

**THE ICT PLANNING FOR MAJLIS AGAMA ISLAM
NEGERI KEDAH DARUL AMAN**

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**THE ICT PLANNING FOR MAJLIS AGAMA ISLAM
NEGERI KEDAH DARUL AMAN**

**A thesis submitted to the Division of Applied Sciences, College of Arts and
Sciences in partial fulfilment of the requirement for the degree Master of
Science (Information Technology), University Utara Malaysia**

by

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ABSTRACT (BAHASA MALAYSIA)

Kajian ini adalah bertujuan untuk membangunkan dokumen Perancangan ICT untuk Majlis Agama Islam Negeri Kedah Darul Aman (MAIK). Dokumen ini akan digunakan sebagai garis panduan yang standard bagi perolehan ICT di MAIK. Pada masa ini, MAIK tidak mempunyai satu garis panduan yang sempurna di dalam perancangan dan perlaksanaan ICTnya. Objektif utama kajian adalah untuk membangun dan melaksanakan Perancangan ICT di MAIK. Kajian ini dijalankan adalah untuk mengenalpasti persekitaran ICT sedia ada, dan mencadangkan persekitaran ICT yang baru. Kajian ini dilaksanakan dengan berpandukan kepada metodologi yang telah disediakan oleh MAMPU. Di dalam projek ini, latarbelakang MAIK telah diteliti dan dikaji, dan hasil penemuan yang didapati telah dianalisa. Hasil dari kajian ini iaitu Dokumen Perancangan ICT MAIK sebagai panduan dan prosedur yang standard untuk digunakan oleh Bahagian Sumber Maklumat MAIK untuk menguruskan prasarana ICT di MAIK. Dengan perlaksanaan Perancangan ICT yang standard di MAIK, adalah diharapkan dapat mengurangkan kos operasi dan selenggaraan, meningkatkan kecekapan serta keberkesanan pengurusan sumber dan memberikan penyelesaian terbaik untuk perancangan strategik MAIK. Dokumen Perancangan ICT ini juga boleh digunakan oleh Majlis Agama Islam lain di Malaysia sebagai rujukan di dalam pembangunan dan perlaksanaan Perancangan ICT di organisasi berkenaan.

ABSTRACT

The purpose of this study is to develop the ICT Planning for Majlis Agama Islam Negeri Kedah Darul Aman (MAIK). The document will be used by MAIK as a guidance to carry out a standardized implementation of ICT investment in the organization. Currently MAIK does not have proper guidelines on ICT planning and implementations. The main objective of this study is to develop and implement the ICT Planning for Majlis Agama Islam Negeri Kedah Darul Aman. The target of this study is to identify the current ICT environment and IS organization, and propose the target ICT environment. This study will be conducted based on The Malaysian Public Sector Information and Communication Technology (ICT) Strategic Plan Guide prepared by MAMPU to assist government agencies in developing their ICT strategic plans. In this project, the current business environments were studied and the findings were analyzed. Findings from this study would offer valuable insights; the ICT Planning standard documentation which will be used as a guideline and standard procedure for ICT department of Majlis Agama Islam Negeri Kedah Darul Aman to manage all the ICT facilities. Upon implementation of the standardized ICT plans, the organization shall be able to reduce operational and maintenance cost, improve efficiency and resources management, and provide better solutions towards MAIK's business strategies. This ICT Planning documentation can be used by other Majlis Agama Islam in Malaysia as a guideline and standard procedure towards the development and implementation of their ICT Planning document.

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LIST OF ABBREVIATIONS

Baitulmal	-	Bahagian Baitulmal
BMU	-	Bilik Mesyuarat Utama
CC	-	Chief Clerk
CEO	-	Chief Executive Officer
CIO	-	Chief Information Officer
CRUD	-	Created, Read, Updated and Deleted
CTO	-	Chief Technology Officer
GITIC	-	Government IT and Internet Committee
HiLRA	-	The Malaysian Public Sector Information High-Level Risk Assessment
HR	-	Human Resource
HRMIS	-	Human Resource Management Information System
ICT	-	Information and Communication Technology
IS	-	Information System
ISP	-	Information and Communication Strategic Planning
IT	-	Information Technology
IZZAH	-	Syarikat Pengurusan Izzah Sdn. Bhd.
JHEAIK	-	Jabatan Hal Ehwal Agama Islam Negeri Kedah Darul Aman
JPA	-	Jabatan Perkhidmatan Awam
KDYMM	-	Kebawah Duli Yang Maha Mulia
KEW	-	Bahagian Kewangan dan Pelaburan
KEW1	-	Borang Pohon Belanja
KHP	-	Bahagian Khidmat Pengurusan
LAN	-	Local Area Network
LO	-	Local Order
MAIK	-	Majlis Agama Islam Negeri Kedah Darul Aman
MAMPU	-	Malaysian Administrative Modernization Planning Unit
MyRAM	-	The Malaysian Public Sector Information Security Risk Assessment Methodology
PA YDP	-	Personal Assistant Yang Di Pertua
PC	-	Personal Computer

PHEI	- Pegawai Hal Ehwal Islam
PT	- Pegawai Tadbir
PTM	- Pegawai Teknologi Maklumat
PTMK	- Pusat Teknologi Maklumat Negeri Kedah
PUSBA	- Pusat Bimbingan Islam
SISP	- Strategic Information System Planning Methodology
SISPEN	- Sistem Personnel
SISPER	- Sistem Pekerja
SU	- Setiausaha
SUM	- Bahagian Sumber Maklumat
UBS	- Unified Budgeting System – An Accounting System
UUM	- Universiti Utara Malaysia
VPN	- Virtual Private Network
Wakaf	- Bahagian Wakaf
YDP	- Yang Di Pertua

CHAPTER 1

INTRODUCTION

Information and Communication Technology (ICT) is an increasingly powerful tool for improving the delivery of government services, enhancing ICT development opportunities and participating in global markets (MAMPU, 2003). Information Communication and Technology (ICT) is enabling organizations to conduct business more effectively. ICT plays a significant role in enhancing organization in order to achieve business objective and produce a better delivery services to the customers. The changes in technology will continue to reshape how the organization utilize the Information, Communication and Technology (ICT) to support and enhance business operations and directions.

According to Bunn et al. (1989), Information Strategic Planning (ISP) is the process of analyzing the information requirements, agreeing how the information is to be provided (the information systems) in accordance with technical and management policies, planning how to implement the systems and the infrastructure to support them, and how to control the Information System (thus developed) overtime. The purpose of the planning process is to help the IS organization determine how best to add value to the organization (Cassidy, A., 1998). The implementation of Information Strategic Planning (ISP) is to make sure that management can achieve business objectives and produces better delivery services to the customers.

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REFERENCES

Capron, H.L. (1996). *Computer Tools For An Information Age*. The Benjamin / Cummings Publishing Company, Inc.

Lucas, H.C. (2000). *Information Technology For Management*. Irwin McGraw-Hill.

Hair, J.F. et. al. (2003). *Research Methods For Business*. John Wiley & Sons, Ltd.

Andreu, R. et. al. (1992). *Information Systems Strategic Planning*. England : Bookcraft Ltd.

Laudon, K. C., & Laudon, J. P. (2006). *Management Information Systems: Managing The Digital Firm*, New Jersey: Pearson Prentice Hall.

Turban, E., Leidner, D., McLean, E., & Wetherbe, J. (2007). *Information Technology for Management: Transforming Organizations In The Digital Economy*. Asia: John Wiley & Sons, Inc.

McLeod, R. (1995). *Management Information System*. New Jersey : Prentice Hall

Luftman et. Al. (2004). Managing The Information Technology Resource. London : Pearson Ecuation.

MAMPU (2003). The Malaysian Public Sector Information and Communication Technology (ICT) Strategic Plan Guide. Retrieved January 06, 2008 From <http://www.mampu.gov.my>

Bunn, G., Bartlett, C., & McLean, D. (1989). The Information Systems Guides: Strategic Planning For Information Systems: Ensuring That The Business Benefits. London: John Wiley & Sons, Ltd.

Hubona, G.S. and Blanton, J.E. (1996). Evaluating System Design Features. *International Journal of Human-Computing Study*, 44(1), 93-118.

Ojiako, G. U., Johansen, D. E., & Greenwood, D. J. (2004). The Impact Of Strategy On ICT Projects. *Journal of Information and Communication Technology, Volume 3 (Number 2)*.

Zulkhairi M. Dahalin (2005). Implementing Information Strategy Planning In An Enterprise. Sintok: Universiti Utara Malaysia.

Kim, D.H. & Cho, Y.Z. (2000). Design and Implementation of Network Management Systems For Integrated Management of LANs and WANs, International Journal of Network Management, 10, 135-143.

Cassidy, A. (1998). *A Practical Guide To: Information Systems Strategic Planning*. St. Lucie Press.

Cassidy, A. (2006). *A Practical Guide To: Information Systems Strategic Planning*. New York: Auerbach Publications.

Mokhtar Mohd. Yusof (2006). *Managing IT In Organisations: A Multiperspectives Framework*. Ayer Keroh, Melaka: Kolej Universiti Teknikal Kebangsaan Malaysia.

Ward and Peppard (2002). Strategic Planning for Information System. England : John Wiley and Sons, Ltd.

Mendonca, J. (2004). Organizational Impact of Information Technology: A Leadership Course for IT. *Proceedings of SIGITE 2004*.

Siti Hasnah Abu Hassan Shaari (2006). The Information And Communication (ICT) Strategic Planning For Perlis State Government. *MSc. ICT. Universiti Utara Malaysia*.

Norhasmiza Mt. Zain (2000/2001). Sistem Pendaftaran Kenderaan Pelajar Di UPM. *BSK. Universiti Putra Malaysia*.

Pant, S., & Hsu, Cheng (1995). Strategic Information System Planning. *Information Resources Management Association International Conference, May 21-24, 1995*.

Motlojopane, I. and Brown, I. (2004). Strategic Business-IT Alignment and Factors of Influence: A Case Study in a Public Tertiary Education Institution, Proceeding of SAICSIT 2004, 147-156.

Pfeiffer, J.W. (1991). *Strategic Planning: Selected Readings* . California : Pfeiffer & Company.

Ward, J., Griffths, P. and Whitmore, P. (1990). *Strategic Planning for Information Systems*. John Wiley & Sons.

Boar, B. (2001). *The Art of Strategic Planning for Information Technology*, 2nd Ed. John Wiley & Sons.

Eliot, L.B. (1991). *Information System Strategic Planning*. 1st Ed. Computer Technology Research Corp.

Kesner, R.M. (1988). *Information System: A Strategic Approach to Planning and Implementation*. American Library Association.

Karger, D.W. (1991). *Strategic Planning and Management: The Key to Corporate Success*. Marcel Dekker, Inc.

Martin, J. (1990). *Information Engineering, Book II: Planning and Analysis*. Prentice-Hall Inc.: USA

Martin, J. (1994). *Enterprise Engineering: The Key to Corporate Survival*. Volume 1. Savant Institute: England

McFalaln, F.W. and McKenny, J.L. (1983). *Corporate Information Systems Management*. Irwin Inc.: USA

Spewak, S.H. (1992). *Enterprise Architecture Planning : Developing a Blueprint for Data, Applications and Technology*. QED Publishing Group: USA

Tozer, E.E. (1996). *Strategic IS/IT Planning*. Butterworth-Heinemann: USA

Ward, J. and Griffths, P. (1996). *Strategic Planning for Information Systems 2nd Ed.*. John Wiley & Sons: England

Zulkhairi M. Dahalin (2002). *Strategic Application Portfolio in SMEs*. Malaysian Management Journal 6 (1&2). 1-15.

Institute of Professional Advancement (1995). *Information Technology Planning*. Kuala Lumpur.

Eliot, L.B. (1991). Information Systems Strategic Planning. Computer Technology Research Corp. : USA

Ramnath and Landsbergeb (2005). IT – Enabled Sense-and-Respond Strategies In Complex Public Organizations. Communication of the ACM. May 2005/Vol 48, No. 5

Walter and Scott (2006). Management Issues of the Internet / Web Systems. Communication of The ACM. March 2006/Vol49, No.3

Nor Kamariah Khamis (2003). Development ISP For Hotel Industry :A Case Study on Putra Palace Hotel. Universiti Utara Malaysia.

Maddison and Darnton (1996). Information Systems in Organizations. Improving Business Processes. Chapman & Hall

Renken, J. (2004). Developing an IS /ICT Management Capability Maturity Framework. Proceeding of The 2004 Annual Research Conference of The South African Institut of Computer Scientist and Information Technologies On ICT Research in Developing Countries SALCSIT '04.

Majlis Agama Islam Negeri Kedah Darul Aman (MAIK) Website (2008). Retrieved February 01, 2008 from <http://www.maik.gov.my>

Jabatan Perdana Menteri (2003). Garis Panduan Mengenai Tatacara Penggunaan Internet dan Mel Elektronik di Agensi-Agenzi Kerajaan, Pekeliling Kemajuan Pentadbiran Awam Bilangan 1.

Jabatan Perdana Menteri (2005). Garis Panduan Penilaian Risiko Keselamatan Maklumat Sektor Awam, Surat Pekeliling Am Bilangan 6.

MAMPU (2004). Information Technologies Strategic Plan (ISP) For Government Agencies, ISP Framework Version 1.0

MAMPU (2003). Standards, Policies and Guidelines – Malaysian Public Sector ICT Strategic Plan Guide Version 1.0.

MAMPU (2005a). The Malaysian Public Sector Information Security Risk Assessment (HiLRA).

MAMPU (2005b). The Malaysian Public Sector Information Security High Level Risk Assessment Methodology (MyRAM).

MAMPU (2005c). The Malaysian Public Sector Information Security Risk Assessment Methodology (MyRAM) Handbook.