

2002

Knowledge Management Obstacles in Australia

Suzanne M. Zyngier

Monash University, sandz@labyrinth.net.au

Follow this and additional works at: <http://aisel.aisnet.org/ecis2002>

Recommended Citation

Zyngier, Suzanne M., "Knowledge Management Obstacles in Australia" (2002). *ECIS 2002 Proceedings*. 141.
<http://aisel.aisnet.org/ecis2002/141>

This material is brought to you by the European Conference on Information Systems (ECIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ECIS 2002 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

KNOWLEDGE MANAGEMENT OBSTACLES IN AUSTRALIA

Suzanne M. Zyngier

School of Information Management and Systems, Monash University, Australia
sandz@labyrinth.net.au

ABSTRACT

This paper presents a discussion of field research by survey of the range of obstacles to the effective implementation of knowledge management strategies in the Australian corporate environment. The paper provides background to the current study, refers to results and to further research possibilities.

Previous research in the UK, in Europe, in Australasia and the USA has presented consistent findings of the obstacles to knowledge management implementation strategies.

This Australian study reveals external obstacles to knowledge management that have not been found or discussed previously. These obstacles are outside the immediate control of the organisation itself, in that they are externally derived.

1. INTRODUCTION

Australia is an isolated, vast and geographically diverse country. The majority of the population of 20 million lives on the eastern seaboard and is centered in capital cities. Over the past 50 years the economy has transformed from one based on agriculture and manufacturing to one that is now primarily based in tertiary and services industries. One key resource is human knowledge.

Business centres are located in capital cities and from there serve the nation. The domestic markets are small consequently turning to Asia and the Pacific, to the USA and to Europe develops markets. Recent governments have encouraged foreign investment and consequentially a large number of organisations have head offices based offshore but are centrally controlled. This demonstrates therefore that there is a need for Australian industry sectors to manage human and physical resources across a variety of locations and cultures.

Knowledge management (KM) is a management technique to maximise the co-ordination and organisation of human knowledge. It has developed as a practice to capture and reuse organisational knowledge. Knowledge cannot always readily be transmitted in its entirety in codified form. Knowledge is understanding and experiential learning, know-how that can be acted upon, and includes accrued information that can be employed and interpreted in one context specific way and then reused in a different context drawing on other relational material. Knowledge is not factual information but is the product of human intercourse, a process as applied to a given context. Until it has been synthesized into knowledge, the best information is of limited value. Employees don't learn from it and their organisation cannot benefit from it. An organisation benefits from its ability to manage proprietary knowledge by assimilating, building and disseminating knowledge effectively. KM issues include the development, implementation and maintenance of the appropriate organisational and technical infrastructures to enable knowledge sharing.

A survey of research in the last ten years shows that nine surveys on KM by questionnaire have been distributed to the corporate sector in regions focussing on Europe, the United Kingdom and the United States. These surveys sought to establish the level of activity related to KM in those regions. Five of these surveys were undertaken by academics, the other four being undertaken by commercial

organisations. Several other surveys were related to but not directly concerned with the management of knowledge or the research data was not fully available. Other research into KM has focussed on these processes through case studies of individual companies.

An empirical study is an important tool in measuring the current business understanding of the concept of KM and of its uptake trends in the Australian corporate environment. No previous study has examined a broad cross-section of the management of knowledge in Australia. This paper addresses this gap. This paper examines the obstacles to the effective organisational management of knowledge by analysing empirical data from a survey conducted from March to July 2001 into current KM practices in the top 1000 organisations in Australia.

2. LITERATURE SURVEY

A survey of relevant literature illustrates the large amount of research in KM. Most of this has its roots in the recent past but the definitive exploration has been over the last ten years. The two issues of organisational culture and obstacles to the effective implementation of a KM strategy are crucial to KM practitioners.

2.1. Organisational culture

Prusak and Davenport (1997) noted the issue of cultural aspects of knowledge sharing giving the examples of "Mobil where disapproval of bragging is embedded in the culture." Similarly, "a Hewlett Packard Vice president who transferred from the United States to Australia.... in a democratic culture of mateship that discourages calling attention to individual performance." (Prusak & Davenport 1997 p.27) Facilitation of knowledge sharing and transfer is to be approached in a programmatic way rather than relying on good will on an ad hoc basis. Prusak and Davenport (1997) look at how knowledge can be nurtured in organisations; building trust throughout a company is the key to creating a knowledge-oriented corporate culture. It is corporate culture that nourishes a knowledge management programme producing a positive environment in which employees are encouraged to take risks to make decisions that are efficient, productive, and innovative.

Krogh, G. V., Ichijo, K., & Nonaka, I. (2000) describe how effective knowledge creation depends on the physical, virtual and emotional context of an organisation. They discuss the importance of the notion of reciprocity of relationships. When a relationship is felt to be reciprocal then a trust develops which can work to overcome power-based relationships. An obstacle to knowledge creation then can be the inability of an individual to deal with a new situation, new event, new context or new information. They conclude that an organisation must actively pursue the work context as a learning organisation where the individuals of that organisation are attune to learning new things. Learning implies encountering and assimilating new facts.

Differing cultures within an organisation also affect the efficient sharing of knowledge. These cultures can arise from different educational backgrounds and expectations (Long and Fahey, 2000) and are often firmly rooted in differing functions of departments in an organisation. Differing languages reflect differing workplaces, trades and technical backgrounds, different divisions or departments and ranks in a single organisation. Language differences can limit the ability to communicate in verbal and in written form. The subcultures of a research and development department may have a collaborative exchange mechanism where people discuss their work and naturally exchange their ideas to create a body of knowledge that is greater than the sum of the parts contributed by individuals. Sharing may not be based on written exchange but rather through the social relationships among the participants. A department within the same organisation may exchange knowledge solely as rules and structures embedded in their work process.

2.1.2 Obstacles to the management of knowledge

Pfeffer and Sutton (1999) discuss fear as an emotion that prevents organisations acting on knowledge. Fear and distrust of management may effect the ability of staff to act without being punished either overtly or covertly. Fear for jobs, loss of self-esteem and security will mitigate against employees doing anything but what they have securely done in the past. These attributes reflect the role of executive management in developing an appropriate culture that fosters or hinders the management of knowledge as outlined previously described by Nonaka and Takeuchi (1995), Prusak and Davenport (1997), Hackett (2000), Dixon (2000) Hauschild et al. (2001) and Probst, Raub and Romhardt (2000).

Core rigidity can act as an inhibitor to knowledge transfer when the very existence of organisational structures prevent or limit innovation and movement beyond the established wisdom (Leonard Barton, 1995). Where all the solutions to a workplace problem are already defined then an external solution to a new problem or an innovative solution to an old problem may be ignored or never even exposed. Limitation of the application of new ideas torpifies the knowledge creation process and stagnates work practices. This will lead to the diminution of both product development and of service to clients. Stagnation of the knowledge creation process will diminish the intellectual development of staff lowering morale and innovation.

3. METHODOLOGY

The questionnaire was developed to gather data measuring the current business understanding of the concept of KM and of its uptake trends in the Australian corporate environment by senior executives in Australia. The survey instrument being used in this project is grounded in the theoretical KM literature and was adapted with permission from an instrument developed in 1998 by the School of Management, University of Cranfield, U.K. (Permission was received from the project leader, IS Research Centre, to make reasonable academic use of the survey instrument for this research project.)

The study used a population of 1000 organisations comprising 'blue chip' companies, medium sized enterprises, government bodies and tertiary educational institutions. These organisations were identified using a list purchased from a commercial list provider. The survey was accompanied by an explanatory cover letter and reply paid envelope. In each organisation survey questionnaires were addressed to the Chief Executive Officer, the Chief Information Officer and the Director of Human Resources. The explanatory cover letter allowed delegation of the task of completing the survey to another company officer.

One of the major problems of a mail survey is that response rates can be low and the sample cannot be reasonably argued to represent the population. The external validity of such research is therefore low. Due to the method of subject recruitment this sample cannot be said to be representative of all Australian organisations or of the opinion of all Australian senior executives. However as this information is taken from an anonymous group of respondents it can be said to indicate an openness of opinions expressed. This openness – and in some cases obviously frank honesty in textual responses – provides indicative trend data in an understanding of the current approach to KM in Australia at this time.

A target population of 1000 rendered a response rate of 15.1%. This set of senior executives forms the sample for the statistical analysis in the report. It is worth noting that representation of responses by state and by industry sector breakdown closely reflects the possible responses of the target population.

The questionnaire was divided into seven sections and was timed to take approximately 20 minutes to complete. The sections comprised:

1. Demographic information - both organisational and individual
2. Knowledge management definitions

3. Relevance of knowledge issues
4. The exploitation of knowledge
5. The management of knowledge as an asset
6. Cultural aspects of knowledge management
7. Knowledge use in the future and obstacles to its management

In replying to the questions and statements the respondents were required in some questions to tick appropriate responses using attitude questions in the questionnaire. This allowed executives to rank their agreement to a statement relative to positive and negative endpoints of a five- point Likert scale. De Vaus (1990) notes that this method is user-oriented and with a careful selection of questions is a good indicator of opinion. Analysis takes account of the possibility of the acquiescent response set where the respondent may develop a pattern of agreeing with all the items.

The respondent was also asked for a written response to questions in the last section. The written responses were evaluated for thematic content using qualitative analysis. The questionnaires were encoded, entered into a computer and then analysed using software application SPSS 10.0 for Windows.

4 KNOWLEDGE CULTURES

The fifth section of the survey examined the cultural aspects of KM. The questions asked relating to knowledge cultures reflect both the outlook of the organisation and the outcomes of the strategies or perspectives pursued. The aspects of culture expressed in the survey data as being evident always or some of the time are: encouraging people to share (75%), taking responsibility for staff learning new skills (75%), being a learning organisation (56%), managing learning and knowledge acquisition (53%), while rewarding people for sharing was not prevalent (33%).

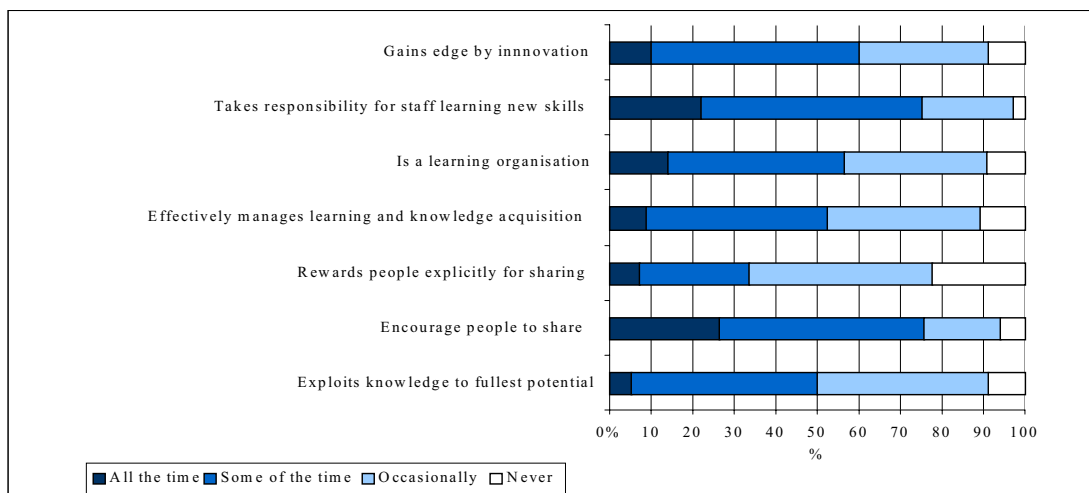


Figure 1 Organisational issues key to KM

Respondents were asked to give a textual response about those issues key to KM in their organisation. Of the 153 respondents 69 people (45%) included text in their responses to this question in the survey. The thematic analysis of these responses comprised a number of elements. The issue referred to most often was that the co-operative cultural aspects of a KM strategy required a strategy for change management 20%. This factor is a significant element in the development of any KM endeavor. Many (18%) felt strongly that the philosophy of KM is not well understood in their organisation, and that the development of criterion for knowledge collection is a key issue (10%). Knowledge hoarding and related power issues or organisational leadership not prepared to back KM and the difficulties of quantifying the outputs of a KM strategy that is the return on investment (ROI). 5% or fewer respondents mention issues of the scalability of strategies, of limited time available for planning and

implementation, limited technology availability for implementation and of situations where the foreign control of the organisation dictates functions. Silos of information (where an organisation is structured into vertical groups that are discrete and do not interact with other groups) and the impact of the economy or external environment are all issues that affect the KM strategies of the respondent organisations.

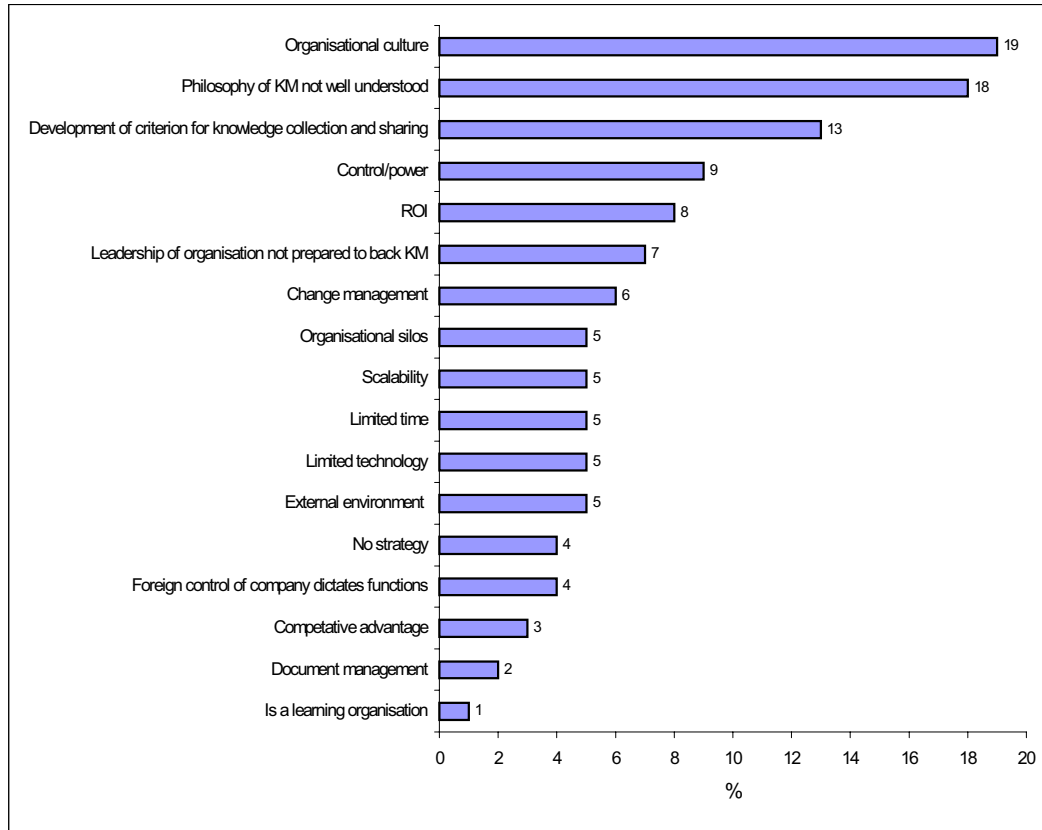


Figure 2 Organisational issues key to knowledge management shown as a percentage

4.1 Independently reported obstacles

Respondents were asked to give a written response about issues that they considered as obstacles to moving KM forward in their organisation. Of the 153 respondents 47 people included text in their responses to this question in the survey.

The greatest obstacle described by 31% of respondents in progressing a knowledge use strategy is the management culture of the organisation. This response includes those organisations that have a current culture of believing that they are already good at sharing knowledge, those who work within a traditional style organisation with a few key people who have the knowledge but will not share, disseminate or delegate. There are also those who see the solution in change management as a remedy for the cultural obstacles but cannot effect the required changes. 19% of respondents describe another major source of difficulty in the implementation of a KM strategy as the ongoing conflict of priorities in organisations - ranging from mergers and acquisitions activities to prevarication about management strategies.

Financial constraints including staffing allocations to a KM strategy affected 18% while cultural issues like the maintenance of organisational power associated with keeping knowledge to oneself was cited by 7% of respondents. Equally respondents also felt that the concept or philosophy was not

sufficiently well understood and that this would inhibit the potential of the organisation to move forward.

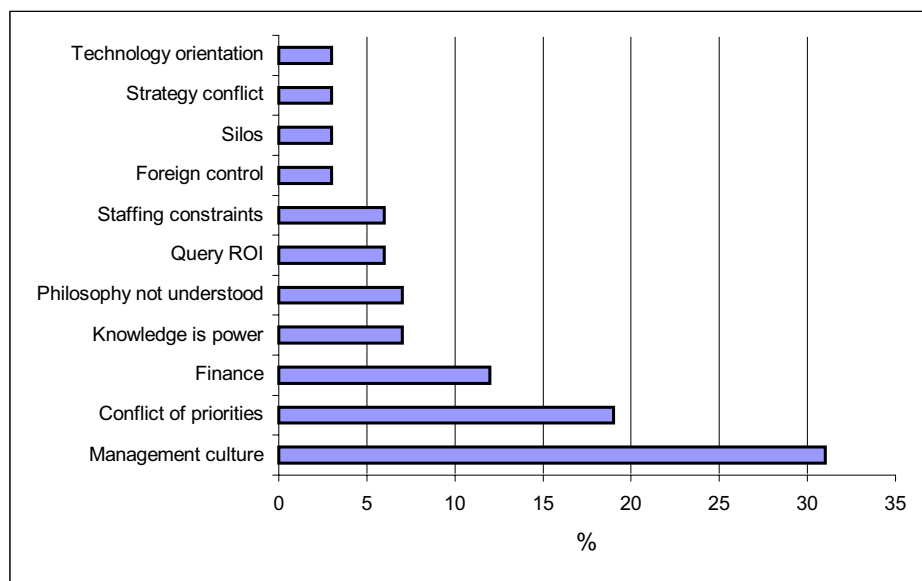


Figure 3 Organisational obstacles to knowledge management

The issue of the intangible benefits or difficulties of measuring the ROI of the management of knowledge affected 6% of organisations. The balance of the textual responses were evenly divided (3%) between: foreign control, structural information silos, conflicts in the development of strategy and the technological rather than behavioral orientation of a KM approach in the organisation. All these were considered by the respondents to be obstacles to progressing KM strategies in their organisations.

5 ANALYSIS OF OBSTACLES TO SUCESSFUL IMPLEMENTATION OF KM

Responses to the issues of knowledge use in the future and obstacles to the management of that knowledge were of critical importance to the overall interpretation of the study.

The knowledge culture of an organisation is reflected in the philosophy or values of each organisation and the outcomes of the management strategy followed. Explicit manifestations of tactics used by some organisations in the pursuit of an effective KM strategy listed in the survey include:

- attitudes to the exploitation of knowledge to its fullest potential,
- the organisation perceiving that it gains an edge by innovation,
- encouraging people to share,
- rewarding people for sharing, and
- managing learning and knowledge acquisition though being a learning organisation and taking responsibility for staff learning new skills

A key issue for respondents was found to be the obstacles faced in the development and execution of a KM strategy. As this information was collected from an anonymous group it is believed that there was an openness of opinions expressed. The frank honesty in the written responses to this issue indicates a trend in understanding the current approach to KM in Australia that has not been demonstrated elsewhere in survey research.

The findings indicate that obstacles to the effective implementation of a KM strategy can be separated into internal and external types. Internal obstacles emanate from organisational cultures, organisational structures, whether there is a KM strategy already in place and if so how well it is

understood and implemented. The second group of obstacles are outside the immediate control of the organisation itself, in that they are externally derived. These factors are the effect of the multinational or global organisation, and of the external economic conditions of the national and global economies.

5.1 Internal obstacles

The greatest obstacle described by respondents in moving forward with a knowledge use strategy is the management culture of the organisation. This manifests itself in a variety of ways that although not broad in description, were more extensively reported than other obstacles:

- organisations that have a current culture of believing that they are already good at sharing knowledge,
- maintenance of organisational power associated with keeping knowledge to oneself (knowledge hoarding),
- the co-operative cultural aspects of a KM strategy requiring a strategy for change management, and
- where change management is used as a remedy for the cultural obstacles but cannot effect the required changes

A number of other obstacles associated with the structure of management in an organisation that inhibit the progress of a KM strategy were indicated:

- traditional hierarchical organisations with a few key people, who have the knowledge but will not share, disseminate or delegate,
- ongoing conflict of priorities in organisations - ranging from mergers and acquisitions activities to prevarication about management strategies,
- financial constraints including staffing allocations, and
- the prevalence of structural silos of information

There are a number of obstacles associated with the implementation of a KM strategy already in place:

- the philosophy of KM not being well understood,
- the need for the development of criterion for KM,
- organisational leadership that is are not prepared to back KM,
- difficulties of quantifying the outputs of a KM strategy as ROI,
- the scalability of strategies
- limited time available for planning and implementation, and
- limited technology available for implementation.

5.2 Externally derived obstacles

Other obstacles are those factors that are outside the immediate control of the organisation itself, in that they are externally derived. Other surveys have not revealed or discussed these factors. They are:

- where distant or foreign control of the organisation dictates functions, and
- the impact of the economy or political and socio-cultural environment

The current survey reveals that where a KM strategy is applied by a distant or foreign control without taking into account the differing cultures of all parts of an organisation it will be an obstacle to implementation of that strategy. For example while an organisation may share a language (e.g. English) the cultures may be as dissimilar as the differences expected between trades or ranks in the same organisation. This bears out the analysis of culture by Long and Fahey (2000) and comments on the reported observation of Hewlett Packard by Prusak & Davenport (1997).

The current survey reveals that a KM strategy in an organisation is impacted by the economy in that this may control the capacity of an organisation to commit human and physical resources. Further where an organisation is part of a distributed Australian or a multinational organisation, these decisions may be made from a distant or foreign centre and imposed on all.

5.3 Obstacles compared - Australia

Other studies in the Australian context demonstrate similar factors however it should be noted that those surveys gave structured options in a choice or rating of prescribed obstacles for the respondents to choose from. They did not offer choices together with a written response option. Those surveys included some qualitative data gathered from interview with respondents but did not disclose external obstacles as barriers to KM implementation that were found in the current survey.

Johnston and Blumentritt (1999) found that there were three barriers that were considered most important including: lack of time allocated to share knowledge, lack of skills in KM and a lack of understanding of the philosophy and the benefits of KM. Martin (2000) does not present an analysis of the broad spectrum of issues that can be obstacles to the management of knowledge. The research deals with the issue of knowledge hoarding as an element in an index to problems associated with KM. This finds in the local government context that knowledge hoarding is closely associated with job security rather than with the maintenance of organisational power.

5.4 Obstacles compared – UK, USA, Europe and Asia Pacific.

Chase (2000) identifies the internal obstacles as above but divides them into ‘hard’ and ‘soft’ obstacles in the physical and infrastructure issues together with the cultural issues. Murray’s (1998) findings were that issues relating to individuals and organisational culture as the key inhibiting factors to the effective sharing of organisational knowledge. The factors are consistent with the findings of this Australian research but Murray additionally found that personal inertia, lack of self-discipline, motivation and staff turnover were problematic. These strictly human elements were not identified in the Australian data.

Parlby (1998), Davis (1998), Hackett (2000), Parlby (2000), McAdam and Reid (2001) all cite similar internal obstacles to the effective management of knowledge. However Parlby (2000) adds that implementation sometimes does not fit into everyday working practice. This could be because the system was too complicated or as a result of insufficient training of staff post implementation of the strategy.

6 CONCLUSIONS

The evaluation of internal obstacles inhibiting the effective implementation of a KM strategy in Australia is similar to evaluations reported in other studies. External factors are those that are outside the control of the organisation. These factors are the effect of foreign or distant control of the organisation and the impacts of the external economy. It is apparent from this study that KM practitioners must question that a single practice or technique can fit all areas, even within the one organisation. . KM practitioners must question whether a single policy can be effected particularly within a multinational enterprise. Externally imposed practice should be investigated as a potential obstacle to the effective implementation of a KM strategy. These issues were not reflected in the findings of other surveys.

These findings may be attributed to Australia’s distance from other national economies and the distributed nature of some industries. They may be attributed to the centrally controlled relationship of many of some corporate entities to related multinational entities. External economic factors may also contribute to the obstacles inhibiting a KM strategy.

Additional correlation and analysis of the data collected in this survey is a source of further research. The differences between the survey findings reported here and the findings of other surveys are a source for future research by case study. The survey findings on distant or foreign control of the organisation is a source of further research by case study.

ACKNOWLEDGEMENTS

The author wishes to acknowledge the assistance given by Associate Professor Frada Burstein Phd. *School of Information Management & Systems, Monash University* in the writing of this paper.

Funding for this project has been furnished by the Strategic Monash University Research Fund.

REFERENCES

Surveys

Chase, R. L. (1997). The Knowledge-Based Organisation: An International Survey. *Journal of Knowledge Management*, 1(1), 38-49.

Davis, S., McAdams, A., Dixon, N., Orlikowski, W., & Leonard, D. (1998). *Twenty Questions on Knowledge in the Organisation*.

<http://webarchive.org/web/20001212102500/www.businessinnovation.ey.com/research/researchf.htm>: Business Intelligence and Ernst & Young Center for Business Innovation.

Ewyk, O. v. (1998). *MIS98 Mindshare Conference Knowledge Management Survey Results*, [www.hci.com.au/hcisite/articles/mis98srvy.htm]. HCl Consulting [2000, 22 September].

Hackett, B. (2000). *Beyond Knowledge Management: New Ways to Work and Learn* (Research Report 1261-00-RR). New York: The Conference Board.

Human Resources Institute. (1999). *Results of HRI's 1999 Knowledge Management Survey*, [http://hri.eckerd.edu/Surveys/KMResults.htm]. Human Resources Institute [2000, 22 October 2000].

Johnston, R., & Blumentritt, R. (1999). *Knowledge Management: The State of Play in Australian Companies*: Australian Centre for Innovation (ACIIC) University of Sydney.

Martin, B. (2000). Knowledge Based Organisations: Emerging Trends in Local Government in Australia. *Journal of Knowledge Management Practice*, 2000(October).

McAdam, R., & Reid, R. (2001). SME and Large Organisation Perceptions of Knowledge Management: Comparison and Contrasts. *Journal of Knowledge Management*, 5(3), 231-241.

Meggison, D., & House, T. K. (1999). *Knowledge Management & Organisational Learning: A Process of Inquiry*, [www.amed.management.org.uk/AMEDEvents/FrontiersPapers/megg.htm]. The KNOWLEDGE House [2000, 22 September].

Murray, P. (1998). *The Cranfield/Information Strategy Knowledge Survey; Europe's State of the Art in Knowledge Management*. London: The Economist Group.

Next Generation Research Group. (1998). *Knowledge measurement: Phase three Global Survey findings report Asia, North America and Europe.*: Arthur Andersen.

Parlby, D. (1998). *Knowledge Management Research Report 1998*. London: KPMG Consulting.

Parlby, D. (2000). *Knowledge Management Research Report 2000*. London: KPMG Consulting.

Bibliography

Allee, V. (1997). *The Knowledge Evolution; Expanding Organizational Intelligence*. Boston: Butterworth-Heinemann.

Allee, V. (2000). Reconfiguring the value network. *Journal of Business Strategy*, 21(4), 36-39.

Brown, J. S., & Duguid, P. (2000). Balancing Act: How to capture Knowledge Without Killing It. *Harvard Business Review*(May-June), 73-80.

Cross, R., & Baird, L. (2000). Technology is not enough: Improving performance by building organizational memory. *Sloan Management Review*, 41(3), 69-78.

- Dixon, N. M. (2000). *Common Knowledge; How Companies Thrive by Sharing What They Know*. Boston: Harvard Business School Press.
- Drucker, P. F. (1964). *Managing for Results*. New York: Harper Collins.
- Fahey, L., & Prusak, L. (1998). The eleven deadliest sins of knowledge management. *California Management Review*, 40(3), 265-276.
- Guthrie, J., Wells, R., Ferrier, F., & Petty, R. (1999). *There is no accounting for intellectual capital in Australia: Review of annual reporting practices and the internal measurement of intangibles within Australian organisations*. Paper presented at the Measuring and Reporting Intellectual Capital: Experience, Issues, and Prospects, Amsterdam.
- Hauschild, S., Licht, T., & Stein, W. (2001). Creating a Knowledge Culture. *The McKinsey Quarterly*(Number 1), 74-81.
- Krogh, G. V., Ichijo, K., & Nonaka, I. (2000). *Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation*. Oxford: Oxford University Press.
- Leonard-Barton, D. (1995). *The Well Springs of Knowledge*. Boston: Harvard Business School Press.
- Long, D. W. D., & Fahey, L. (2000). Diagnosing cultural barriers to knowledge management. *The Academy of Management Executive; Ada*, 14(4), 113-127.
- McDermott, R., & O'Dell, C. (2000). Overcoming the 'Cultural Barriers' to sharing knowledge. *WWW document retrieved 19/09/2000*, <http://www.apqc.org/free/articles/km0200>.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company : How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.
- O'Dell, C., Grayson, C. J., & Essaiades, N. (1998). *If Only We Knew What We Know; The Transfer of Internal Knowledge and Best Practice*. New York: The Free Press.
- Owens, I., Wilson, T., & Abel, A. (1996). *Information and Business Performance; a study of information systems and services in high performing companies*. London: Bowker Saur.
- Pfeffer, J., & Sutton, R. I. (1999). *The Knowing-Doing Gap; how smart companies turn knowledge into action*. Boston MA: Harvard Business School Press.
- Probst, G., Raub, S., & Romhardt, K. (2000). *Managing Knowledge; Building Blocks for Success*. Chichester: John Wiley & Sons, Ltd.
- Prusak, L., & Davenport, T. H. (1997). *Working Knowledge How Organizations Manage What They Know*. Boston: Harvard Business School Press.
- Roos, J., Roos, G., Dragonetti, N. C., & Edvinson, L. (1997). *Intellectual Capital: Navigating the New Business Landscape*. Basingstoke Hampshire: MacMillan Press.
- Schwab, D. P. (1999). *Research Methods for Organizational Studies*. Manwan, N.J.: Lawrence Erlbaum Associates, Publishers.
- Senge, P. M. (1990). *The Fifth Discipline*. New York: Doubleday Currency.
- Standards Australia. (2001). *HB 275-2001 Knowledge Management A framework for succeeding in the knowledge era*. Sydney: Standards Australia International Limited.
- Sveiby, K. E. (1997). *The new organizational wealth: managing and measuring knowledge-based assets*. San Francisco: Berrett-Koehler Publishers, Inc.
- Vaus, D. A. D. (1995). *Surveys in social research* (4th. ed.). North Sydney: Allen & Unwin