

**THE INFORMATION AND COMMUNICATION
(ICT) STRATEGIC PLANNING FOR PERLIS STATE
GOVERNMENT**

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2006**



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THE INFORMATION AND COMMUNICATION (ICT) STRATEGIC PLANNING
FOR PERLIS STATE GOVERNMENT

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

By

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ABSTRAK

Informasi dan Teknologi Komunikasi adalah salah satu daripada alat yang berkuasa di dalam menambahbaikkan perkhidmatan yang diberikan oleh kerajaan, meningkatkan peluang-peluang ICT dan berpeluang bersaing di dalam pasaran global. Namun segalanya hendaklah bermula daripada perancangan yang sempurna demi mendapat satu teknologi yang boleh digunapakai untuk membantu di dalam menjalankan dan memudahkan urusan kerja seharian. Dengan menggunakan Metodologi ISP yang telah diterbitkan sebagai panduan bagi kerajaan negeri membangunkan ISP sendiri, projek ini secara umumnya adalah untuk membangunkan Pelan Perancangan Strategik (ISP) bagi Kerajaan Negeri Perlis. Dengan berpandukan metodologi ini, kajian telah berusaha mengenalpasti keadaan persekitaran ICT semasa dan mencadangkan persekitaran ICT yang baru bagi meningkatkan penggunaan teknologi ICT dalam menjalankan tugas di dalam pentadbiran Kerajaan Negeri. Adalah dengan penuh harapan agar cadangan Pelan Strategik Teknologi Maklumat ini dapat memberi sumbangan yang berharga kepada Kerajaan Negeri Perlis di dalam pembangunan dan pelaksanaan ICT.

ABSTRACT

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. Proper planning must be done in order to get a technology plan that can be used to help identify and prioritise the applications that are needed for the state. Using the methodology that was published by MAMPU as a guidance for the state government to develop their own Information and Communication (ISP) Strategic Planning, this thesis is to develop an ISP for the Perlis State Government. With the help of this methodology the study focus on identifying the current ICT environment and to propose the new ICT environment to enhancing the usage of ICT technology in order to perform their task in the Perlis State Government Administration. Hopefully this ISP can give a valuable information and as a guidance in ICT development and implementation for the Perlis State Government.

ACKNOWLEDGMENTS

First and foremost, praises to Allah the Most Gracious, Most Merciful, who has given me strength to complete this paper. I am very grateful to my supervisor, Assoc. Professor Dr. Wan Rozaini Sheik Osman for her advice, opinions and guidance throughout this study. Her experience and knowledge give me a lot of motivations and fulfilling my empty head. Hopefully someday I can gain as much knowledge as you Dr Wan Rozaini. I would also like to thank Bahagian Pengurusan Teknologi Maklumat (BPTM), Pejabat Setiausaha Kerajaan Negeri Perlis and other who involved in this study for their cooperation in giving valuable information and help during this research.

I would like to take the opportunity to thanks my beloved parents and other family members for all support and provision. I would never forget the sacrifices of my beloved husband, Khairul Anuar Bin Ahmad and my two jewels Muhammad Hasrul and Siti Nur Khairunisa who missed me a lot during my study period. My degree is for you my beloved children. Hopefully someday it can be a motivation for you to race to the top in your life.

Finally, my special thanks, to all the staff in Faculty of Information Technology in giving their undivided support whenever needed and to all my friends who always give me support in every way possible.

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ABBREVIATIONS

BPTM	-	Bahagian Pengurusan Teknologi Maklumat
MAMPU	-	Malaysian Administrative Modernisation Planning Unit
ICT	-	Information and Communication Technology
PSSO	-	Perlis State Government Office
ISP	-	Information and Communication Strategic Planning
CIO	-	Chief Information Officer
CTO	-	Chief Technology Officer
IT	-	Information Technology
IS	-	Information System
CEO	-	Chief Executive Officer
CFO	-	Chief Financial Officer
MyGDI	-	Malaysian Geospatial Data Infrastructure
MaCGDI	-	Malaysian Centre For Geospatial Data Infrastructure
JPA	-	Jabatan Perkhidmatan Awam
e-SISPEN	-	e- Sistem Personal
SPT	-	Sistem Pendaftaran Terbuka
KPKT	-	Kementerian Perumahan Dan Kerajaan Tempatan
SPEKS	-	Sistem Perakaunan Berkomputer Standards
AG	-	Accountant General

CHAPTER 1

INTRODUCTION

Information Communication and 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). This we could see from the government effort in enhancing the development of ICT in all government agencies in Malaysia. Lots of new technologies such as new hardware, software such as open source software which is more cost effective has been introduced to the market as an alternative for the government agencies.

According to Luftman et al. (2000), the word strategy is derived from Greek, where it means “the art of the general”, and today, the term strategy has been adopted by and used frequently in the business world. Business strategy is defined as business decisions taken at particular points in time by different people in response to sets of perceived environmental factors. Strategy is basically about making choices based on the following criteria:

- i) The selection of business goals;
- ii) The choice of products and services to offer;
- iii) The design and configuration of policies that determines how the firm positions itself to compete in its markets;
- iv) The appropriate level of scope and diversity; and
- v) The design of organisational structure, administrative systems, and policies used to define and coordinate work.

Perlis State Government is headed by the Perlis State Secretary and assisted by two deputies in administration and development. There are sixteen (16) departments and six (6) semi-government agencies that operate under the State Secretary Office,

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7.0 REFERENCES

- Hubona, G.S. & Blanton, J.E. (1996). Evaluating system design features. *International Journal of Human-Computing Study*, 44(1), 93-118.
- MAMPU (2003). *ICT Strategic Plan (ISP)*. Retrieved July 13, 2006, from <http://www.mampu.gov.my>
- Jabatan Perdana Menteri (2003). *Garis Panduan Mengenai Tatacara Penggunaan Internet Dan Mel Elektronik di Agensi-Agensi Kerajaan*, Pekeliling Kemajuan Pentadbiran Awam Bilangan 1.
- Jabatan Perdana Menteri (2005). *Garis Panduan Penilaian Risiko Keselamatan Maklumat Sektor Awam*, Surat Pekeliling Am Bilangan 6.
- Kim, D.-H. & Cho, Y.-Z (2000). Design and Implementation of Network Management Systems For Intergrated Management of LANs and WANs, *International Journal of Network Management*, 10, 135-143.
- Luftman et. al. (2004). *Managing The Information Technology Resource*. London: Pearson Education.
- Ward and Peppard (2002). *Strategic Planning for Information System*. England: John Wiley and Sons,Ltd.
- MAMPU 2003 (2003). *Standards, Policies and Gidelines – Malaysian Public Sector ICT Strategic Plan Guide Version 1.0*.
- MAMPU 2004 (2004). *Information Technologies Strategic Plan (ISP) For Government Agencies*, ISP Framework Version 1.0.
- MAMPU 2005 (2005a). *The Malaysian Public Sector Information Security Risk Assessment (HiLRA)*, Lampiran kepada Surat Pekeliling Am Bilangan 6.
- MAMPU 2005 (2005b). *The Malaysian Public Sector Information Security High Level Risk Assessment Methodology (MyRAM)*, Lampiran kepada Surat Pekeliling Am Bilangan 6.
- MAMPU 2005 (2005c). *The Malaysian Public Sector Information Security Risk Assessment Methodology (MyRAM) Handbook*, Lampiran kepada Surat Pekeliling Am Bilangan 6.
- Motlojopane, I. & Brown, I. (2004). Strategic Business-IT Alignment and Factors of Influence: A Case Study in a Public Tertiary Education Institution, *Proceedings of SAICSIT 2004*, 147-156.

- Perlis State Website (2006). *Perlis State Website*. Retrieved July 13, 2006, from <http://www.perlis.gov.my>
- Renken, J. (2004). Developing an IS/ICT Management Capability maturity Framework. *Proceeding of the 2004 annual research conference of the South African institute of Computer Scientist and Information Technologies on Ict Research in Developing Countries SALCSIT '04*.
- Maddison and Darnton (1996). *Information Systems in Organizations*. Improving business processes. Chapman & Hall
- Edmin E. Tozer (1996). *Strategic IS/IT Planning*. Datamation Professional Series. Butterworth-Heinemann.
- Nor Kamariah Khamis (2003). Development ISP For Hotel Industry : A Case Study on Putra Palace Hotel. *Universiti Utara Malaysia*.
- Walter and Scott (2006). Management Issues of Internet/Web Systems. *Communication of The ACM* March 2006/Vol 49, No 3.
- Ramnath and Landsbergen (2005). *IT-Enabled Sense-and-Respond Strategies In Complex Public Organizations*. *Communication of the ACM* May 2005/Vol 48, No.5