

**KNOWLEDGE MANAGEMENT PORTAL FOR RETAINING
ORGANIZATIONAL CRITICAL KNOWLEDGE**

KUMARAVEL A/L SIVASANGOO

UNIVERSITI UTARA MALAYSIA

JUNE 2010



KOLEJ SASTERA DAN SAINS
(College of Arts and Sciences)
Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK
(Certificate of Project Paper)

Saya, yang bertandatangan, memperakukan bahawa
(I, the undersigned, certify that)

KUMARAVEL A/L SIVASANGOO
(804757)

calon untuk Ijazah
(candidate for the degree of) **MSc. (Information Technology)**

telah mengemukakan kertas projek yang bertajuk
(has presented his/her project paper of the following title)

KNOWLEDGE MANAGEMENT PORTAL FOR RETAINING
ORGANIZATIONAL CRITICAL KNOWLEDGE

seperti yang tercatat di muka surat tajuk dan kulit kertas projek
(as it appears on the title page and front cover of project paper)

bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan
dan meliputi bidang ilmu dengan memuaskan.
(that the project paper acceptable in form and content, and that a satisfactory
knowledge of the field is covered by the project paper).

Nama Penyelia Utama
(Name of Main Supervisor): **DR. MOHD SYAZWAN ABDULLAH**

Tandatangan
(Signature)

: 

Tarikh(Date)

: 28 June 2010

KNOWLEDGE MANAGEMENT PORTAL FOR RETAINING ORGANIZATIONAL CRITICAL KNOWLEDGE

**A thesis submitted to the Graduate School in partial
Fulfillment of the requirement for the degree
Master of Science (Information Technology)
Universiti Utara Malaysia**

By

Kumaravel a/l Sivasangoo

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the University Library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence by the Dean of the Academic Office. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part, should be addressed to

Dean of Academic Office

UUM CAS

Universiti Utara Malaysia

06010 UUM Sintok

Kedah Darul Aman.

ABSTRACT (BAHASA MALAYSIA)

Kebelakangan ini pengurusan ilmu semakin mendapat sambutan dikalangan organisasi. Menyedari hakikat kepentingan pengurusan ilmu, korporat besar seperti Siemens dan Petronas telah melaksanakan projek pengurusan ilmu di organisasi mereka. Tujuan utama pelaksanaan tersebut adalah untuk memelihara dan memperbaiki ilmu dan kemahiran di dalam organisasi mereka. Dengan melakukan kegiatan pengurusan ilmu, dipercayai pelaksanaan tersebut dapat membantu sesebuah organisasi untuk mengeluarkan produk yang lebih baik dari segi inovasi dan seterusnya ini dapat membantu mereka untuk bersaing lebih hebat dalam pasaran perniagaan dan kemudian menstabilkan kedudukan mereka. Laporan ini juga membincangkan latarbelakang pengurusan ilmu dan sedikit sebanyak menceritakan bagaimana sesetengah organisasi telah bermanfaat daripada pelaksanaan projek tersebut. Selain dari itu, laporan ini juga menyentuh tentang bagaimana portal pengurusan ilmu boleh dilaksanakan di SMT Technologies (SMTT) dengan harapan pelaksanaan tersebut dapat membantu mereka memelihara ilmu dan kemahiran kritikal. Ini dapat membantu SMTT untuk mengatasi masalah tenaga kerja keluar di dalam syarikat tersebut. Portal ilmu pengurusan diterima baik di organisasi tersebut dan ia akan digunakan untuk tujuan mengurus ilmu.

Kata-Kunci: Pengurusan Ilmu, Portal Pengurusan Ilmu, Ilmu di Organisasi

ABSTRACT (ENGLISH)

Knowledge Management (KM) is widely being accepted by many corporations. Large corporations like Siemens and Petronas have implemented their projects earlier realizing the importance of it. Main reason of implementing KM is it can retain & improve knowledge and skill in the organization. By implementing KM, it can help companies make better products in term of innovation and subsequently they can compete better in market (sustainability). This report discusses the background of KM and some success story about how companies have benefited from the project. The report also discusses how KM portal can be implemented in SMT Technologies (SMTT) with the belief of KM implementation can help the organization to retain critical knowledge/skill. This will help SMTT to overcome the problem of high rate of employee turnover. The portal is well accepted by the organization and will be implemented to manage the organization's knowledge.

Keywords: Knowledge Management, KM Portal, Organizational Knowledge

TABLE OF CONTENTS

	Page
Permission to Use	I
Abstract (Bahasa Malaysia)	II
Abstract (English)	III
Acknowledgements	IV
List of Tables	VII
 List of Figures	 VIII
List of Abbreviations	IX
 Chapter 1. Introduction	 1
1.1 Background	1
1.2 Problem Statement	3
1.3 Research Question	5
1.4 Research Objectives	5
1.5 Scope	6
1.6 Report Organization	6
 Chapter 2. Literature Review	 7
2.1 Definition	8
2.2 Knowledge	8
2.3 Types of Knowledge	8
2.3.1 Tacit Knowledge	8
2.3.2 Explicit Knowledge	9
2.4 Knowledge in Organization	9
2.5 Knowledge Management Model	11
2.6 Success stories	12
2.6.1 Siemens AG	12
2.6.2 Tennessee Valley Authority	13
2.6.3 Petronas	14
2.7 Knowledge repository	14
2.8 Knowledge Management Processes	14
2.8.1 Knowledge Discovery	15
2.8.2 Knowledge Capturing	15
2.8.3 Knowledge Representation	15
2.8.4 Knowledge Sharing	15
2.9 Knowledge Management Portal	16

Chapter 3. Methodology	17
3.1 Inception Phase	17
3.1.1 Functional Requirement	19
3.1.2 Non- Functional Requirement	20
3.2 Elaboration Phase	22
3.2.1 User Interface Design	32
3.3 Construction Phase	36
3.3.1 Forms	36
3.3.2 View	38
3.3.3 Agent	38
3.4 Transition Phase	40
Chapter 4. Knowledge Management Portal	42
4.1 Best Practices / Lesson Learned	42
4.2 Discussion	44
4.3 Problem Solving Report	46
4.4 Frequently Asked Question	47
4.5 Article	48
Chapter 5. Conclusion & Recommendations	49
References	51
Appendix A	54

LIST OF TABLES

Table 1: Unit Testing Results of Lesson Learned/Best Practices

LIST OF FIGURES

Figure 1: Four Types of Firms

Figure 2: Theoretical Knowledge Taxonomy, Taken from Vasconcelas et al (2000).

Figure 3: Nonaka's Knowledge Management Model

Figure 4: Use case model for KM Administrator

Figure 5: Use case model for KM Contributor

Figure 6: Use case model for Non KM Contributor

Figure 7: Use case model for KM Officer

Figure 8: Sequence Diagram for Creating Lesson Learned / Best Practices content

Figure 9: Sequence Diagram for Approving Lesson Learned / Best Practices content

Figure 10: Sequence Diagram to Create Content on Discussion, Problem Solving Report, FAQ and Article

Figure 11: Sequence Diagram to Do Content Rating

Figure 12: Screen Design of Main Page of the KM Portal

Figure 13: Screen Design of Best Practices / Lesson Learned Form

Figure 14: Screen Design of Rating Section

Figure 15: Screen Design of Problem Solving Report Form

Figure 16: Coding Using Lotus Formula Language

Figure 17: Coding Using Lotus Script

Figure 18: Sample of Best Practices/Lesson Learned Document

Figure 19: Sample of Discussion

Figure 20: Sample of Problem Solving Report

Figure 21: Sample of FAQ

Figure 22: Sample of Completed Article Sharing Document

LIST OF ABBREVIATIONS

ACL	Access Control List
AIMST	Asian Institute of Medicine, Science and Technology
FAQ	Frequently Asked Question
HR	Human Resources
HTML	Hypertext Markup Language
IDE	Integrated Development Environment
KM	Knowledge Management
QA	Quality Assurance
RAD	Rapid Application Development
SMTT	SMT Technologies
TVA	Tennessee Valley Authority
UML	Unified Modeling Language
UUM	Universiti Utara Malaysia

Chapter 1. Introduction

1.1 Background

People do join an industry or an organization to provide their services. Some stays until their retirement and some do leave for greener pastures. However the knowledge that they have gained and built throughout their services in an organization which can be classified as intellectual asset is taken with them when they leave. Knowledge on the other hand is also found in documents, manuals, handbooks, standard procedures and others. Not utilizing the knowledge optimally would affect the organizations performance in various aspects e.g. human resources, product development, financial and others.

The Malaysian government is emphasizing on promoting the knowledge based industries and some multinational industries have emphasized knowledge management (KM) and have implemented although it is still on a smaller scale.

The discipline of knowledge management is very pertinent for Malaysia, especially in its move to transform its economy into a knowledge-based economy as envisaged in Vision 2020

- Datuk Seri Najib Tun Razak (KUALA LUMPUR, Sept 12,2006 (Bernama))

Despite the dream of the Malaysian Prime Minister as reported in Bernama (2006), however in Malaysian context, the adoption of KM practices are still worryingly low (EPU, 2009). There are many challenges faced by manufacturers or industries

The contents of
the thesis is for
internal user
only

References:

1. Alavi, M., Leidner, D. (1999), "Knowledge management systems: emerging views and practices from the field", Proceedings of the 32nd Hawaii International IEEE Conference on System Sciences, .
2. Barth, S. (1999), "Knowledge-age mergers: finding the perfect fit", Knowledge Management Magazine, May, pp. 26-8.
3. Birkinshaw, J. (2001) Making Sense of Knowledge Management, Ivey Business Journal, 65, 32-36.
4. Davenport, T. H., and Prusak, L. (1998) Working Knowledge: How Organizations Manage What They Know, Harvard Business School Press, Boston.
5. Dawson, R. (2000) Developing Knowledge-Based Client Relationships: The Future of Professional Service, Butterworth-Heinemann, Melbourne.
6. De Long, D.W. and Fahey, L. (2000), "Diagnosing cultural barriers to knowledge management", Academy of Management Executive, Vol. 14 No. 4, pp. 113-27.
7. EPU (2009), Knowledge Content in Key Economic Sectors in Malaysia: Phase II, Economic Planning Unit, Prime Minister's Department Malaysia, Putrajaya.
8. Finn, W. and Phillips, T. (2002), "Know your assets", Director, Vol. 55 No. 11, pp. 80-4.
9. Herschel, R. and Nemati, H., (2000) Chief Knowledge Officer: Critical Success Factors for Knowledge Management. Information Strategy: The Executive's Journal, 16(4), pp. 37 - 45.
10. Manchester, P. (1999) A Marriage of Culture and Technology: Traditional Views of Knowledge are Giving Way to a more Pragmatic Approach, Financial Times, 10 November, p.1.
11. Mayo, A (1998), "Memory bankers", People Management, Vol. 4 No.2, pp.34-8.
12. Min, K. J., and Yoon, S.-K. (2002) So, What Do You Know?, Far Eastern Economic Review, 165, 34-35.
13. McCampbell, A.S., Clare, L.M. and Gitters, S.H. (1999), "Knowledge management: the new challenge for the 21st century", Journal of Knowledge Management, Vol. 3 No. 3, pp. 172-9.
14. O'Dell, C. and Grayson, C.J. (1998), Only we knew what we know: identification and transfer of internal best practices", California Management Review, Vol. 40 No. 3, pp. 154-74.

15. Roberston, M., and Hammersley, G. O. (2000) Knowledge Management Practices within a Knowledge-Intensive Firm: The Significance of the People Management Dimension, *Journal of European Industrial Training*, 24, 241.
16. Skyrme, D.J, Amidon, D.M (1998) New measures of success, *Journal of Business Strategy*, 19 (1), pp. 20-4.
17. Sunassee, N. N. and Sewry, D. A. (2002) "A Theoretical Framework for Knowledge Management Implementation", in *Proceedings of the South African Institute of Computer Scientists and Information Technologist*, Port Elizabeth, South Africa.
18. Singer P.M., Hurley, J.E. (2005). *The Importance of Knowledge Management Today*
19. Wickert, A. and Herschel, R. (2001), "Knowledge-management issues for smaller businesses", *Journal of Knowledge Management*, Vol. 5 No. 4, pp. 329-37.
20. Wong, W.L.P. and Radcliffe, D.F. (2000), "The tacit nature of design knowledge", *Technology Analysis and Strategic Management*, Vol. 12 No. 4, pp. 493-512.
21. Knowledge Management Pertinent For Malaysia, says Najib Tun Razak, DPM (n.d). Retrieved May 1st, 2010, from <http://www.KMtalk.net/article.php?story=20060922021542703>
22. Zack, M (2002). "A Strategic Pretext for Knowledge Management", *Proceedings of The Third European Conference on Organizational Knowledge, Learning and Capabilities* (<http://www.alba.edu.gr/OKLC2002/Proceedings>)
23. Feller, J, Fitzgerald, B. (2000), *A Framework Analysis of The Open Source Software Development Paradigm*, University College Cork, Ireland
24. Roper, M, *Software Testing*. London: McGraw-Hill, 1994, pp. 77-83.
25. Vasconcelos, J., Kimble, C., Gouveia, F.R., (2000), *A Design for a Group Memory System using Ontologies*, Management & Information Systems Group, Department of Computer Science, University of York, York
26. Whitten, J.L., Betley, L.D & Diltman, D.C (2001). *System Analysis and Design Method* (5th ed) Boston: McGraw-Hill Education
27. Sekaran, (2003). *Research Method for Business a Skill Bilding Approach* (4th ed). Singapore. John Wiley & Sons (Asia) Pte.Ltd.

28. Ibrahim,F., Reid,V. (2009).Electronic Journal of Knowledge Management
Volume 7 Issue 5, 2009 (567 - 574)What is the Value of Knowledge
Management Practices? Fahmi Ibrahim and Vivien Reid Glasgow Caledonian
University, UK
29. Alain,A., Moore J.W.(March 2005). "Chapter 2: Software Requirements". Guide
to the software engineering body of knowledge (2004 ed.). Los Alamitos, CA:
IEEE Computer Society Press. ISBN 0-7695-2330-7.
<http://www.swebok.org/ch2.html>
30. Quality Of Hire, The Next edge in Corporate Performance, Taleo Research 2004
.KM in Petronas: Interview with Murni Shariff.. Retrieved from
<http://www.KMtalk.net/article.php?story=20090131090639919>
31. Nieto B. W, Luna A. C, Ramos R. J. A Model of Technological Platform for the
Knowledge Management Organization .World Academy of Science, Engineering
And Technology Issue 63