2000) have declared that nearly 75 percent of all American corporations have gone through some type of systemic change program.

The concept of societal transformation today has also come to be associated primarily with the changes underway in former socialist countries. The process has been described in many different ways, such as "deep metamorphosis", "paradigm crisis," "crisis of working society," and "crisis of organized modernity" (Thurow, 1999).

In such a landscape, it is not surprising that knowledge and information management has emerged as one of the most popular strategic change management approaches in the dawn of the 21st century (Davenport and Prusak, 1998). Its supporters argue that organizations may achieve significant competitive advantages by analyzing the data and information that often remain unexploited in organizational systems and by transforming them into useful and actionable knowledge (Giaglis, 2002).

Adoption of knowledge management system in the organization may face with some challenges which is usually understood. This subject requires a specific change management program to lead knowledge management efforts in the organization.

It is necessary to say that we are now changing gradually from an information age to a knowledge age, where knowledge has been recognized as the most important aspect in human life. Individuals and organizations are starting to understand and appreciate knowledge as the most valuable asset in the emerging competitive environment. Knowledge is a powerful tool that can make changes to the world. It

is now considered as the main intangible ingredient in the melting pot that makes innovation possible (Syed-Ikhsan and Rowland, 2004).

Bergeron (2003) defines knowledge management in this way:" Knowledge management is a deliberate, systematic business optimization strategy that selects, distills stores, organizes, packages, and communicates information essentials to the business of a company in a manner that improves employee's performance and corporate competitiveness".

Knowledge management is the process of managing knowledge and expertise in the organization in a way that facilitates identification, capture, codification, storage and sharing the knowledge which accelerates knowledge creation towards the strategies of the organization.

Change and knowledge retention affect a firm's knowledge production. Tradeoffs in the amount of resources dedicate to these activities influences the development and distribution of knowledge within firms across time (March, 1991). For instance, a firm that preserves the past via retention may dedicate fewer resources to creating knowledge through variation activity and to acquiring tacit knowledge and skills, or human capital. On the other hand, a firm may import more knowledge via inflows of human capital when it trades off exploiting the past for increasing knowledge creation or variation (change) activity. As a consequence, a general concern of studies examining learning and adaptation is the balance between a firm's variation and retention activities (Madsen and McKelvey, 1996).

Knowledge-based approach is a useful framework which is needed to give the depth to the study of discursive change processes. This framework focuses on both the emergent nature of change itself and on the reforms and recreations of knowledge produced in terms of organizational knowledge. It also offers an understanding towards change processes and covers the tensions generated during the process. Such re-conceptualizing of organizational change to address multi-vocality opens up new ways of researching which shows how organizing and re-organizing processes in organizations produce intended and unintended effects.

In this paper, we are supposed to discuss change management during knowledge management establishing program in some Iranian small and medium size enterprises (SME). This study will explore change efforts and KM programs simultaneously. It is important to say that knowledge management adoption in an organization requires some changes. The succession of KM program is dependent on the way changes are managed. If the changes are not implemented in a suitable way, the knowledge management program will face the failure. In this way, knowledge management programs have a close relationship with the related changes. That's why the authors are to discuss knowledge management and change management simultaneously in this research.

WHAT ARE SMES IN THE REAL WORLD?

The result of the knowledge revolution is represented by the new economy or the knowledge-based economy, which is radically different from the previous economy types known by mankind. Essentially, the knowledge-based economy is characterized by the conversion of knowledge into essential raw material, capital, products, production factors of the economy and through economic processes within which such activities as generating, selling, buying, learning, storing, developing, sharing and protecting the knowledge become a predominant and decisive condition

for profit generation and the long-term durability for the organizations including SMEs at micro level and economy at the macro level.

Until the middle seventies, SMEs had a minor role in the debate about economic development due to the dominance of the mass production paradigm in industry. After this period, this paradigm was increasingly challenged, leading to large firms' fragmentation, unemployment growth and creation of new SMEs (ACS, 1992).

There are a number of definitions of what constitutes a small to medium enterprise (SME). Some of these definitions are based on quantitative measures such as staffing levels, turnover or assets, while others employ a qualitative approach (MacGregor and Vrazalic, 2004). Meredith (1994) suggests that any description or definition must include a quantitative component that takes into account staff levels, turnover, assets together with financial and non-financial measurements, but the description must also include a qualitative component that reflects how the business is organized and how it operates (MacGregor and Vrazalic, 2004).

There are two main findings in the literature that have implications for economic policy concerning SMEs. The first is that the nature of innovation adoption differs according to the size of the firm. The second is that clusters of small firms or industrial districts can be important for regional development (Lebre, 1998).

As Rothwell and Dodgson (1993) warn, both SMEs and large firms have advantages in innovation adoption, but these advantages differ. While large firms have material advantages, due to their greater capability to support R&D, SMEs have behavioral advantages that stem from their greater flexibility and ability to adapt to changes in the market.

A combined study of Danish, Irish and Greek SMEs carried out in the early 1990's by Neergaard (1992) concluded that there were four main reasons for the acquisition of IT by SMEs. These were increased productivity, streamlining work procedures, better client service and better record keeping (Neergaard, 1992). Fink and Tjarka (1994) described their three reasons for IT acquisition as 'doing the right thing', 'doing things right' and 'improving the bottom line' in a study of Australian executives.

The differences between SMEs and their larger counterparts are highlighted even more when their approaches to IT are considered. Khan and Khan (1992) suggest that most SMEs avoid sophisticated software and applications. This view is supported by studies carried out by Chen (1993), Cragg and King (1993), Holzinger and Hotch (1993) and DelVecchio (1994). In addition, the locations of the SMEs are also important. Gillespie et al. (1995) note that the use of IT applications can vary in different regions of a country.

Considering the rapid changes in the competitive era, the SMEs should adapt themselves with the harmony of change, and while the knowledge is assumed as the main resource of organizations especially for innovations, knowledge management is so important for SMEs to lead their efforts towards competitiveness and innovation.

SMES IN IRAN

As above discussed, until the middle seventies, SMEs had a minor role in the debate about economic development due to the dominance of the mass production paradigm in industry. After this period, this paradigm was increasingly challenged, leading to large firms' fragmentation, unemployment growth and creation of new SMEs (ACS, 1992).

Nevertheless, the most SMEs in Iran are still traditional and their school of thought is belonged to last few decades. The today's dance of changes is dictating a new model thinking as a basic requirement. The SMEs in Iran have to restructure their way of thinking which has a deeply roots in their culture. The difference between culture in east and west is under the influence of school of thought they have been growing up under. In this way, to bring a change in SMEs, firstly should be started by changing the culture and beliefs towards the changes whether is possible or not. Then, the reengineering of the processes, approaches, techniques, methodologies, etc. should be started on the base of change management program. The way the SMEs in west are behaving in the case of change, is under the influence of the techniques and thoughts commonly used in that environment. The preliminary instruments used in daily activities in SMEs in west, is a big project in the SMEs in east. For example, the topic of knowledge management commonly used in SMEs in the west as a daily routine process, if is traced in eastern SMEs, no trace or little trace can be monitored. In Iran, hardly you may find the small scale industries with the knowledge management systems. The value of any organiza-tion in today's market is based on the brain ware and intellectual capital. So, the main and important factor in bringing changes in an organization is the ability and the power of knowledge. In this way, the relationship between change paradigm and knowledge management in Iranian SMEs can be clearly discussed. That is the main concept which has been recently understood by some technologic and knowledge based SME leaders in Iran little by little. The Iranian SMEs are almost weak in knowledge management, and it necessary to be discussed in micro and macro levels to bring and ease of related change in Iranian SMEs.

KNOWLEDGE MANAGEMENT IN SMES

According to the knowledge-based view of the firm (Grant, 1996; Spender, 1996), knowledge is regarded as the most important source of competitive advantage. We are living in a knowledge society that yields high returns on knowledge resources (Drucker, 1999). In the last 10 years the number of articles on knowledge management and intellectual capital has been increasing at an average annual rate of 50 percent (Renzl et. al, 2006).

Furthermore, the importance of knowledge management is clear to many organizations and the leaders search for the main reasons and factors for being successful in knowledge management system design and implementation through their organizations (Akhavan et al, 2006).

Nowadays mature governments have also understood the importance of knowledge and management of it, so the related activities are led by top levels and ranks in those countries especially in advanced and developed countries (Akhavan and Jafari, 2006).

Furthermore, it is important to say that the main component of the knowledge-based economy is the knowledge-based organization, which presents some characteristics which clearly differentiate it from the traditional industrial company, currently prevailing at international level. The knowledge based economy becomes the crucial component (engine) of the national and international economy. The transition to the knowledge-based economy is an inevitable, extremely complex and difficult process, which generates many opportunities and threats for SMEs. These opportunities are based on some factors such as the creation and commercialization of the new products, services and technologies; the amplification and diversification of demands on local, regional, national and international markets; the externalization of an important part of the activities for the big companies, state and public institutions; the extension of home work and tele-work for the companies; the development of the organizational and technical networking structured on branches and/or territorially and so on.

Niosi and Rivard (1990) reported that 'SMEs, as niche producers with a smaller range of technologies to offer, may provide easier learning opportunities to industrial firms in developing countries'. In addition, Gomes-Casseres and Kohn (1997) concluded that the competitive advantages of smaller US firms, which derived mostly from their technological leadership, allowed them to adapt and evolve with changes in the international economy, particularly in the industrializing parts of the world.

A SME offers two advantages in initiating research on knowledge management. As Davidson and Griffin (2003) comment, small businesses have contributed many innovative ideas and technological breakthroughs to our society. Further, decisions in a SME are often enacted within a shorter time frame than in larger organizations.

As Delahaye (2005) points out, it was once held that the two most basic resources available to an organisation were money and time and that one could be exchanged for the other. Unfortunately, though, there is no simple exchange equation between money and time, on the one hand, and knowledge on the other, as knowledge has to be created, learned and maintained not simply purchased and maintained (Delahaye, 2005). Further, knowledge is the primary resource for individuals, organisations and the economy (Drucker, 1995).

RESEARCH METHODOLOGY AND DATA COLLECTION

For the research methodology, the authors implemented a structured survey. At first, the main areas of the research domain were questioned from some experts that had sophistications in SME topic and also had some academic research in related domains. After that, a questionnaire was designed based on the feedbacks taken from the experts. The content of the questions has been summarized for better readability

Table 1. The 20 questions on KM and CM

No.	Criteria
Q1	Knowledge management is positively related with organizational size
Q2	Knowledge management is positively related with organizational mission
Q3	Knowledge is tacit rather than explicit in SMEs
Q4	Knowledge sharing is done face to face rather than IT deployment in SMEs
Q5	Learning is done experimental rather than applying the documents
Q6	CEO support and commitment is positively related with KM adoption in SMEs
Q7	Learning is positively related with training in SMEs
Q8	Learning is positively related with interactive participation of employees in SMEs
Q9	Learning is positively related with CEO support and commitment in SMEs
Q10	Learning is positively related with flat structures in SMEs
Q11	The changes are necessary for KM adoption in the organization
Q12	The process are appropriate for knowledge management
Q13	There is a translucent atmosphere in the organization
Q14	Confidence about job security
Q15	Confidence about salaries and rewards
Q16	Confidence about organizational job position
Q17	The hold sessions were effective for change programs
Q18	Motivation systems are very important for change and KM adoption
Q19	The employees accompany with changes
Q20	Reach to knowledge objectives in KM area after the changes

as listed in table 1. The selected response can be strongly disagree, disagree, no opinion, agree, or strongly agree that is evaluated by a Likert Scale.

The main sampling targets were senior managers and department managers who were involved in change and knowledge efforts in the organization.

The research targets were members of 31 SMEs in Iran, specializing and working in IT, communication and electronic domain including hardware and software, electronic and communication circuit design and implementation, ICT consulting and ICT services.

The questionnaire consists of two main parts; the first part was the questions related to knowledge management analysis in organization, and the other part was due to the change factors. The questions were asked in a unit questionnaire. The KM part had asked about knowledge, learning, and their relations with some important organizational features such as organizational size, organizational mission, organizational structures, CEO support and commitment. It also asked about some crucial factors for KM adoption such as training and IT deployment in the organization.

The "change" part of questionnaire asked about change factors from different perspectives. Some questions analyzed the "resistance against the change" factor with some questions about job security, salaries and rewards, and organizational position. If the agree rate of answers in these questions are high, it shows that the change program has not been successful and in this way, we should expect vulnerability in our KM programs. The other section of questionnaire change part analyses the necessity about the changes for KM adoption in the organization. The respondents are questioned about the fitness of available processes, structures, and totally, the current situation of the organization and the necessity of the changes.

Finally, the degree of reaching to knowledge objectives has been asked from the employees in order to understand the rate of success in our programs. Table 1 summarizes the content of the 20 questions.

DISCUSSION

After the reliability test, the questionnaires were analyzed by some statistical methods as follows. With reliability analysis, you can get an overall index of the repeatability or internal consistency of the measurement scale as a whole, and you can identify problem items that should be excluded from the scale. The Cronbach's alpha is a model of internal consistency, based on the average inter-item correlation. The Cronbach's alpha (Likert & Rensis, 1974) calculated from the variables of this research was 0.928, which showed high reliability for designed measurement scale. The selected response can be strongly disagree, disagree, no opinion, agree, or strongly agree that is evaluated by a Likert Scale as discussed.

CEO support and commitment is the important and common factor of every system that should be implemented or established in the organization (Akhavan et al, 2006). The analysis also showed that this factor is so important in the selected SMEs for KM adoption. This factor is also positively related with learning in

the organization, which has been confirmed by questionnaire analysis through selected SMEs. It is because we can trace a consensus as much as 89 percent on the positive rate of respondents to the related question (number 9) showing the positive relation between CEO support and learning.

It is important to say that learning itself is the main element of a learning organization, and for moving towards learning organization, the requirements should be considered. CEO support can act as an enabler for the necessities of the learning process for moving towards learning organization.

On the other hand, the analysis showed that knowledge management is positively related to organizational mission. It means that the organizations with knowledge based missions need knowledge management more. As a matter of fact, we have a lot of SMEs in Iran which are playing important roles in Iranian industries and Iranian economics as a sensitive node in Iranian industrial network. Therefore, their missions are more important and sensitive because of the role they are playing in succeeding the Iranian industrial and economical missions. For example, those who are working in information technology, ICT, electronic, computer (hardware and software), and etc. are playing more important role in development and knwledge era. Therefore, we can say that they are the SMEs with the main frame of knowledge and modern technology.

The technologic/ high-tech organizations are highly dependent to their intellectual capital rather than physical assets. As most of the SMEs in this research have been selected from technologic ones including IT firms, and communication and electronic industries, they highly agree that the more advanced and strategic mission for the organization require strong necessity for knowledge management adoption in the organization.

The statistical analysis results showed that there is no relationship between knowledge management and the size of the organization. This may be resulted because of the nature of knowledge and the necessity of its management, free from the usual organizational features. Knowledge management can be established and implemented in every part of the organization including all departments and sub departments; and even it can be considered and generalized from micro level in the organization to a macro level in a country, that can facilitates knowledge based development (Akhavan et al., 2006).

It is important to say that the nature of SMEs supports tacit knowledge rather than explicit knowledge. The analysis also showed that the selected Iranian SMEs matter to tacit knowledge rather than explicit and believe that knowledge is tacit rather than explicit in the SMEs.

Meanwhile, the selected SMEs were limited from the geographical point of view, and because of their size, the skills and experiences of employees play an important role in the organizations. Also, as the work places are near to each other, the employees prefer to share their knowledge face to face rather than applying information technology. The analysis also confirms this opinion and the respondents in the selected SMEs prefer not to use IT for knowledge sharing. The respondents also believe that learning is also done through experience sharing between the employees and not through the documents. This may be because of the lack of an integrated documentation system or because of the previous explanations about fact to face knowledge sharing.

The questionnaire analysis also showed that learning is positively related with interactive participation of employees and flat structures in the SMEs. It is important to say that participation of employees in decision making process is dependent to flatness of the organization. Flat structures encourage employees to take part in decision making and management process by removing middle management layers.

The results also showed that learning is positively related with training. Training process can facilitate knowledge efforts and learning, because there are some skills that may be transferred by educations and training.

On the other hand, the results showed that the employees believe the nature of change and agree and accompany with it. It is also clear from the answers that the respondents believe that the current processes and structures of the organization are inappropriate and should be changed.

The analysis showed that motivation systems play an important role in change programs for KM adoption. The answers also showed that the change program has been successful in conquering against the important factor of "resistance against the change" because the employees were confident about relevant factors such as their job security, their salaries and rewards, and their organizational job

Figure 1. Agree percent of the questions
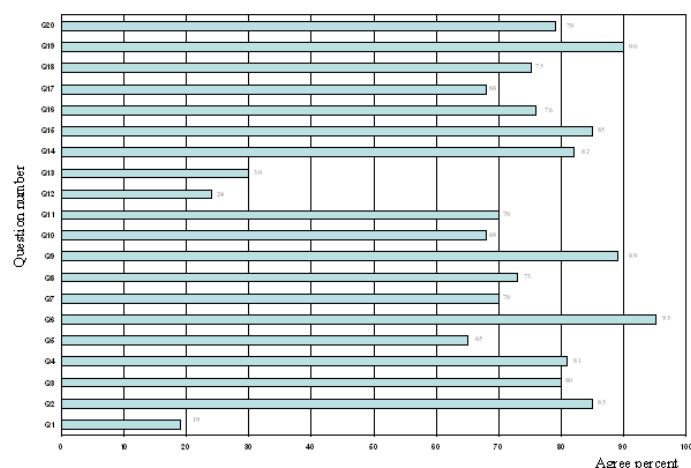
position. It may be because of the sessions and trainings hold for employees to get familiar with KM foundations and its benefits which helped the acceptance of change programs so much and it is also clear from the answers.

Finally the analysis showed that we have reached many of our knowledge objectives through the change program while most of the respondents were agree with it. Figure 1 shows the agree percent of answers for each question.

CONCLUSION

Nowadays, knowledge is known as a vital and the most important property of the organizations and knowledge management is playing undeniable role in existence of an organization. It gives the ability and power of competitiveness to the organizations. The most valuable thing in today's market is also knowledge and the most valuable organizations are those who can manage their valuable asset called knowledge. Having a successful knowledge management in an organization, is the result of different changes in the firm which should be managed completely.

This article enlightened the relationships between the changes which are necessary for KM adoption in the organizations and knowledge management itself in order to have a successful knowledge management in some Iranian SMEs. Furthermore, this research was designed in order to analyze change management during knowledge management adoption in those Iranian SMEs as the SMEs play an important role in the economies. We are experiencing a new kind of economy in the recent era that is known as knowledge economy which considers the knowledge as the main resource of the organization for innovation and competitiveness. Considering the SMEs as the micro element of the society and a part of macro economy, knowledge management is crucial for driving them towards sustainable competitiveness.

In this paper we explored knowledge management in some Iranian SMEs through a change program. A structured survey was designed and implemented. The findings showed that although the research was implemented in some SMEs, but the results showed that there is no relationship between organizational size and the need for knowledge management. Knowledge management can be considered as the need and requirement of an organization at any size. The results also showed that CEO support and commitment plays a vital role in knowledge management adoption and learning process. Learning itself was confirmed to be positively associated with some factors such as training, employee's participation, and flat structures.

Findings also showed that IT doesn't have an important role in knowledge management in selected Iranian SMEs. It may be resulted because of the level of IT deployment in Iran as a developing country. Although IT is being expanded widely in Iran, but it seems that the Iranian SMEs look at it as a tool for facilitating some of their works and processes and not as a strong tool and important enabler for knowledge management.

The analysis also showed that the change program has conquered against the "resistance against the change" factor and it has been successful in reaching the

knowledge objectives as the respondents reached to consensus to the related questions. The answers showed that some related factors such as confidence about job security, confidence about salaries and rewards, and confidence about organizational job position reached consensus. These factors are directly showing the resistance against the change and the analysis showed that the employees are confident about them (job security, salaries and rewards, job position) which may be the result of different sessions and trainings and the motivation systems in the organization.

REFERENCES

ACS, Z.J. (1992), Small business economics: a global perspective, Challenge, November-December.

Akhavan, Peyman, Jafari, Mostafa, and Mohammad Fathian (2006), Critical Success Factors of Knowledge Management Systems: a Multi-Case Analysis, European Business Review Journal, Vol. 18, No. 2, pp. 97-113.

Akhavan, Peyman and Mostafa Jafari (2006), Critical Issues for Knowledge Management Implementation at a National Level, Vine: The journal of information and knowledge management systems, Vol. 36, No.1, pp. 52-66.

Bergeron, Bryan (2003), Essentials of knowledge management, John Wiley & Sons.

Chen, J.C. (1993), The impact of microcomputers on small businesses: England 10 years later, Journal of Small Business Management, Vol. 31, No. 3, pp 96 – 102.

Cragg, P.B., King, M. 1993, Small firm computing: motivators and inhibitors, MIS Quarterly, Vol. 17, No. 1, pp 47 – 60.

Davidson, P & Griffin, R. (2003), Management: An Australasian Perspective (2nd edn.), John Wiley & Sons, Brisbane, Australia.

Delahaye, B. (2005), Human Resource Development: Adult Learning and Knowledge Management (2nd edn.), John Wiley & Sons, Brisbane, Australia.

Drucker, P. F. (1999) 'Knowledge–Worker Productivity—The Biggest Challenge', California Management Review, Vol. 41, No.2, pp. 79–94.

Drucker, P (1995), Managing in a Time of Great Change, Truman Talley Books/ Dutton, New York.

DelVecchio, M. (1994), Retooling the staff along with the system, Bests Review, Vol. 94, No. 11, pp 82 -83.

Davenport, Thomas H. and Prusak (1998), Working Knowledge – How Organizations Manage What They Know, Harvard Business School Press, Boston, Massachusetts.

Fink, D., Tjarka, F. 1994, Information systems contribution to business performance: a study of information systems executives' attitudes, Australian Journal of Information Systems, Vol. 2, No. 1, pp 29 – 38.

Giaglis, George (2001), European Research on Knowledge and Information Management: Current Status and Future Prospects, Available: http://www.eltrun.gr/papers/ICSTM_Giaglis_KIM.pdf

Gomes-Casseres, B. and Kohn, T. (1997) 'The Case of the United States', in P. Buckley, J. Campos, H. Mirza, and E. White (eds) International Technology Transfer by Small and Medium-Sized Enterprises, pp. 280–98. New York: St Martin's Press.

Grant, R. M. (1996) 'Toward a Knowledge-Based Theory of the Firm', Strategic Management Journal 17(Winter Special Issue), pp. 109–22.

Giaglis, George (2002), European Research on Knowledge and Information Management: Current Status and Future Prospects, Available: http://www.eltrun.gr/papers/ICSTM_Giaglis_KIM.pdf

Holzinger, A.G., Hotch, R. (1993), Small firms usage patterns, Nations Business, Vol. 81, No. 8, pp 39 -42.

Khan, E.H., Khan, G.M. (1992), Microcomputers and small businesses in ,Bahrain industrial management and data systems, Vol. 92, No. 6, pp 24 – 28.

Lebre, R. (1998), Small and medium-sized enterprises and IT diffusion policies in Europe, Small Business Economics, Vol.11, No.1, pp.1–9.

Likert and Rensis (1974), "The method of constructing an attitude scale in Gray M. Marshall", Chicago aldine publishing company, pp. 21-43.

Madsen, T.L., McKelvey, B. (1996), "Darwinian dynamic capability: performance effects of balanced intrafirm selection processes", Best papers proceeding, Business policy & strategy division, Academy of management, pp. 26-30.

March, J.G. (1991), Exploration and exploitation in organizational learning, Organization science, Vol. 2, pp. 71-78.

MacGregor, R. and L. Vrazalic (2004), Electronic commerce adoption in Small to Medium Enterprises (SMEs), A Comparative study of SMEs in Wollongong (Australia) and Karlstad (Sweden), University of Wollongong, May 2004.

Neergaard, P. (1992), Microcomputers in small and medium-size companies: benefits achieved and problems encountered, Proceedings of the Third Australian Conference on Information Systems, Wollongong, pp 579 – 604.

Niosi, J. and Rivard, J. (1990), 'Canadian Technology Transfer to Developing Countries through Small and Medium Sized Enterprises', World Development, Vol. 18, No. 10, pp. 1529–42.

Renzl, Birgit, Matzler, Kurt, and Hans Hinterhuber (2006), Organizational Knowledge, Learning and Capabilities, Management Learning Sage Publications, London, Thousand Oaks, CA and New Delhi. Vol. 37, No. 2, pp. 139–141.

Rothwell, R., Dodgson, M. (1993), Technology-based SMEs: their role in industrial and economic change, Inderscience Enterprises.

Spender, J.-C. (1996) 'Making Knowledge the Basis of a Dynamic Theory of the Firm', Strategic Management Journal 17(Winter Special Issue), pp.45–62.

Syed-Ikhsan, Syed Omar Sharifuddin and Fytton Rowland (2004), Benchmarking knowledge management in a public organization in Malaysia, Benchmarking: An International Journal, Vol. 11, No. 3, pp. 238-266.

Weick, C.E. and Quinn, R.E. (1999), "Organizational change and development", Annual Review of Psychology, Vol. 50, pp. 361-86.

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