LAMPIRAN A

INVESTING IN MALAYSIA'S MSC: POLICIES, INCENTIVE AD FACILITIES
INVESTING IN MALAYSIA'S

MSC
Multimedia Super Corridor
POLICIES, INCENTIVES, AND FACILITIES
Multimedia Super Corridor

Malaysia’s Multimedia Super Corridor (MSC) aims to revolutionise how the world does business. Located at the hub of Asia’s fastest-growing markets, the MSC will unlock multimedia’s full potential by integrating ground-breaking cyberlaws and outstanding information infrastructure in an attractive physical environment. The MSC will be the regional launch site for companies developing or using leading multimedia technology, allowing these innovators to harness Malaysia’s unique competitive advantages that arise from its multicultural links, committed leadership, and proven track record in developing products and services for regional and global markets.

Malaysia’s Multimedia Development Corporation (MDC) is driving this bold initiative. The MDC is a high-powered ‘one-stop super shop’ wholly focused on ensuring the success of the MSC and the companies operating in it. In return, these companies are expected to participate freely in the webs that arise around specific applications and standards, developing their products and services and entering into partnerships that will build skills among the local companies with which they work.

This brochure outlines Malaysia’s policies, incentives, and facilities for helping interested companies participate in building the MSC. It is organised in four sections:

- Participation in the MSC
- Incentives for MSC-status companies
- Guidelines on how MSC status is awarded
- Application and approval procedures.

MDC client service representatives are available to answer additional questions about how your company can establish operations in the MSC and participate in its development. The back of this brochure provides contact information.
We hope you will become our partners in this exciting endeavour. The Multimedia Super Corridor cannot succeed alone. Its power comes from harnessing the energy, capabilities, and vision of the many leading-edge companies prepared to collaborate in a new environment. By bringing these pioneering companies together with Malaysian and other Asian companies, we believe we can spin a web that will mutually enrich all those participating in or coming into contact with it. At the same time, the MSC will serve as a better interlink for the global village and give the world a place where the full potential of the Information Age can be explored without any artificial limits.

Dato' Seri Dr. Mahathir Mohamad
Prime Minister of Malaysia
Malaysia is offering the world a special greenfield environment designed to enable companies to collaborate in new ways and reap the rich rewards of the Information Age. There are no legacies of artificial constraints created and perpetuated by entrenched interests through the laws. The role of the government will be to remove any administrative cumberances and to provide an environment where the full energies of the private sector can be unleashed.

Dato' Seri Anwar Ibrahim
Deputy Prime Minister of Malaysia
The MDC's mission is to create the best environment in the world for private-sector companies to pursue multimedia and to facilitate their investment in the MSC. The MSC will be the first place in the world to bring together all of the elements needed to create an environment that engenders truly mutual enrichment. It will foster a multicultural 'web' of mutually dependent international and Malaysian companies collaborating to deliver new products and services to customers across an economically vibrant Asia and world.

Tan Sri Dr. Othman Yeap Abdullah
Executive Chairman, MDC
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PARTICIPATION IN MALAYSIA’S MULTIMEDIA SUPER CORRIDOR

The establishment of the MSC offers innovative multimedia developers and users a unique opportunity to help shape tomorrow’s world through intelligent use of multimedia technology. This chapter describes Malaysia’s vision and goals for the MSC, its Bill of Guarantees to companies with MSC status, and the role of the Multimedia Development Corporation.

COMMITMENT TO THE FUTURE

In broad terms, the MSC is a gift from the Malaysian Government to technology developers and users seeking to expand their Asian presence, to Malaysians wanting their country to prosper, and to neighbouring countries aspiring to partner with a technology hub. In fact, the MSC is a 15-by-50 kilometre (9-by-30 mile) zone extending south from Malaysia’s present national capital and business hub, Kuala Lumpur. The nation is devoting this massive corridor to creating the perfect environment for companies wanting to create, distribute, and employ multimedia products and services.

The MSC will bring together four key elements (see Exhibit 1):

- New laws, policies, and practices designed to enable and encourage electronic commerce, facilitate the development of multimedia applications, and position Malaysia as the regional leader in intellectual property protection.

- High-capacity global telecommunications and logistics infrastructure built on the MSC’s 2.5-gigabit-to-10-gigabit digital optical fibre backbone and using the latest ATM switches to provide fibre to the building. This network will have a 5-gigabit international gateway with direct links to the US, Europe, and Japan, as well as the other nations in Southeast Asia.

- High-powered one-stop shop — the Multimedia Development Corporation — created to manage and market the MSC. The MDC’s mission is to create the best environment in the world for private-sector companies to pioneer the development and use of multimedia.

To speed the MSC’s evolution, the Malaysian Government has targeted seven multimedia applications for development by 2000. These Flagship Applications are electronic government, telemedicine, smart schools, a multipurpose card, R&D clusters, world-wide manufacturing webs, and borderless marketing centres. The government is seeking assistance from leading local and international companies to develop and implement these applications in the MSC and Malaysia.
Unique MSC Package

1. Leading-edge soft infrastructure
   - World's first comprehensive framework of 'cyber-laws'
   - World's first Multimedia Convergence Act
   - Highly attractive incentives
   - Unrestricted import of foreign knowledge workers
   - Sharper focus on multimedia education

2. World-class IT network
   - 2.5-10 Gb backbone network
   - Direct high-capacity fibre links to Japan, US, Europe, S.E. Asia
   - 100% digital open multimedia network
   - Most cost-competitive telecommunication tariffs

3. MDC as high-powered, one-stop shop
   - Empowered to attract leading companies
   - Committed to ensure world-best environment
   - Responsible for facilitating knowledge and wealth transfer

4. Top-quality urban development in Cyberjaya
   - Asia's most advanced IT city, located south of Kuala Lumpur
   - Top-quality residential housing, leisure/entertainment facilities, schools, hospitals, and transport infrastructure
   - Green environment with strict zoning
In providing a world-best environment for multimedia developers and users, Malaysia seeks to catalyse a virtuous circle of development among local, regional, and international businesses. The success of one will foster the success of others, creating value for the companies and generating significant improvements in productivity and competitiveness for Malaysia.

BILL OF GUARANTEES

Companies wanting to enter the MSC can submit their applications to the MDC for ‘MSC status’. Companies with MSC status are entitled to enjoy the incentives and benefits backed by the Malaysian Government’s Bill of Guarantees.

The Malaysian Government commits the following under the Bill of Guarantees to these companies:

1. Provide a world-class physical and information infrastructure
2. Allow unrestricted employment of local and foreign knowledge workers
3. Ensure freedom of ownership by exempting companies with MSC status from local ownership requirements
4. Give the freedom to source capital globally for MSC Infrastructure and the right to borrow funds globally
5. Provide competitive financial incentives, including no income tax for up to ten years or an Investment Tax Allowance, and no duties on the importation of multimedia equipment
6. Become a regional leader in intellectual property protection and cyberlaws
7. Ensure no censorship of the Internet
8. Provide globally competitive telecommunication tariffs
9. Tender key MSC infrastructure contracts to leading companies willing to use the MSC as their regional hub
10. Provide a high-powered agency to act as an effective one-stop super shop.

MULTIMEDIA DEVELOPMENT CORPORATION

To ensure that the MSC achieves its objective, Malaysia has constituted the Multimedia Development Corporation as the agency responsible for the implementing of the MSC and for working with companies setting up operations there.

In ensuring the overall success of the MSC, the MDC will market the MSC globally; help shape MSC-specific laws, policies, and practices by advising the Malaysian Government; and set standards for the MSC’s information infrastructure and urban developments.

In working with companies setting up operations in the MSC, the MDC will serve as promoter and facilitator. The MDC’s mission is to ensure that companies interested in entering the MSC get what they need to succeed. As a unique, performance-oriented, client-focused agency, it will provide information and advice on the MSC, assist in expediting permit and licence approvals, and introduce companies to potential local partners and financiers. The MDC guarantees a 30-day turnaround for applications and will coach companies through the application process.
INCENTIVES FOR MSC-STATUS COMPANIES

Malaysia is seeking partners for this exciting endeavour of building the world's best environment for multimedia development and use. It is pleased to offer MSC status to companies prepared to set up operations in the MSC or otherwise contribute significantly to the MSC's development. Because Malaysia believes the successful development of multimedia activities and businesses in the MSC is of strategic national importance, it is pleased to offer a package of financial and non-financial incentives to companies that qualify for MSC status.

The remainder of this chapter describes these incentives in more detail.

FINANCIAL INCENTIVES

MSC-status companies may enjoy the following financial incentives:

- Five-year exemption from Malaysian income tax, renewable to 10 years, or a 100-percent Investment Tax Allowance (ITA) on new investments made in MSC cybercities.
- Duty-free importation of multimedia equipment.
- R&D grants for local small and medium-size enterprises (SMEs).

Tax exemption or Investment Tax Allowance

In general, companies setting up new businesses in Malaysia's MSC-designated cybercities will receive a five-year exemption from tax on their statutory income, renewable to 10 years. Alternatively, those new companies engaging in highly capital-intensive activities, such as infrastructure projects, or those companies whose multimedia activities are treated as cost centres and not as revenue-generating businesses, will receive a 100-percent Investment Tax Allowance on investments made in MSC cybercities.

Tax exemption. A company receiving the income tax exemption will enjoy full exemption from Malaysian federal income tax for five years, commencing from the date when the company starts generating income. A company may apply to renew the exemption for a second five-year term. Renewal of the exemption will depend on the company's performance in transferring technology or knowledge to Malaysia.

Investment Tax Allowance. A company granted an ITA will be allowed to deduct 100 percent of qualifying capital expenditures from its statutory income for five years, commencing from the date on which the first qualifying capital expenditure is incurred.

Although the amount of multimedia/IT usage should allow establishment of separate revenue-generating businesses, in cases where the company applying for MSC status deems that the activities should be separated only as a cost centre, tax incentives for ITA may be granted to its parent company.

For companies already operating in Malaysia, MSC tax incentives will apply to the 'value added', defined as the company's additional statutory income above its average income for the past three years, or as the value of new investments made in the MSC.
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For companies already operating in Malaysia, MSC tax incentives will apply to the ‘value added’, defined as the company’s additional statutory income above its average income for the past three years, or as the value of new investments made in the MSC.
These companies may continue to avail themselves of current Malaysian investment incentives for their remaining period. In addition, they will enjoy the unique package of other MSC financial and non-financial incentives, such as no import duties for multimedia equipment and unrestricted employment of foreign knowledge workers.

**Duty-free importation of multimedia equipment**

MSC-status companies are allowed to import multimedia equipment duty free, provided that the equipment is used by that company in the operation of its business. The exemption applies to equipment used directly in facilitating the operational processes of MSC-status companies, but excluding imports for the purpose of direct sales and trading or use as components in manufactured items.

MSC-status companies engaged in value-added reselling activities, such as system integrators, who wish to be exempted from import duties of multimedia equipment and components will need to apply separately through the MDC. The company should describe their business activities, estimated costs and volume of imports, and sources of supplies.

MSC-status companies exporting multimedia products manufactured in Malaysia using dutiable components will be eligible for a refund of the duty paid on the re-exported components. The MDC can advise companies on their eligibility for such refunds under the existing scheme for ‘Drawbacks of Import Duty’ and help with the application process.

**R&D grants for local SMEs**

Under the 7th Malaysian Plan, the Malaysian Government has allocated 20 percent of the Plan’s R&D budget to the MDC for distribution as seed capital for SMEs in the MSC that are at least 51 percent Malaysian owned. Companies will need to apply to the MDC, if they want to avail themselves of these R&D grants. There is a separate application process for these grants.

**NON-FINANCIAL INCENTIVES**

In addition to the financial incentives outlined above, MSC-status companies will enjoy the following non-financial incentives:

- Unrestricted employment of foreign knowledge workers
- Freedom of ownership
- Freedom to source capital globally for MSC infrastructure and the right to borrow funds globally
- Other MSC benefits.

**Employment of foreign knowledge workers**

MSC-status companies may employ any number of foreign knowledge workers, defined in this context as an individual possessing any one of the following qualifications:

- Five or more years’ professional experience in multimedia/information technology businesses or in a field that is a heavy user of multimedia
- A university degree (any discipline) or a graduate diploma (in multimedia/IT) from a
technical college, plus two or more years' professional experience in multimedia/IT businesses or in a field that will be a heavy user of multimedia

- A master's degree or above in any discipline.

Companies will be able to apply through the MDC for working visas, which permit multiple entries, for their qualifying foreign employees. Malaysia will grant working visas for these foreign knowledge workers for initial periods of up to five years.

Freedom of ownership

MSC-status companies can be wholly owned by foreign legal entities. These companies will need to be incorporated in Malaysia, or in the case of a foreign company seeking to establish a branch in Malaysia, the company will need to register with the Registrar of Companies (ROC), in accordance with the Companies Act of 1965. The MDC will be able to assist with incorporating a company in Malaysia or registering it with the ROC.

Freedom to source capital for MSC infrastructure globally and the right to borrow funds globally

Companies that are engaged in developing infrastructure for the MSC are free to source funds globally for their investments.

All MSC-status companies will be given exemptions by the Controller of Foreign Exchange from exchange control requirements1. With these foreign currency exemptions, companies will be free to

- Execute transactions in any currency in Malaysia or elsewhere in the world
- Borrow any amount from financial institutions, associate companies, or non-residents
- Hedge their foreign-exchange exposure
- Remit globally for any purpose
- Open foreign currency accounts in Malaysia or abroad with no limits on the balances, including accounts for the retention of export proceeds.

All companies will need to periodically supply Malaysia's central bank, Bank Negara Malaysia, with certain statistics on their active foreign fund flows. The MDC will be able to assist in familiarising companies with these modest reporting requirements.

Other MSC benefits

MSC companies will also enjoy the following benefits:

- Intellectual property protection and a world-first comprehensive framework of cyberlaws
- World-class physical and IT infrastructure
- Globally competitive telecommunication tariffs and service guarantees
- No censorship of the Internet
- High-quality, planned urban developments
- Excellent educational facilities, including the region's first Multimedia University
- Green environment protected by strict zoning.

1 These exemptions from exchange control requirements do not extend to dealings with Malaysia's list of specified persons, comprising the residents or institutions of Serbia, Montenegro, or Israel, or the currencies of these countries.
GUIDELINES FOR ACHIEVING MSC STATUS

MSC status will be awarded to companies that are developers or heavy users of multimedia/information technology products and services. To be given MSC status and to avail themselves of the MSC’s incentives, companies will need to meet the qualifying criteria and will be expected to observe the conditions for offering, which are described in more detail below.

CRITERIA FOR RECEIVING MSC STATUS

A company seeking MSC status and eligibility for MSC incentives will need to meet three criteria:

- Be a provider or a heavy user of multimedia products and services
- Employ a substantial number of knowledge workers
- Specify how it will transfer technology and/or knowledge to Malaysia, or otherwise contribute to the development of the MSC and the Malaysian economy.

Multimedia provider or user

The first criterion for MSC status is that a company’s business activities participate directly in or contribute directly to some segment of the multimedia value chain or the supporting products and services chain (Exhibit 2). Thus, MSC-status companies may be contributors to or providers of multimedia products and services, or they may be heavy users of those products and services.

Provider of multimedia services or products

Provider companies may offer multimedia services or products anywhere on the multimedia value chain — content, distribution, or user environment — or they may offer a supporting service or product — technological building blocks, architecture, or user interface.

Companies engaged in any of the following activities as developers or providers of core multimedia products or services could expect to qualify for MSC status:

- Developing content:
  - Directly creating multimedia content that will provide users with richer interactive, IT-based experiences in knowing, learning, entertaining, working, socialising, and living.
  - Developing and providing value-added multimedia content by developing bundles of on- or off-line materials; or deploying multimedia technologies for authorised re-use of or for adding value to other multimedia content, such as intelligent searching agents or electronic database management.

- Enabling distribution:
  - Providing multimedia distribution channels that allow multimedia content to be distributed to planned customer premises or devices, including content hosting, providing backbone networks, or accessing pipelines, such as narrowband, semi-broadband, or broadband networks.
EXHIBIT 2

Dual Multimedia Value Chain

MULTIMEDIA SERVICES/PRODUCTS

<table>
<thead>
<tr>
<th>CONTENT</th>
<th>DISTRIBUTION</th>
<th>USER ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content creators</td>
<td>Packagers</td>
<td>Distribution</td>
</tr>
<tr>
<td>Home</td>
<td>Work</td>
<td>School</td>
</tr>
</tbody>
</table>

MULTIMEDIA SUPPORT SERVICES/PRODUCTS

<table>
<thead>
<tr>
<th>TECHNOLOGY BUILDING BLOCKS</th>
<th>ARCHITECTURE</th>
<th>END USER INTERFACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductors and components</td>
<td>Central and distributed systems</td>
<td>Network platforms</td>
</tr>
<tr>
<td>Sub-systems</td>
<td>Software</td>
<td>Support services</td>
</tr>
</tbody>
</table>
• Providing multimedia distribution gateways linking users to otherwise unconnected or incompatible networks through technical solutions, or customer services enabled by telecommunications and IT.

• Providing for user environments:

  • Providing multimedia on-premise distribution linking the user's multimedia device to the planned communication infrastructure by distribution services, or telecommunication, IT, or multimedia products for on-premise distribution.

  • Providing multimedia user devices and systems that include software or hardware.

Exhibit 3 provides more detailed examples of relevant activities in each of these segments and subsegments of the multimedia value chain.

Provider of multimedia support services or products. Companies engaged in any of the following activities as developers of core multimedia support products or providers of core multimedia services could expect to qualify for MSC status:

• Providing technological building blocks:

  • Developing semiconductors and/or components that perform specific functions critical to the operation of a larger system or subsystem: semiconductors; key multimedia, computer, or IT components; or other niche components.

  • Developing physical IT subsystems, including user devices, and storage, server, distribution, or other subsystems.

• Developing architectures:

  • Designing and developing central and distribution networks, particularly distributed systems and other related technologies.

  • Developing network platforms that connect disparate technologies — including legacy systems — into a coherent network by creating a software operating system, or open or proprietary hardware; or providing technical networking services.

• Supporting end-user interfaces:

  • Developing software to provide an operating platform or a specific standard or customised application.

  • Providing professional services to support multimedia users, including installation, training, security, facilitation of on-line billing and transactional services.

Exhibit 4 provides more detailed examples of relevant activities in each of these segments and subsegments of the supporting products and services value chain.

In general, manufacturers of multimedia products or components that wish to qualify for MSC status will need to engage in a significant amount of value-adding activity, such as R&D or design, and employ a substantial number of knowledge workers. And they will need to locate their manufacturing, IT hub, R&D laboratory, design centre, or operational headquarters within an MSC-designated cybercity and establish a separate legal entity for it.
Definition of Multimedia Services/Products and Examples of Activities*

*Examples are illustrative and not comprehensive.
**EXHIBIT 4**

**Definition of Multimedia Support Services/Products and Examples of Activities**

<table>
<thead>
<tr>
<th>TECHNOLOGY BUILDING BLOCKS</th>
<th>ARCHITECTURE</th>
<th>END USER INTERFACE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semi-conductors and components</strong></td>
<td><strong>Central and distribution systems</strong></td>
<td><strong>Software</strong></td>
</tr>
<tr>
<td>1. Semiconductors</td>
<td>Describing physical equipment that performs specific functions to date</td>
<td>Developing networking technologies or services that will interconnect disparate technologies into a coherent network element, including linkages with legacy systems.</td>
</tr>
<tr>
<td>2. Key multimedia, computer, or IT components</td>
<td>Designing and developing the architecture of networks comprising a host of distributed systems and other supporting technologies that will create a central and distributed network to be accessible by an aggregate pool of customers.</td>
<td>Creating a software operating system or an open/proprietary hardware</td>
</tr>
<tr>
<td>3. Other niche components</td>
<td>Operating software or open/proprietary hardware</td>
<td>Providing support and technical assistance to the multimedia services industry, including training, consulting, and selected services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Components</strong></th>
<th><strong>Subsystems</strong></th>
<th><strong>Network platforms</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. User device</td>
<td>Developing physical equipment that performs specific functions to date</td>
<td>Developing software and applications to provide an open platform or a set of integrated capabilities necessary for a user to engage in a specific electronic multimedia activity.</td>
</tr>
<tr>
<td>2. Storage</td>
<td>Structured in standard protocols and formats of the host of software-based institutions</td>
<td>1. Software</td>
</tr>
<tr>
<td>3. Serving</td>
<td>Defined in terms of a coherent network element, including linkages with legacy systems.</td>
<td>2. Standardized applications</td>
</tr>
<tr>
<td>4. Distribution</td>
<td>Interworking distributed systems</td>
<td>3. Customized applications</td>
</tr>
<tr>
<td>5. Other IT subsystems</td>
<td>Network design</td>
<td>1. Software</td>
</tr>
<tr>
<td></td>
<td>Network optimisation</td>
<td>2. Standardized applications</td>
</tr>
<tr>
<td></td>
<td>Network management</td>
<td>3. Customized applications</td>
</tr>
<tr>
<td></td>
<td>Distributed media: ATM, SONET, frame relay, ISDN, cable modems</td>
<td>Microprocessor application</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neural networks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Machine vision/ nanotechnology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuzzy-logic systems</td>
</tr>
</tbody>
</table>

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Examples are illustrative and not comprehensive.
Locating manufacturing outside designated cybercities (see pages 21 and 22) may be warranted under certain circumstances, but it will require prior approval. In this case, the company will be able to take advantage of the tax exemption or ITA for the manufacturing operations, but not the other MSC incentives — such as duty-free importation of multimedia equipment, R&D grants, unlimited employment of foreign knowledge workers, unrestricted ownership, and freedom to source capital globally. The portion of the business located in designated cybercities would enjoy the full set of MSC incentives and benefits.

Heavy users of multimedia products or services. User companies can also qualify for MSC status, provided that multimedia products or services are a key or innovative input for increasing productivity in their business and the volume of their bandwidth usage is substantial. A company might use multimedia heavily at any of the several stages in their business. Examples of productivity-enhancing multimedia usage might include the following:

- Design. Designing and implementing mass customisation, prototype testing, or developing specific modules for world markets.

- Procurement. Maintaining and managing databases of material specifications, product requirements, and supplier information; qualifying suppliers and sourcing products for world-wide operations; or facilitating communication among suppliers, plants, and customers.

- Production control. Remotely controlling manufacturing systems to carry out flexible manufacturing, diagnosing computer problems in different plants, or developing common applications for different plants to support manufacturing; recovering plant failures with an expert engineering team or implementing engineering projects across a network of plants.

- Administration. Operating a major back-office processing centre for internal or external transactions; maintaining and managing regional administrative and personnel databases for daily resource management.

- Logistics. Handling products from different plants to serve various markets; tracking scheduling, invoicing, and inventory levels; or maintaining and managing spare inventory and machine service databases.

- Marketing and sales. Managing an on-line sales centre or operating a customer-service call centre.

- Distribution. Distributing digital products on line, such as software, movies, or music.

Exhibit 5 provides specific examples of relevant applications in each of these segments. Companies that are heavy users of multimedia that want to avail themselves of MSC benefits will have to establish a separate IT service centre within an MSC-designated cybercity.

The examples shown in Exhibit 3, 4 and 5 are illustrative and not comprehensive. The MDC is responsible for assessing the merit of

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2 Financial institutions doing retail or wholesale business shall not be eligible for MSC status. However, should they set up a separate legal entity to perform R&D in information technology or do back-room processing, such entities may be eligible for MSC status, subject to agreement by MDC and Bank Negara Malaysia.
Multimedia Usage Along Business System and Examples of Activities

EXHIBIT 5

**DESIGN**
- Designing and implementing mass customisation
- Implementing prototype testing
- Developing specific modules for world markets

**PROCUREMENT**
- Maintaining and managing databases of material specification, product requirements and supplier information
- Qualifying suppliers and sourcing products for worldwide operations
- Facilitating communication among suppliers, plants and customers

**PRODUCTION CONTROL**
- Remotely controlling manufacturing systems to carry out flexible manufacturing
- Diagnosing computer problems in different plants
- Developing common applications for different plants to support manufacturing
- Recovering plant failures with an expert engineering team
- Implementing engineering projects across a network of plants

**ADMINISTRATION**
- Conducting major back-office processing
- Maintaining and managing regional administrative and personnel databases for daily resource management

**LOGISTICS**
- Handling products from different plants to serve various markets
- Tracking, scheduling, invoicing, and inventory levels
- Maintaining and managing spare inventory and machine service databases

**MARKETING AND SALES**
- Managing on-line sales centre
- Providing customer services call centre

**DISTRIBUTION**
- Distributing digital products such as software, music and music on-line to worldwide customers

*Examples are illustrative and not comprehensive.*
applications for MSC status, and making recommendations on their qualifications. In evaluating applications, the value of products or services to the MSC and Malaysia that a company intends to offer, the value of its business activities, and the company's fit with the MSC's overall goals will be of particular relevance.

Companies applying for MSC status may need other operational licenses depending on their activities, in accordance with Malaysian law. The MDC will assist companies in co-ordinating with the appropriate government agencies.

**Employment of knowledge workers**

Companies with MSC status will be expected to maintain a work force utilising a substantial percentage of knowledge workers, because the presence of knowledge workers is consistent with Malaysia's long-term goal of enabling and sustaining productivity-driven growth. These workers should be engaged productively in roles commensurate with their expertise and experience. Although the appropriate ratio of knowledge workers to total staff (excluding support staff) varies from industry to industry, 15 percent will serve as a reasonable minimum ratio. MDC client service representatives are available to consult with interested companies on this issue.

**Transfer of technology and/or knowledge**

Companies applying for MSC status will need to provide a compelling explanation of how they will transfer technology and/or knowledge to Malaysia or otherwise contribute to the development of the MSC. They should state their overall objectives, then present specific plans for how they will effect the transfer or contribution, demonstrating that their programmes are practical and will promote the development of the MSC and Malaysia.

These programmes should accomplish one of the following goals:

- **Transfer leading-edge technology or innovative technology-enabled activities in the form of products or processes.**

- **Develop the skills of Malaysian employees,** for example, building the expertise of a Malaysian high-end IT management team or raising the general knowledge and skills of a wide number of employees.

- **Create substantial value or business opportunities for Malaysian companies.**

A company might employ one or more of the representative programmes listed below, or they might propose an alternative method:

- **Web-shaper role.** MSC-status companies invited to serve as web-shapers will provide a technology component that helps define a common architecture or set of standards enabling companies to deliver independent elements of an overall multimedia value proposition. The form of web-shaper-adapter relationships does not necessarily fall under formal alliance structures or contractual relationships, but relies on informal methods of co-operation built upon on the key platform technology.

Companies proposing to serve as web-shapers will need to demonstrate that they have an unambiguous track record for creating world-

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3 Low-value-added activities are not eligible for MSC status. This would include, for example, pure assembly of multimedia products, low-value contracting, pure sales and distribution, rental of multimedia equipment.
class standards, have the potential to create value for other companies, and are committed to using Malaysia as a regional hub or headquarters.

- **Technical/operational succession programme.** MSC companies will provide structured technical/operational training to key Malaysian employees consisting of at least 10 days per person per year or allocate training budgets for them of at least 4 percent of their total salaries, in order to prepare these employees to assume key technical or operational leadership positions within three to five years. Alternatively, companies will initially employ a substantial percentage of Malaysian knowledge workers in their workforce, and increase that percentage over time.

- **Staff exchange programme.** MSC companies will develop the international leadership capabilities of its Malaysian recruits and second at least one of its Malaysian employees to a foreign multimedia company or a foreign branch of the same company for an exchange period of at least one year. Companies opting for this programme will need to specify the terms and conditions of such offers and the possible internal promotions available to employees upon return.

- **Joint venture/technology transfer agreement.** MSC companies may qualify for this plan by engaging in and actively pursuing technology transfer agreements for multimedia technologies with local Malaysian companies. This may entail a joint venture agreement with at least one Malaysian company, or agreements for technical assistance and know-how, licensing, patent and trademark, turnkey operations, or management with multiple Malaysian companies, sufficient to make a significant contribution to the overall success of the MSC.

- **Other technology/knowledge transfer plans.** MSC companies may layout their specific programme for transferring technology and/or knowledge to Malaysia and discuss it with the MDC. Malaysian companies will need to state precisely how their proposed business activities will contribute to the MSC over the short and long term.

The company's performance at the end of the company's fifth year of operation will be audited. Companies will need to demonstrate that they have successfully implemented their specified programmes and met the overall objectives of transferring technology and/or knowledge to Malaysia.

**CONDITIONS FOR OFFERING**

Having qualified for MSC status, MSC companies will be expected to operate according to the following conditions to maintain this preferential designation:

- **Establish a separate legal business entity for MSC-qualifying multimedia businesses and activities**

- **Locate selected operations within MSC-designated cybercities**

- **Comply with the MSC environmental guidelines.**

**Separate legal entity for multimedia businesses/activities**

MSC status and incentives are only awarded to multimedia/information technology businesses and activities as outlined above. Companies
with business activities other than those specified (for example, a textile company that utilises world-wide manufacturing web services, or a household goods manufacturer/hotel operator that utilises borderless marketing) will need to establish a separate legal business entity for IT services in an MSC-designated cyberecity to avail themselves of the MSC benefits.

As a rule, MSC status and incentives pertain to that company, subsidiary, or branch whose businesses and direct activities qualify for MSC status (see pages 12-19).

Companies that wish to set up their manufacturing facilities outside the cyberecities will also need to establish a separate legal business entity for the IT hub, R&D laboratory, design centre, or operational headquarters, which they will need to locate within an MSC-designated cyberecity.

To take advantage of MSC benefits, foreign and domestic companies awarded MSC status will need to begin establish their legal business entity within one month of being approved for MSC status.

Other existing or new non-MSC-qualifying activities may still be eligible for other Malaysian Government investment incentive programmes, but those companies will need to apply separately to the relevant ministries.

**Operations within MSC-designated cyberecities**

MSC-status companies will need to establish their principal operations within MSC-designated cyberecities. However, three special situations require additional explanation, given that Cyberjaya, Malaysia's first major cyberecity designed from the ground up, will be ready for occupancy only in 1999 and that proximity to customers is important to many businesses:

- Designated MSC cyberecity development areas for immediate/near-term occupancy
- Interim MSC status
- Work outside of MSC cyberecities.

**Designated MSC development areas.** Before Cyberjaya opens, certain smaller areas will be designated for MSC companies. By locating themselves in these areas, MSC companies can fulfill their obligation to establish themselves in the MSC, preserving their right to fully enjoy MSC status and its benefits. When Cyberjaya is ready, these companies will have the option to remain at their established place of business or move to new quarters in Cyberjaya and take advantage of Cyberjaya's advanced infrastructure, concentration of other MSC companies, and environmentally friendly developments.

Interested companies should contact the MDC for an updated list of these designated areas and their development status.

**Interim MSC status.** Until adequate space is available in Cyberjaya, MSC status and the attendant incentives may be granted to a company on an interim basis — regardless of their current physical location in Malaysia — provided that they are otherwise

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*Malaysia's current legal code on take-overs and mergers will still apply for all MSC companies. As a rule, all business activities of the newly created entity after the merger or acquisition should qualify for MSC status (see pages 12-19) if the newly created entity (either as a merged entity or as an acquired subsidiary of a larger group) wishes to retain its MSC status.*
eligible for MSC status, establish a separate legal business entity for their qualifying activities, and are committed to establishing operations in Cyberjaya in a timely manner.

For these companies, the following guidelines apply:

- A company with interim MSC status may be located elsewhere in Malaysia during the interim period, but they will need to move their operations to Cyberjaya within one year of Cyberjaya's opening for occupancy.

Companies needing a large plot of land or seeking a site with particular characteristics in Cyberjaya are advised to reserve the land by paying a deposit in advance.

- If a company with interim MSC status does not relocate to Cyberjaya within the expected time:
  - Financial incentives may be rescinded and taxes claimed retroactively.
  - Incentives regarding ownership status, funding, and employment of knowledge workers may be rescinded, and the company may need to apply anew and separately to the relevant government ministries.

In specific cases, a reasonable extension of the relocation deadline can be granted.

Work outside of the MSC. A company may enjoy the benefits of MSC status if its headquarters and principal place of business are located in an MSC-designated cybercity, even though the company needs to locate some operations or frequently conduct business elsewhere. Those activities will be classified as activities 'originated out of the MSC'.

For example, IT consulting and project work and outsourced activities may regularly be conducted outside the MSC without compromising a company's MSC status. Distribution centres, sales offices, or service centres for some specific multimedia businesses or activities, such as electronic commerce or internet service provision, may need to be housed elsewhere to provide better access to domestic and international customers.

The MDC has responsibility for assessing the necessity of locating these operations and activities outside the MSC and will make recommendations on their ability to qualify for full MSC benefits.

**Compliance with MSC environmental guidelines**

Companies will need to comply with the environmental guidelines being developed for the MSC, which will be a special Environmental Protection Zone. The MDC is committed to ensuring that the MSC is developed in an environmentally friendly manner, yielding a setting where people will enjoy living and working in the near and more distant future.

At a minimum, these environmental guidelines will include the following:

- Urban design guidelines that include preservation of a high proportion of open green spaces and accessibility for the physically handicapped
- Public and private-sector participation in recycling programmes
- World-class vehicle emissions standards, noise control, and waste management.
APPLICATION AND APPROVAL PROCEDURES

The MDC will serve as promoter and facilitator for companies setting up operations in the MSC. The MDC's mission is to ensure that companies interested in entering the MSC get what they need to succeed. As a performance-oriented, client-focused agency, it is the MDC's job to provide information and advice on the MSC, assist in expediting permit and licence approvals, and introduce companies to potential local partners and financiers. The MDC guarantees a 30-day turnaround for applications, and will coach companies through the application process.

SUBMISSION OF APPLICATION FORMS

Companies interested in applying for MSC status and incentives should contact the MDC for an application pack. The application pack, which contains an application form, application guidelines, and this investment brochure, may be requested by phone, fax, mail, or on line through the MDC's world-wide web site. The MSC application guidelines and the application form itself contain useful information to help companies understand the application process and the information requirements.

Companies applying for MSC status will need to submit a completed application form, a business development plan, two copies of the past three annual reports for each substantial incorporated shareholder in the proposed MSC company, and a service fee of RM10,000. The service fee will be refunded to companies that are granted MSC status. The completed original copy of the application should be returned to the MDC by mail or courier.

The MDC will inform companies within 15 days whether the submitted information is complete and acceptable, and if not, what additional information might be required. If necessary, the MDC may request an interview to obtain more complete information about the proposed company.

Before beginning the application process, companies should be sure to familiarise themselves thoroughly with the information

This chapter outlines two aspects of the application and approval process:

- Submission of application forms
- Evaluation of applications and process for approval

POLICIES, INCENTIVES, AND FACILITIES 23
available on the MSC and inform themselves sufficiently about the MSC and the criteria for qualifying for MSC status.

Companies should direct any questions or concerns about the MSC to the MDC client service representatives, who stand ready to help clarify outstanding issues and assist with the application process.

EVALUATION OF APPLICATION AND PROCESS FOR APPROVAL

Companies will automatically receive MSC status if their application is not rejected within 30 days of submission, as calculated from the date on which full and satisfactory information on the company is received. When satisfactory information has been obtained, the MDC will issue a letter stating that the application is complete and acceptable, starting the 30-day assessment clock in motion.

If a company's application is rejected, the company will be informed in writing why the application was not approved. The company can re-apply after six months.

The MDC welcomes your interest, and hopes to see you participate in co-developing the MSC. We look forward to your application. You can be assured that it will be handled courteously and efficiently.
MALAYSIA'S MSC
Multimedia Super Corridor
Leading Asia's Information Age

The MSC is a gift from the Malaysian Government. A gift to technology developers and users seeking to expand their Asian presence, to Malaysians wanting their country to prosper, and to neighbouring countries aspiring to partner with a technology hub.

Located at the hub of Asia's fastest-growing markets, Malaysia's Multimedia Super Corridor (MSC) is a bold initiative — a regional launch site for companies developing or using leading multimedia technologies. Aiming to revolutionise how the world does business, the MSC will unlock multimedia's full potential by integrating ground-breaking cyberlaws and outstanding information infrastructure in an attractive physical environment.

Driving this initiative is the Multimedia Development Corporation (MDC) — a fully empowered ‘one-stop super shop’ wholly focused on ensuring the unconditional success of the MSC and its companies.

The corporation will shape the MSC into Asia’s technology hub. It will be a place where innovative multimedia developers and users can harness Malaysia’s unique competitive advantages that arise from its multicultural links, committed leadership, and proven track record in developing products and services for regional and global markets.

MULTIMEDIA DEVELOPMENT CORPORATION
P.O. Box 12260, 50772 Kuala Lumpur, Malaysia.
Telephone: (603) 262 9599, 262 9319 Facsimile: (603) 261 4808 Internet: http://www.mdc.com.my
LAMPIRAN B

TOWARDS A VISION FOR A NEW ELECTRONIC GOVERNMENT IN MALAYSIA
TOWARDS A VISION
FOR A NEW ELECTRONIC GOVERNMENT
IN MALAYSIA
Multimedia Super Corridor
Towards A Vision
For A New Electronic Government
in Malaysia

The Government of Malaysia has launched the Electronic Government initiative to reinvent itself to lead the country into the Information Age. Electronic Government will improve both how the government operates internally as well as how it delivers services to the people of Malaysia. It seeks to improve the convenience, accessibility, and quality of interactions with citizens and businesses; simultaneously, it will improve information flows and processes within government to improve the speed and quality of policy development, coordination, and enforcement. In addition, Electronic Government is a "Flagship Application" of the Multimedia Super-Corridor. It will play an essential role in catalysing the development of the MSC, as well as furthering the political and economic development goals in Vision 2020. This paper describes the reasons for pursuing Electronic Government, the vision guiding this ambitious initiative, and the approach to implementing Electronic Government.
Message

Malaysia is crossing the threshold into the Information Age, a new era which will create unprecedented opportunities for those willing to embrace change. In creating the Multimedia Super Corridor, the country is aspiring to unlock the multimedia’s full potential by providing an ideal environment for multimedia companies. With Malaysia becoming a regional launch site for these companies and building a broad base of knowledge workers, the benefits of this initiative will be mutually shared by citizens and businesses across the country and beyond.

In this unprecedented endeavor, government faces the challenge to not only catalyse the transformation of the country but to reinvent itself. In the Information Age, government will need to become leaner and more responsive to the demands of its constituents while improving the accessibility and quality of government services; many civil servants will need to enhance their skills to be able to deal with changing requirements in their jobs; policy making will need to become more effective to continue providing solutions to the increasingly complex problems we will face in this new era.

Electronic Government is an ambitious programme to meet these challenges. It will employ multimedia technologies to facilitate a collaborative administrative environment and the efficient delivery of government services through new channels. To achieve its objectives, government is prepared to take a new approach to cooperating with the private sector by partnering with world-class multimedia companies in developing and implementing leading edge public-sector multimedia applications.

The success of Electronic Government is important to achieving Vision 2020. Real benefits can be achieved for the country if we all do our part. Success will require civil servants, citizens, and businesses to learn some new technologies, and to be open to changing how their daily work is actually done. To ensure this, I have taken personal interest in this project and closely monitor its progress. This document clearly explains our current vision and strategy to realise Electronic Government. You are welcome to forward any suggestions to the Electronic Government Task Force. I believe we should all share in this vision if we are to meet the challenges, and reap the benefits, described herein.

Y.B. Dato' Sri Dr. Mahathir Mohamad
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Develop Smart Partnerships

Define The Vision, Blueprint And Common Standards

Select Pilot Applications

Invite Broader Industry Participation

Produce Concept RFPs

Define Roadmap

UMMARY
VISION OF ELECTRONIC GOVERNMENT

The vision of Electronic Government is a vision for people in government, business and citizenry working together for the benefit of Malaysia and all of its citizens. The vision calls for both reinventing government (using multimedia/information technology to dramatically improve productivity) and creating a collaborative environment that fosters the ongoing development of Malaysia's multimedia industry. The vision focuses on effectively and efficiently delivering services from the people of government to the people of Malaysia, enabling government to become more responsive to the needs of its citizens.

Government computerisation programmes to date have achieved significant levels of automation. The objectives of the Electronic Government effort go far beyond the mere computerisation of government. Simply introducing computers to existing government structures and processes will not achieve the objectives described above. Indeed, this would only increase costs and bureaucracy without largely changing the way decisions are made or having an impact on the perceived quality of services. Successfully realising the vision for Electronic Government means fundamentally changing how government operates and implies a new set of responsibilities for civil servants, businesses, and citizen. Of course, the new services, information, and channels for government to interact with the different constituencies will require all parties to become familiar with new technologies and to develop new skills. As such, a successful Electronic Government effort can be an important contributor to Vision 2020's goal of becoming a fully developed nation.

APPROACH TO ACHIEVING ELECTRONIC GOVERNMENT

Realising the vision of Electronic Government will require a comprehensive development and implementation programme touching all aspects of government. It will require new processes, systems, structures, training to develop new skills, and shared values. But the journey of change will necessarily begin with a few small steps. Initially, the Electronic Government flagship application will target a few key services - drivers license renewal, government procurement, the Prime Minister's Office activities, human resource management and project monitoring. Once these early pilots are up and running, more will be undertaken, expanding with time to a wide ranging roll-out programme embracing more government departments and services - on a federal, state and local level.
Project Team Structure

- **Prime Minister**
  - Steering Committee
    - Chief Secretary
    - MAMPU
    - JPM
    - INTAN
  - Secretary

- **TEAM 1**
  - Citizen-to-government
  - Business-to-government
  - Key Government agencies
  - MAMPU
  - MDC
  - Web-shapers
  - McKinsey

- **TEAM 2**
  - Inter-agency
  - Key Government agencies
  - MAMPU
  - MDC
  - Web-shapers

- **TEAM 3**
  - Intra-agency
  - Key Government agencies
  - MAMPU
  - MDC
  - Web-shapers
  - McKinsey

- **TEAM 4**
  - Common Infrastructure
  - Key Government agencies
  - MAMPU
  - MDC
  - Web-shapers

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* JPM—Prime Minister's Department
** INTAN—National Institute of Public Administration
LAMPIRAN B

TOWARDS A VISION FOR A NEW ELECTRONIC GOVERNMENT IN MALAYSIA
The initial set of priority pilots have been selected by a Steering Committee chaired by the Chief Secretary to the Government, Tan Sri Abdul Halim bin Ali and assessed by a team led by Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) and comprising of government officials, representatives from the Multimedia Development Corporation (MDC), eighteen full-time experts from leading private sector multimedia/IT companies, and consultants from McKinsey & Company (Exhibit 1). This team is now developing “Concept Requests for Proposals” that describe the benefits the government is seeking for each of these applications and gives consortia of private sector companies the flexibility required to innovate the best solutions to deliver these benefits. A minimal set of technology and non-technology standards required to ensure coordination and compatibility across all present and future Electronic Government applications will also be provided. Finally, this team will also provide a Blueprint for Electronic Government that lays out the concepts derived from the vision, outlines the next several waves of applications, and defines the timeline for future concept RFPs.

NEXT STEPS

This document describes the vision for Electronic Government. It is meant to clarify Electronic Government’s goals, a vision for what success means for Malaysia’s citizens, businesses and civil servants, and the outline of an implementation approach. Interested parties are invited to contribute their perspectives on how this vision and implementation approach can be enhanced by May 30, 1997, so that they can be considered in the preparation of the final vision and implementation approach. The standards document is also being issued for public comments. By the end of June, the team will have a finalised vision, “Concept RFPs” for five pilot applications, required technology standards, and an implementation blueprint.

The Electronic Government server can be accessed at http://MDC.COM.MY where all relevant public documents are available electronically. We look forward to receiving your constructive feedback so it can be incorporated into the final documents. Comments should be sent to:

Electronic Government Team
eg@mampu.gov.my

This document will describe the vision of Electronic Government by answering three questions:

1. Why is Malaysia committed to developing an Electronic Government?
2. What is the vision of success for Electronic Government?
3. How will this vision be practically realised?
Why Is Malaysia Committed To Developing An Electronic Government?

As Malaysia develops economically, government must keep pace with the changes that are happening. Electronic Government presents an opportunity to update all elements of government to ensure the public sector continues to meet the evolving needs of the public and the private sectors as we move towards Vision 2020.

The Eletronik Government effort is intended to bring to the public sector the benefits of multimedia and the IT revolution that are leading to new paradigms of performance improvement in the private sector around the world. In order to ensure this improved level of performance, the Malaysian Government is committed to re-engineering its core processes as required. Thus moving to an Electronic Government, coupled with the physical move to Putrajaya, will allow the “reinvention” of government. It will not be simply a transplanting of government departments from their current quarters to Putrajaya and putting computers on everybody’s desk. We will be reconceptualising how each of our core services are provided using IT and multimedia as enablers to dramatically improve performance.

The dual objectives of Electronic Government are to reinvent the government of Malaysia and to catalyse the successful development of the Multimedia Super Corridor (MSC) (Exhibit 2).

REINVENT GOVERNMENT THROUGH CONNECTIVITY

Electronic Government provides a rare opportunity to reinvent the government of Malaysia. It will redefine the relationships of government to citizens, to businesses and to itself. By enabling improved connectivity and communication between all parties, Electronic Government will facilitate Malaysia becoming fully developed in line with Vision 2020.

To citizens, the new relationship will mean dramatic improvements in services. Existing services will be improved and a whole new class of services will be offered. Citizens will have
## BENEFITS OF ELECTRONIC GOVERNMENT

### Reinvent Government

- Improve services to citizens and businesses
  - better access for all Malaysians
  - one stop
  - multi channel
  - higher quality services
  - more reliable
  - faster turnaround
  - increased transparency

- Improve effectiveness and efficiency of government
  - better processes
    - improved information flow
    - clearer accountability

- better systems
  - analytical tools
  - management tools
  - decision support tools

- more empowered people

### Catalyse MSC

- Attract world class skills and experience from international businesses

- Create opportunities for innovation in a working government

- Create a forum for collaboration
  - between international and local businesses
  - between business and government

- Build bridges to other initiatives
  - across SE Asia
  - around the globe
greater access to more convenient, more responsive, higher quality, and potentially less expensive government services. Electronic Government will benefit the people of Malaysia, all of its citizens, the urban and rural, the rich and the poor, the young and the old, those familiar with information technology and those not yet familiar with IT.

Within government, the new relationship means improved information flows and superior communication between the components of government. There will be dramatic improvements in the coordination of government resources, better analytical tools to solve the increasingly complex problems faced by modern government, and decision support tools to enhance the effectiveness and the efficiency of public policy. It will be possible to create accountabilities that do not currently exist. The impact of specific policies will be more measurable and transparent. Successful strategies can be more quickly recognised and used as a model; less successful strategies can be modified or changed.

Today, information is often jealously guarded and many people are involved solely in moving information around within a ministry or agency. In the future, information will be much more directly accessible to decision makers. Information will flow smoothly across ministries and agencies through a common database and compatible system interlinked by a secure, high-speed network. As a result, the speed and quality of decision-making will improve dramatically.

As this network is linked with citizens and businesses through kiosks and the Internet, it will be possible to directly deliver government services. Information can be paperlessly exchanged with government and transactions can occur on-line. Interactions with government will become much easier and convenient.

These powerful benefits also create new responsibilities for civil servants, citizens, and businesses. All these groups must commit to educating themselves about information technology and to taking advantage of the broad range of training programmes that will be offered. The success of Electronic Government is dependent on individuals’ serious commitment to learning new equipment, software, and ways of doing things. To gain the benefits just described, habits must change. The role of government will evolve from making many of these choices, to helping citizens and businesses make the right choices for themselves. A wealth of new choices will be available to everyone, and the judgement required to choose wisely must be developed.

The most powerful benefit, and the greatest need, of Electronic Government will be the new
levels of connectivity that will be possible within government, between government and its constituents, and with religious and educational leaders. Properly implemented, information technology will strengthen our culture at the very time when it has never been more important.

**CATALYSE THE MSC**

As one of the seven MSC flagship applications, Electronic Government will also contribute to Malaysia's rapid development. The government is looking to form smart-partnerships with local and international consortia based in the Multimedia Super Corridor (MSC) to introduce the best of current solutions and to develop leading edge solutions.

Moreover, government will use the MSC to set an example for the rest of the country to emulate. By doing so, the improved productivity of the public sector can stimulate increased productivity in the private sector. The combined effect will sustain Malaysia's rapid economic growth as the economy becomes larger, thereby safeguarding the achievement of Vision 2020.

Electronic Government will contribute to the creation of an ideal environment to support the growth of Malaysia's multimedia industry. Electronic Government creates a laboratory for innovation. Companies are given a unique opportunity to provide creative solutions for a working government. Carefully defined contracts will allow companies the opportunity to innovate new solutions that can later be sold in other parts of the world. As multimedia develops within government, it will become a catalyst for other MSC development projects.

The Electronic Government initiative also creates a platform which allows business and government to build close linkages and develop a collaborative approach to solving problems which will extend well beyond the scope of Electronic Government itself.

Electronic Government will act as a magnet for target companies, attracting skills and experience from all over the world. International businesses will likely need to develop alliance relationships will local businesses to respond to the opportunities presented by Electronic Government. The web of these business relationships will in itself create new business opportunities and will foster ongoing growth in the industry. It is hoped that these consortia of international and local companies will prove concepts and solutions that will ultimately provide the basis for substantial reverse investment from the MSC into other countries around the world.
Electronic Government will also create bridges to other initiatives, within Malaysia and around the world. Close linkages will be encouraged between Electronic Government and the other flagships. Moreover, civil servants can share best practices among themselves at all levels of government and even with other countries, directly accessing experiences that would otherwise remain unknown. The much-discussed “global village” has a much less discussed counterpart, the “global government”. The awareness and skills of government can improve substantially as connectivity extends beyond the borders of Malaysia.

Indeed, linkages will develop between the Government of Malaysia and other government launching similar initiatives around the world. Better, more open communication between governments and businesses around the globe will create unique opportunities for Malaysia’s future growth. In short, Malaysia will provide a model of modern government to the world. The nature and benefits of this model can be directly communicated to interested parties throughout the developing and developed world.
What Is The Vision Of Success For Electronic Government?

Electronic Government represents a significant change in the workings of government, a "reinvention" of how government works to serve the public good. Government will become truly "networked" within itself, both in terms of technology and collaboration, while simultaneously extending this network to more directly link with citizens and businesses. We will all become more connected with one another, thereby strengthening our relationships and culture. Consequently, the role of government will be able to evolve to the next level of development as required to achieve Vision 2020.

The vision for Electronic Government's success involves achieving several fundamental "mindshifts". Some of these have already begun in some ministries and agencies, but Electronic Government will both accelerate these and enable the others. These mindshifts are summarised in Exhibit 3. In particular:

- Philosophy of "bureaucracy-centred" government will give way to a more open, "citizen-centred" government.

The government's traditional role of making some of the choices for the people will evolve towards providing the information and skills to empower the citizens themselves to make more choices. Increasingly, government will go to the people for interactions rather than requiring people to come to government offices.

- Opaque government decision-making processes will give way to increased transparency and higher accountability for policies achieving the intended benefits. Laws, policies, and practices can be more carefully monitored and modifications quickly introduced to optimise results.

- Policy-making will increasingly be supported by analytical, fact-based policy-making. Policies will be built on more accurate statistics, information, and quantifiable input from citizens and businesses. This does not mean the government will become
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more uncaring or less responsive to the needs of the country; it is a recognition that continuing to meet these needs in the future requires new tools and linkages to be effective in an increasingly complex environment.

The government will move from being essentially directive to being more suggestive with a focus on "shaping" of the environment required to enable others to make the best decisions for themselves. Our past approach was very effective and was appropriate given the social, economic, and political situation of the time. However, evolution is essential if government is to continue playing a constructive role as the economy grows in size and complexity. Indeed, our very progress on the non-economic elements of Vision 2020 requires us to recognise the changed situation in Malaysia and for the role of government to respond accordingly.

Overall, the interactions between the people and government will become more driven by the people themselves. Government will no longer work alone to provide services, it will work in collaboration with businesses and citizens. The top-down approach to managing government will evolve, as more and more empowered knowledge-workers make informed and independent decisions. Improved efficiencies will lead to a leaner and smaller government which will free up scarce human resources to work in the new, rapidly growing service and IT sectors of our economy. Accountability, transparency, and productivity within government will increase dramatically.

These changes will be visible to both citizens and civil servants. Citizens will have improved access to high-quality, and timely services. Civil servants will have new skills, new systems and a new culture of government. Each of these sets of changes will be described more fully for the following two constituencies:

- Citizens and businesses
- Government

**CHANGES FELT BY CITIZENS AND BUSINESSES**

All citizens and residents will have improved access to government services. Services will adhere to higher quality standards. New services will expand the service spectrum and services will be delivered in ways that are more tailored to individual needs.
Improved Access To Services

To improve access to services, Electronic Government will provide one-stop shopping for government services through multi-channel, multi-lingual delivery options. Services will no longer be provided where the government is, but where the people are. For example, instead of having to go to government offices and wait in long queues to renew passports, it will be possible to go to an Electronic Government kiosk in a shopping mall or access the service on your home PC. There will no longer be separate queues for each service, but with the one-stop service window provided by Electronic Government, citizens and businesses will be able to deal with a wide range of services from a single point of contact.

All the public will see the benefits of better access. The reach of government will improve to touch all. For example, there will be tailored access in the remote villages and for the old and disadvantaged. The model of Electronic Government will create incentives for an entrepreneur to set up a manned kiosk in a village centre. The attendant will be able to help individuals use the kiosk and answer their questions. This will make people more comfortable with technology and raise IT literacy. In addition to accessing government through PCs and the Internet, more and more services will be available over the telephone. Citizens and businesses will quickly see a real improvement in convenience and accessibility of government services.

Higher Quality Services

The quality of services will also improve. The initial applications of Electronic Government will ensure less "rework" for individuals, fewer forms and more reliable services. For example, it will be possible to change your address once and ensure that this information will be automatically shared with all government agencies.

Issues such as privacy and security will be addressed. Government will retain ownership of all data, access will be carefully controlled, and violations of privacy will be strictly and severely punished under the new Electronic Government cyberlaw to be tabled in late 1997.

There will also be better accountability within government - more transparency within government processes. Citizens will be able to track the progress of their dealings with government and understand when action is likely to happen. Electronic Government will select multimedia solutions that improve the turnaround of government services. Long delays should be reduced.

Broader Scope Of Services

The Electronic Government initiative applies to all the services government provides to
citizens and businesses. Electronic Government seeks to improve the access to and quality of all services, including transaction-based services involving payment or without payments, and information based services, that are private to citizens and general to public. The list of existing services in Exhibit 4 maps the scope of Electronic Government.

Electronic Government will also create opportunities for new services. For example, government could provide information not previously available. The format of information may be more useful to businesses. For example, the most recent economic data could be available on-line, already digitised for instant analysis by business. Citizens could have opportunities to participate more actively in government through direct delivery and tracking of their complaints or even on-line polling. It is conceivable that services could be bundled and managed so that all fees and renewals are paid automatically.

The range of new services available through Electronic Government will be limited only by imagination and economic reality. The new approach to delivering services described below should make it possible to provide a breadth of new services.

New Approach To Delivering Services

Achieving dramatic and ongoing improvement in the delivery of services requires reengineering the way services are delivered to the public. Citizens may see a new model for the delivery of government services (Exhibit 5). In the traditional service delivery model, there is a single role, with the government as sole supplier and deliverer of services. The new model creates three roles within service delivery to allow market forces to drive improvements in service delivery to the public.

Three delivery roles

The new approach defines three distinct roles within service delivery: (1) service supplier; (2) gateway provider; and (3) service provider. In this model, the government becomes the service supplier responsible for creating services for citizens and ensuring the quality and integrity of all aspects of service provision. The service supplier is like the farmer who prepares the field, plants the seeds, irrigates the crops, and ensures orderly rows are maintained and good quality crop is delivered to market.

The gateway provider's role is to link government systems and processes onto a common network. The network becomes the single window of government - linking all aspects of government to businesses and citizens throughout Malaysia and the world. The gateway provider is like the farmer's lorry driver who ensures each part of the crop gets to the right markets in good condition.
MAP OF PUBLIC/BUSINESS-TO-GOVERNMENT SERVICES

Lodgment:
Enables general public to submit and/or process applications electronically to the government for services

Payment:
Enables electronic transfer of monies between public & government as payment for services, fees, fines, etc.

Information:
Enables general public to access information on-line about government; regulations, services, etc.

Communications:
Enables government to communicate with the public electronically or via multimedia mediums

Electronic Procurement:
Enables government to procure and/or tender electronically with respective businesses

Polling:
Provides easy yet secured electronic channel for government to reach out to public for surveying purposes

Customer Care Management:
Provides general public with a one-stop help desk center

Public Complaint:
Provides single interface to public to relay grievance effectively and conveniently to government
POTENTIAL ELECTRONIC GOVERNMENT MODELS
The service provider opens the doors for every individual and every business to access the network and hence become an active user of the new Electronic Government. People will be able to deal with government through public kiosks or through their home PC, telephone, or television. Service providers are like the shopkeepers who bring together the crops of different farmers and ensure they are packaged in a way that is most useful for the customer. Some shopkeepers sell by the roadside, some in village markets, some in urban shopping malls, some in corner stores and still others deliver directly to the customer's home.

Government will define the objectives and the ground rules, but exactly how service providers choose to deliver services will be left up to them. It is conceivable that government services would be available through bank Automatic Teller Machines (ATMs) or public kiosks consisting of a PC connected to the Internet. Kampong coffee shops could become service providers by setting up a simple PC on a coffee table, offering villagers a cup of coffee and access to pay their taxes, renew licenses and check how a building application is progressing. Car service stations could become service providers and offer one price and one stop, for a grease and oil change, car repairs, registration renewal and road tax.

Benefits of market forces
As well as fostering collaboration and making services more accessible, the new service model has two other major advantages: quicker set up and more efficient services.

The new delivery model will allow government to quickly integrate its existing systems and processes into new development in service delivery. By allowing government to work within its own layer independently of the service providers, services can be made available quickly without waiting to replace legacy system. The upgrading of these systems can then be better managed to ensure optimal integration into the new environment.

Furthermore, the model could create significant efficiencies by letting market forces drive service providers to offer better service at lower prices. Any clever entrepreneur with a good idea about a needed service who agrees to meet the required standards can participate. The entrepreneur will be paid per transaction, and hence the better the idea and greater the need, the more profit that will be generated. At the same time, government could become smaller, leaner, more focussed on supplying services that benefit the public.

CHANGES FELT IN GOVERNMENT

The Electronic Government initiative is also concerned with dramatically improving the
productivity of the internal workings of government. Specifically the performance of government will be improved through better processes and better systems. These processes and systems will be applied to both services between government agencies as well as services delivered within an agency (Exhibits 6,7). Electronic Government involves deploying multimedia applications within government agencies. But, Electronic Government is a broader, more fundamental change than an application rollout. The applications will be supported by comprehensive change programmes that will simultaneously impact the strategy, skills, systems, structure and culture of government.

Strategy
There will be a significant change in the strategy of government. Strategies will be developed to more fully understand and meet the needs of citizens and business as the customers of government agencies. Indeed, government departments will have to think much more deeply about how to reach their customers and develop smart-partnerships with entrepreneurial service providers. They will receive new authority to enable faster, more informed decision making. Ministers can stay better informed about the work of their ministry and proactively offer guidance. Issues requiring Cabinet approval or resolution can be more easily ascertained, and follow-up on Cabinet decisions can be more rigorously monitored. It will be possible to develop a much more informed consensus on major issues.

Skills
This new empowerment will be supported by dramatic enhancements of the civil service skill base. Government employees will become knowledge workers. All government workers will go through a basic IT literacy program. They will be trained in technologies to support their specific jobs. In addition, all ministries and departments will need to offer training to support their strategies and programs. Civil servants will work with the leading edge multimedia tools that will enable them to dramatically improve their productivity. Compensation schemes will need to recognise these new skills.

Systems and Processes
Government employees will also see systems and processes enter a new age where communications between people flow seamlessly from department to department, ministry to ministry, across Malaysia and out to the world. A common database is an essential element of building a successful electronic government. The information of government will be readily available to whoever has the right to use it. Some information will necessarily be protected by high security systems and advanced encryption technologies. The privacy
MAP OF INTER-AGENCY SERVICES

**Project Monitoring:**
To provide a mechanism for monitoring the implementation of projects. The service also provides a platform for exchanging ideas and demonstrating best practices in information management and communication services.

**Public Complaints and Information Services:**
To provide a single interface for the public to relay grievances to the government effectively and conveniently, and enables government employees and the public to access online information on regulations, services, etc.

**Human Resource Management:**
To provide a single interface for government employees to perform HRM function effectively and efficiently in an integrated environment.

**Education and Training:**
To enable the delivery of comprehensive and cost-effective lifelong learning program using multimedia.

**Development Planning:**
To enable government employees to perform intra- and inter-agencies planning function efficiently using integrated information management and network services.

**Budgeting:**
To improve the budgeting process by ensuring accuracy, timeliness and streamlined process.

**Supplier Profiles:**
To provide the government with an online interactive supplier information system to evaluate the performance of government contractors.

**Accounting:**
To improve accountability by ensuring transparency and timely closing of account.

**Integrated Inventory Management:**
To provide effective (JIT) inventory management including electronic procurement and automated distribution system to achieve cost saving and reduce waste.
MAP OF PRIME MINISTER'S OFFICE SERVICES

Research:
To provide timely access to information and efficient distribution

Communication:
To improve collection and dissemination of information, and increase media average

Planning:
To enhance information flow
Formulation and implementation of Policies to improve process of information

Audit:
To improve traceability

Project Management:
To improve capabilities to plan, organise and monitor

Human Resource:
To improve better management of human resource and availability of personal information

Finance:
To improve financial management and accountability

Support Services:
To improve workflow, increase productivity and effectiveness
of citizens will be carefully protected. The systems of government today, the large investments already made, will be intergraded into the new environment. These systems will become an important stepping stone on the way forward, forming an existing base of systems than can be built upon and improved. Linking new systems with legacy systems, and providing a viable migration plan, will be the responsibility of the consortia that submit winning proposals and the ministries/departments with which they will partner. These teams of government and private sector partners will also need to re-engineer work processes within departments to ensure that desired benefits are actually achieved.

Culture
Underpinning the change to government will be a change in the culture of government. Government will move toward a “citizen-centred” approach and a service based culture where the civil servants share a value system that places less importance on formality of procedure and greater importance on assisting citizens. It will be these shared values that will ensure the benefits of Electronic Government. The most fundamental change will occur when civil servants define themselves not by their common rules and processes, but by their common objective and approach to better serving the people of Malaysia. The fundamental mindshifts described above will need to be catalysed and nurtured within government. Overall, the culture will become more results and performance oriented. Government will become a smaller group of high performing civil servants that will be better compensated than today.

METRICS OF SUCCESS
Performance metrics will need to be developed to track the progress in achieving the goals of Electronic Government. These could include the following:

- Citizen satisfaction barometer. Based on public complaints and surveys conducted by a third party, each
government unit could have starting benchmark and annual progress assessments.

- **Electronic Government self-assessment.** Each government unit could be requested to develop an agenda defining its aspirations and plan for Electronic Government in the following year. Progress against this agenda can be reviewed annually with objectives agreed upon for the following year.

- **Productivity benchmarking.** Productivity metrics could be developed for each government unit. These should be based on the *measurable* outputs that are most meaningful for the "customers" of the unit compared with the number of employees in the unit. For some units, these "customers" may be other government agencies. Progress can be assessed by the trend and rate of improvement over time.

- **Number of services electronically available.** The number and reach of services that can be accessed outside of government offices could be tracked.

- **Adherence to the Electronic Government Roadmap.** The Electronic Government team is developing a road map that defines the timing of applications to be rolled out. While this map is only a guide which will evolve over time, it provides a starting point that can be useful in maintaining momentum in developing Electronic Government.
How will this vision be practically realised?

The vision of Electronic Government is a vision of people in government, business, and the citizenry working together for the benefit of Malaysia and all Malaysians. Realising that vision requires a pragmatic approach to implementation, the approach developed for Electronic Government involves addressing the major hurdles of implementation as well as creating a process that would improve the performance of government and create a collaborative environment that fosters ongoing improvements. The transition to an Electronic Government will take time, and will not be perfectly orderly. Rather, the transition will feel somewhat chaotic, as is typical of most new roles in the Information Age.

**OBSTACLES TO CHANGE**

On the road toward achieving the vision of Electronic Government, there are many obstacles. Some of the major hurdles faced by the Electronic Government initiative are:

- Need for integration with legacy systems
- Shortage of skills and training needs
- Resistance to change
- Lack of common standards across government

Creativity and collaboration among all parties will be the needed to ensure success. Working together, the best of government, business and citizens can meet each of these challenges.

**Size and complexity**

The size and complexity of the undertaking can easily overwhelm an overly aggressive approach to implementation. The Electronic Government initiative plans to start with a limited number of manageable pilots. The approach is to learn through those experiences, refine the future implementation plan based on this experience, and then deploy more pilots, finally evolving into fully-fledged rollout. By tight scoping and close management in not only the early phases, but in the later phases as well, the task becomes more achievable. The pilot
applications are the starting point for Electronic Government; they are the tip of an iceberg whose shape will continually evolve as the environment changes. During rollout, the scope of Electronic Government will grow in three dimensions; pilot projects will expand into new locations, more services and processes will be included, and more ministries and agencies - federal, state and local - will become involved.

Integration with Legacy Systems
Malaysia’s existing investment in information technology could represent a barrier to the rapid deployment of new technologies. A layered architecture, where back office systems are decoupled from the service delivery channels, allows for manageable integration of new and old technologies. Legacy systems and processes can be maintained and upgraded as required, without preventing the use of multimedia technology to improving the access, quality and delivery of services. As mentioned above, specific migration plans for legacy systems will need to be developed on an agency by agency basis in close cooperation with the consortia that are developing specific Electronic Government applications.

Existing contracts, that commenced before the Electronic Government initiative, will proceed in modernising government. Electronic Government will seek to integrate those projects where possible to ensure they are consistent with both the vision of Electronic Government and the specifics of the Electronic Government rollout plan. Electronic Government will create a platform for future developments. Projects that may have become isolated computerisation of departments should now become part of the broader plan for fundamental change. It is hoped that this process will be initiated by the departments themselves.

Skill shortage
The change program of government requires that many government employees become knowledge workers. Electronic Government will initiate comprehensive training programmes throughout government to increase basic literacy in new technologies. Each implementation will also address its own specific need for training through programs targeted at supporting the systems and processes involved. It is anticipated that several of the web-shapers that are leading different consortia will build training centers in the MSC to meet this challenge.

Resistance To Change
Realising the benefits of Electronic Government requires that the public and government employees have openness to change and a commitment to learning new ways. The country's leadership is fully committed and
prepared for change and this spirit needs to be embraced throughout government. Electronic Government will involve all levels of administration.

The people of Malaysia should also be ready. The proposed business model allows market forces to drive adoption of changes introduced by Electronic Government. Citizens will use the technology only when they perceive real benefits. Service providers will only gain when they can provide and communicate real benefits to the citizens. It is recognised that this is a process that will take years to complete, and will require real partnerships between the public and private sectors.

Common Standards
A significant part of the benefits in productivity and collaboration require compatibility between government systems and processes. In order to create the required platform, a minimum set of required standards, or common elements, was defined. This minimum level of commonality was designed to provide appropriate levels of interworking and interoperability between government systems and processes without placing undue constraints on vendor solutions.

One of the products of the Electronic Government task force, the "standards document", provides a base infrastructure on which future innovations can be based. It provides the common thread between all Electronic Government systems and processes that will foster the development of new services, systems and processes needed to meet the challenges of the future.

STEPS IN DEVELOPING ELECTRONIC GOVERNMENT

In striving to achieve the fundamental changes in government required, Electronic Government is also faced with the task of creating a collaborative environment to foster ongoing innovation. In order to meet these challenges, the process of developing Electronic Government involves some new and exciting elements, some of which are described below.

Develop Smart Partnerships
Eighteen leading domestic and international multimedia and IT companies were selected to participate based on their skills and experience. They have been involved in refining the vision and creating a blueprint for Electronic Government. The Electronic Government initiative set out to develop a smart partnership between government and business, leveraging the best skills and experience from the private and public sectors. A working environment
was created where personal and company interests were set aside and a true collaboration formed to deliver the best solutions possible and to forge ongoing relationships between business and government.

**Define The Vision, Blueprint And Common Standards**

The private and public sector participants were formed into four sub-teams. Three sub-teams focused on refining the vision and blueprint for external government services, namely government to public/business services, inter-agency and intra-agency government processes. The blueprint identifies all the services of government and the spectrum of multimedia applications that will help deliver those services according to the objectives of the vision. The fourth team focused on developing the common standards and protocols required to make all Electronic Government systems work together. All teams worked closely together and met weekly to ensure close coordination and collaboration across the entire initiative.

To have impact, the new service delivery should, at a minimum be visible to the public in the way it creates value to individuals. The pilot should be applicable to a large cross section of businesses and citizens, and it should demonstrate real productivity gains for government.

In terms of feasibility, the technology of the initial solution should be leading edge and proven and there should be no significant implementation issues. Later projects will encourage developing wholly new and innovative applications. Users should clearly want to use the new process. The cost to government should not be excessive, and first steps should begin quickly.

Based on these stringent criteria, the first pilot applications for Electronic Government were selected. They are:

- Drivers License Renewal And Utility Payments
- Government Procurement
- Prime Minister's Office Information System
- Human Resource Management
- Project Monitoring

**Select Pilot Applications**

The first step in fulfilling the vision involve prioritising and then implementing pilot applications. Pilots were selected from the entire range of identified applications based on their level of impact and feasibility (Exhibit 8).

**Invite Broader Industry Participation**

A Flagship forum was held in Kuala Lumpur
CRITERIA FOR SELECTING PILOTS

**IMPACT**
- High visibility
- High value delivered
- Improved efficiencies (e.g. productivity gains, improved revenue collection)
- High urgency

**FEASIBILITY**
- Availability of technology
- Ease of implementation (e.g. process, organizations, regulations, tech.)
- Reasonable capital costs to govt.
- Short timeframe—QuickWins
- High user acceptance
recently where all flagship applications, including Electronic Government, presented the work to date to an open invitation audience. The flagship forum created an opportunity for companies that could not directly participate in the project team to share their views in this exciting initiative. Additional forums will be run over the next few years. These forums are meant to educate, inform, and trigger a dialogue on critical issues. In addition, discussion papers will be issued to supplement the Flagship Forum and solicit more structured feedback.

**Produce Concept RFPs**

To allow for innovation, both in today's solutions and in the ongoing approach to deploying appropriate technologies, a new type of Request For Proposal (RFP) was developed. termed "Concept RFP", these new documents focus on describing the objectives of the pilot applications. Technical requirements are kept to a minimum to allow vendors room to respond with creative solutions.

**Define Roadmap**

To encourage increasing agency involvement and a consistent approach to Electronic Government, a document will be created that provides guidelines to implementing Electronic Government. The roadmap will detail the prioritisation of future applications, and the agencies involved. The rollout schedule for pilots will be included as well as performance milestones and action plans for removing obstacles.
Electronic Government is not an end in itself; it is a journey and an approach to reinventing government - to ensure its ongoing success in meeting the needs of the people in a very rapidly changing environment. The vision of Electronic Government requires a new mindset for all the people of Malaysia. For the civil servants, Electronic Government requires open minds, the willingness and ability to learn new skills, as well as a desire to find new and better ways to serve the public. For businesses, Electronic Government requires a mindset of harnessing information technology to improve productivity, and linking with the government where it is appropriate and mutually beneficial. For the citizens, Electronic Government requires a mindset of change, the willingness to accept new ways of relating to their government.

The vision of Electronic Government is also a promise: A promise of substantial benefits for all Malaysians. These benefits will be provided by a more efficient and effective government from an emerging multimedia industry built from the cream of local and international businesses developing world leading products and taking Malaysians towards Vision 2020. Like all great journeys worth taking, it begins with a few small steps by participants who share a vision of their common destination. Hopefully, this document has helped describe the desired destination.
LAMPIRAN C

ELECTRONIC GOVERNMENT FLAGSHIP APPLICATION – BLUEPRINT FOR ELECTRONIC GOVERNMENT IMPLEMENTATION
GOVERNMENT OF MALAYSIA

Electronic Government Flagship Application

Blueprint for Electronic Government Implementation

Malaysian Administrative Modernisation and Management Planning Unit (MAMPU)
Prime Minister's Department
MALAYSIA

Multimedia Super Corridor

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Electronic Government Flagship Application

Blueprint for Electronic Government Implementation

Malaysian Administrative Modernisation and Management Planning Unit (MAMPU)
Prime Minister's Department
MALAYSIA

Multimedia Super Corridor

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1. Overview

This document describes the Blueprint and Implementation Roadmap for Electronic Government.

1.1. Electronic Government

1.1.1. Objectives of Electronic Government

Electronic Government is a "Flagship Application" of the Multimedia Super-Corridor. The Government of Malaysia launched the Electronic Government initiative to reinvent itself to lead the country into the Information Age. Electronic Government will improve both: how government operates internally as well as how it delivers services to the people of Malaysia. It seeks to improve the convenience, accessibility, and quality of interactions with citizens and businesses; simultaneously, it will improve information flows and processes within government to improve the speed and quality of policy development, co-ordination, and enforcement. In addition, Electronic Government will play an essential role in catalysing the development of the MSC, as well as furthering the political and economic development goals in Vision 2020.

1.1.2. Vision of Electronic Government

The vision of Electronic Government is a vision for people in government, business and citizenry working together for the benefit of Malaysia and all of its citizens. The vision calls for both reinventing government (using multimedia/information technology to dramatically improve productivity) and creating a collaborative environment that fosters the ongoing development of Malaysia's multimedia industry. The vision focuses on effectively and efficiently delivering services from the people of government to the people of Malaysia, enabling government to become more responsive to the needs of its citizens.

1.1.3. Approach To Realising The Vision

Realising the vision of Electronic Government will require a comprehensive development and implementation program touching all aspects of government. It will require new processes, systems, structures, training to develop new skills, and shared values. Initially, the Electronic Government flagship application will target a few key services such as 1) electronic delivery for drivers and vehicles registration, licensing and summons services, utility bill payments and Ministry of Health on-line information, 2) government procurement, 3) Prime Minister's Office activities, 4) human resource management and 5) project monitoring. Once these early pilots are up and running, more will be undertaken, expanding with time to a wide ranging roll-out program embracing more government departments and services on a federal, state and local level.

The initial set of priority pilots has been selected by the Electronic Government Steering Committee which comprised government officials led by the Malaysian Administrative Modernisation and Management Planning Unit (MAMPU), representatives from the Multimedia Development Corporation (MDC), leading private sector multimedia/IT companies and consultants from McKinsey & Company.
1.1.4. This Document – Electronic Government Blueprint for Implementation

This document is the result of private and public sector collaboration, working together to forge an Electronic Government Blueprint for Implementation. The document lays out the concepts derived from the vision, outlines the next several waves of Electronic Government applications, and defines the timeline for future concept RFPs.

1.1.5. Other documents

As well as the concept RFP, interested parties should familiarise themselves with these other documents:

- "Towards A Vision For A New Electronic Government in Malaysia". This document describes the vision for Electronic Government. It is meant to clarify Electronic Government's goals, a vision of what success means for Malaysia's citizens, businesses and civil servants, and the outline of the approach to implementation.

- "Electronic Government Information Technology Policy and Standards (EGIT)". This document provides an overview of each technology appropriate for Electronic Government and states government policy about the specified technologies. The document also provides a list of current standards to be considered in designing new systems solutions to ensure co-ordination and compatibility across all present and future Electronic Government applications.

These documents will also be made available electronically on the Electronic Government Server at http://mdc.com.my
2. **Blueprint: Dimensions of Implementation**

To achieve the objectives of Electronic Government, the implementation plan needs to consider far more than simply deploying multimedia systems into government departments. The implementation of Electronic Government needs to co-ordinate change to all three elements of government: people, processes and systems.

### 2.1. Total Package

#### 2.1.1. People

The people of government, as well as business and public, will need to adapt to a new set of responsibilities. Government wide training programs are already underway to provide government employees with basic skills in information technology. As each multimedia application is implemented, training specific to the use of that application, and the new process it supports, will be provided to all users of the system. Detailed technical and operational training programs will be provided to system administrators and maintenance staff.

#### 2.1.2. Processes

The processes of government will be re-engineered to capitalise on the potential benefits of new multimedia applications. Prior to the deployment of each application that involves the core processes of government, process re-engineering will be conducted. This process re-engineering will redefine the way each government department performs its tasks in the new multimedia environment. The process re-engineering task will be a collaboration of both government employees and industry experts. This collaboration will allow the intimate knowledge of government process to be combined with world best practice in process design to deliver new, more effective, multimedia enabled government business.

#### 2.1.3. Systems

The systems of government will either be replaced or integrated into the new multimedia environment. The decision to replace or integrate will depend upon the functionality and adaptability of legacy systems. Vendors will be free to propose solutions for government that either integrate or replace systems. New systems will need to be compliant with government wide technology standards and policies.

#### 2.1.4. Co-ordination

Co-ordination of the Electronic Government initiative is key to its ongoing success. Co-ordination of the implementation will need to occur on three distinct levels: across project, across Electronic Government, and across MSC flagships.

##### 2.1.4.1. Project Co-ordination

Vendor consortia will be largely responsible for co-ordinating the implementation of their proposals. Each Concept RFP will require project
management approaches to be defined to ensure adequate co-ordination between training programs, process re-engineering tasks and application deployment. Government staff will also liaise closely with vendors to ensure active government participation in project management activities.

2.1.4.2. Electronic Government Co-ordination

An Electronic Government Project Team has been formed, reporting to the Electronic Government Steering Committee. As well as monitoring vendors to verify that individual pilots are being adequately managed, the team will also co-ordinate all applications across Electronic Government. This will ensure consistency between the deployment across all agencies and all applications. Consistency will be required in training programs and process re-engineering as well as in the interpretation of the technology policies and standards document. The deployment of multiple applications across multiple agencies will also require that the Electronic Government Project Team ensure that agencies have sufficient capacity for change to manage the deployment program and that prerequisites for each deployment are in place.

2.1.4.3. Flagship Application Co-ordination

Co-ordination of Electronic Government with other flagships is the responsibility of the Multimedia Development Corporation (MDC). MDC will ensure that the implementation of Electronic Government is consistent with the multipurpose card, smart schools and teledmedicine initiatives. As well as MDC providing overarching co-ordination between initiatives each implementation team will meet regularly on an operational level. This co-ordination will ensure that a consistent set of technology policies and standards are implemented across all initiatives and that resources are shared where possible. Early examples of this co-ordination are the adoption of the Electronic Government Information Technology Policy and Standards (EGIT) document across all flagships and the inclusion of teledmedicine information services in the Electronic Government concept RFP for service provision.

2.2. Change Programs

In order to deliver on the objective of achieving dramatic improvements in the productivity of government, there needs to be change programs that address the processes of government, the people of government as well as the systems of government. The results of these comprehensive change programs will be dramatic improvements in productivity, significant reductions in cycle time, and real improvements in the quality of products and services produced by government.

In order to manage the complexity and the vastness of the change to government that encompasses 24 ministries, 640 agencies and over 890,000 government employees, the program will be deployed agency by agency. The program will be structured to deal with the specific needs and problems of each separate agency.
A typical program would be run in three distinct phases:

- **Phase I: Diagnostic**
- **Phase II: Detailed Planning**
- **Phase III: Implementation**

### 2.2.1. Phase I: Diagnostic

The diagnostic phase would last approximately 3-4 months in a typical agency. This phase involves assessing the status quo of the agency concerned and determining the key levers that will drive change within that agency. The diagnostic phase also involves designing the specific projects that will constitute the entire program going forward.

### 2.2.2. Phase II: Detailed Planning

The detailed planning phase involves three simultaneous activities focused on:

- **Process redesign projects**
- **System development**
- **Mobilisation**

Process redesign activities focus on identifying the core processes within the agency and defining the performance imperatives for each core process. New processes will be designed and the blueprint for the new processes developed. The activity will also develop a transition program to support a migration from the processes used today to the new redesigned process.

System development activities will create new databases, applications and workflow management systems that enable the organisation to achieve the performance imperative set for each core process.

Mobilisation activities will focus on developing plans to overcome the resistance to change. These plans involve activities that attempt to:

- **Remove fears through education about the change to come.**
- **Motivate civil servants through demonstrating the new opportunities presented by the introduction of new systems and processes.**
- **Mobilise civil servants through direct participation in shaping and executing the change program itself.**

The mobilisation activities also focus on co-ordinating the various training programs required to build skills in both the new systems and processes of government.

This phase of the work will result in very detailed plans of action specifying measures to a low level of detail were civil servants will know exactly what to do at each step of the change process.
These plans will also establish clear responsibilities for the implementation of action plans and implementation monitoring systems to follow up on each measure developed.

2.2.3. Phase III: Implementation

During the implementation phase, the process redesign, systems development and deployment, and mobilisation programs will be implemented according to the plans developed in phase 2.

Accountability for achieving specific implementation objectives will be assigned and tracked to management at all levels within the ministry. Implementation of all measures will typically take one to two years and lead into an ongoing program of continuous improvement.

2.2.4. Benefits

These massive change programs, run throughout government, will lay the ground for:

- Realising the targeted productivity improvements.
- Reaping the benefits from implementing multimedia applications as envisaged by electronic government.
- Preparing processes, systems and people in government for the challenges of the information age.

But to be successful, the pilot agency will need strong leadership that will champion the program throughout its entire life. Leadership needs to be totally committed to achieving the fundamental change required and will need to focus the support for the program throughout the management and staff of the agency.

2.3. Training Programs

The comprehensive change programs will include a co-ordinated approach to training that will touch all sections of government. These training programs will be designed to four distinct levels of IT skill required throughout government. The required skill levels are:

- Basic understanding of uses of technology.
- Basic IT literacy.
- Application specific know-how.
- Deep technical knowledge and IT management.

For each of the four distinct levels of skill required there are specific target audiences and specific approaches designed to maximise the impact and efficiency of training throughout government.
2.3.1. Basic Understanding of Uses of Technology
A broad audience of government employees, in the order of 600,000 people, will be given a basic understanding of the uses of technology. This training will be in the form of mass communication and general education initiatives to raise the awareness of IT within government.

2.3.2. Basic IT Literacy
Basic IT literacy training will be provided to IT users who interface with off the shelf packages such as e-mail, word processors and spreadsheets. This IT literacy will involve making users familiar with the basic functionality of both the hardware and software available to them. The training programs will be standardised across government and will be targeted at approximately 150,000 government employees.

The basic IT literacy program has commenced with an initial target group of over 7,000 from within the Prime Minister's Department being trained.

2.3.3. Application Specific Know-How
Some government employees will be using more complicated, process specific application that address the core processes of their agencies. These users of more complex applications will receive application specific training in order to perform the functions within government and maximise the benefits obtained from the implementation of the application.

This training will be delivered as part of the implementation of the application itself and will be accompanied by training on the process as well as the system that supports the process. These specific application programs may be required for up to 50,000 government employees.

2.3.4. Deep Technical Knowledge and IT Management
IT managers, systems administrators and maintenance staff within government will need deep technical knowledge and IT management skills in order to manage and maintain the new IT environments being deployed throughout government as a result of Electronic Government. These IT professionals will need detailed operational training programs tailored specially to an individual's current abilities and responsibilities.

The number of employees affected may be in the order of 5,000. The training programs for these professionals will be both comprehensive and ongoing. Training is needed to ensure that government IT staff understands all facets of the technology that they are dealing in an environment where technologies are constantly changing.
2.4. Multimedia Applications

The Electronic Government Blueprint identifies the services provided by government and the spectrum of multimedia applications that will help deliver these services according to the objectives of the Electronic Government Vision. The landscape of applications are grouped in three categories shown in Figure 1 below:

- Citizen and Business
- Intra-Agency
- Inter-Agency

Figure 1: Vision For Electronic Government

2.4.1. Citizens and Business Application Landscape

In developing the universe of multimedia applications, current services provided by the Malaysian Government ministries and agencies to citizens and businesses have been identified. Each service was then grouped into categories which were defined as generic functions performed across Government ministries and agencies. See Figure 2 below.
Figure 2: Citizen And Business Service Categories

These service categories were then divided into transactional and informational groupings, to generate the full range of potential Electronic Government services that can be offered to citizens and businesses. Figure 3 below illustrates a non-exhaustive list of services within the realm of citizen and business applications.

Figure 3: Citizen & Business Application Landscape
The various service categories and applications are described in greater detail below:

**Electronic Lodgement:** Enables the general public to submit applications to government electronically over the Internet and other media. Applications available from this service include, but are not limited to the following:

- **Registration applications (not exhaustive)**
  - Ministry of Home Affairs
  - Ministry of Domestic Trade and Consumer Affairs
  - Ministry of Finance
  - Ministry of Transport

- **Licenses and Permits applications (not exhaustive)**
  - Ministry of Transport
  - Ministry of Domestic Trade and Home Affairs
  - Ministry of Primary Industry
  - Ministry of Human Resources

- **Other applications (not exhaustive)**
  - Ministry of Domestic Trade and Home Affairs
  - Ministry of National Unity and Social Development
  - Ministry of Youth and Sports
  - Ministry of Education
  - Ministry of Housing
  - Ministry of Rural Development
  - Ministry of Human Resources
  - Ministry of Home Affairs
  - Prime Minister’s Department

Benefits of electronic lodgement to the citizen and government include:

- **Citizen**
  - Choice of alternative delivery channels besides government offices
  - Convenience offered by extended hours, 24 hours, 7 days a week
  - Faster turn-around time through process automation
  - Better informed, technology literate citizen

- **Government**
  - Streamlining of processes through automation
  - Reduction in level of redundant, inconsistent and incorrect data through automatic data cross-check and verification
Better resource management as workers are “freed up” and reallocated to more knowledge intensive activities
Efficient and “paper-less” form collation, processing and filing

Electronic Payment: Enables the transfer of monies between the general public and government. The general public remits monies to the government as payment for services. Similarly, the government may also remit monies back to the public. The applications available from this service include, but are not limited to, the following:

- **Inbound payment (to government)**
  - license and permit fees
  - registration fees
  - fines and penalties
  - tax payments

- **Outbound payment (from government)**
  - loan disbursements
  - tax refunds
  - grants and scholarships

Benefits of electronic payment to the citizen and government include:

- **Citizen**
  - Choice of payment mechanisms like credit card, debit card, ATM card, e-cash, standing order, and multipurpose card (i.e. smartcard)
  - Convenience offered by extended hours, 24 hours, 7 days a week
  - Faster process turn-around time
  - Improved expenditure tracking

- **Government**
  - Fast and efficient collection of payments
  - Reduced risk of storing large quantities of cash at branch offices
  - Improved funds tracking and audit record

On-line Information: Enables the general public to access the following information on the public and private sector electronically via the Internet and other media. The applications available from this service include, but are not limited to, the following:

- **General information**
  - Government services
  - Government regulations
- Government announcements, speeches, news
- Registered company information
- Economic information
- Social, cultural, tourist information

- **Private information**
  - Personal health information
  - Personal summons/fine record
  - Personal license/permit status
  - Personal EPF/SOCSO balance
  - Other personal data records

Benefits of on-line information to the citizen and government include:

- **Citizen**
  - Choice of multiple delivery channels for information services
  - Convenience offered by extended hours, 24 hours, 7 days a week
  - Highly accessible and up-to-date information
  - Efficient status tracking ability
  - Better informed, technology literate citizen

- **Government**
  - Greater government visibility and transparency to public
  - Increased cost effectiveness of information dissemination (reduced printing costs, inventory cost, et al)
  - Reduction in inquiries about government services, regulations, incorrect applications, et al
  - Timely and efficient government information update

**Electronic Communication**: Enables the general public to communicate to the Government electronically via the Internet and other media. The applications available from this service include, but are not limited to, the following:

- **Organisational communication**: Official government communication released from top officers of government agencies to the public.
  - Government bulletin board communicating new initiatives, projects, tender opportunities, etc.
  - Public multimedia conferencing

- **Interpersonal and group communication**: Communication amongst groups, between government and public, or within public, responding to government news or current events
  - Discussion forums and electronic dialogue
- Virtual meetings
- Group multimedia conferencing

Benefits of electronic communication to the public and government include:

- **Citizen**
  - Choice of multiple delivery channels for communication services
  - Highly accessible communication and up-to-date information
  - Convenience offered by extended hours, 24 hours, 7 days a week
  - Civic and business participation in government
  - Better informed, technology literate citizen
  - Transfer and sharing of values

- **Government**
  - Greater government visibility and transparency to public
  - Enhanced modes of communication to citizen and business
  - Increased cost effectiveness of communication – “paper-less”
  - Timely and efficient government information update
  - Transfer and sharing of values
  - Enhanced profile of an open and IT sophisticated government

**Electronic Procurement**: Enables the electronic tender, award, order purchase and payment of products from suppliers to government agencies via the Internet. The applications from the procurement service include, but are not limited to:

- **Central Contract procurement**: Central Contract process is the centralised government procurement of typically high volume or value products. Products on the Central Contract list have already been pre-negotiated, tendered and awarded by government to approved suppliers.

- **Direct Purchase**: Direct purchasing process enables government agencies to procure goods and services under a certain value directly from suppliers, without need for quotation or tender.

- **Quotation**: Quotation process applies to large item purchases between a specified value range. Procurement through the Quotation process typically begins with the preparation, and sending out of the ‘Request for Quotation’ to suppliers, followed by collation and evaluation of supplier quotations, and finally award of the procurement order.

- **Tender**: Tender purchase process applies to very large item purchases, between a specified value range. Procurement through the Tender process typically begins with the preparation, and broadcasting of the tender opportunity to all possible respondents. Again collation and evaluation of
supplier tenders is conducted, followed by award and signing of the contract.

Benefits of electronic procurement to businesses and government include:

- **Business**
  - Faster payment through electronic payment/invoicing
  - Improved transparency and information in tender and quotation process
  - Extended reach to new customers globally with an electronic catalogue with internationally recognised product classification
  - More accurate orders and few product returns
  - Increase collaboration between business and government
  - Technology literate business sector

- **Government**
  - Reduced costs through better scale economies
  - Better control in ordering and billing process
  - Up-to-date information on product, supplier and order status
  - Reduced order cycle time
  - Improved demand/supply planning, inventory control, accounting and financial budgeting
  - Better supplier management and control

**Electronic Polling**: Enables the government to reach out to the public for surveying purposes. The applications available from this service include, but are not limited to, the following:

- **Mass surveying**
  - Electronic voting
  - Electronic census

- **Targeted surveying**
  - On-line opinion polls
  - Market surveys

Benefits of electronic polling to citizens and government include:

- **Citizen**
  - Choice of multiple delivery channels for polling services
  - Convenient and effective mode of feedback to government
- Better informed, technology literate citizen

- **Government**
  - Greater government visibility and transparency to public
  - Increased cost effectiveness of polling - "paper-less"
  - Flexible segmentation of polling results
  - Fast results turnaround time enabling faster decision making

**Electronic customer care management**: Provides the general public with a one-stop remote help facility. Services include providing assistance, information and problem resolution. The applications available from this service include, but are not limited to the following:

- **System enabled**
  - On-line help and troubleshooting
  - Call centre with telephony services (IVR, ACD, CTI)
  - E-mail centre

- **Human enabled**
  - Call centre with operator
  - Internet relay chat
  - Fax centre with operator
  - Videoconference help

Benefits of electronic customer care management to citizens and government include:

- **Citizen**
  - Choice of multiple delivery channels for customer care
  - Better quality and coverage of customer help, and even proactive assistance
  - Accessibility and convenience offered by extended hours, 24 hours, 7 days a week
  - Technology-literate citizen

- **Government**
  - Greater government visibility and transparency to public
  - Enhanced modes of communication to public
  - Capture of popular issues and public concerns for government to address
  - Enhanced perception of being a "caring" and highly IT sophisticated government
Electronic Public Complaint: Provides a single interface to the public to relay their concerns or grievances effectively and conveniently to government. The applications available from this service include, but are not limited to, the following:

- **Inbound receipt**
  - Multimedia lodgement of complaints
  - Routing of complaints to appropriate officers
  - Transaction status tracking (in process or resolved, etc.)

- **Outbound response**
  - Multimedia reporting to public of resolutions or actions taken
  - Performance reports by agency tracking progress made in resolving complaints

Benefits of electronic customer care management to citizens and government include:

- **Citizen**
  - Choice of multiple delivery channels to relay grievances
  - Accessibility and convenience offered by extended hours, 24 hours, 7 days a week
  - Technology-literate citizen

- **Government**
  - Greater government visibility and transparency to public
  - Continuous improvement on quality of services rendered
  - Capture of popular issues and public concerns for government to address
  - Enhanced perception of being a “caring” and highly IT sophisticated government

2.4.1.1. Citizens and Business Application Prioritisation

In defining the universe of potential Electronic Government services, over 65 applications for citizens and businesses were identified. An evaluation of these applications was undertaken to determine the prioritisation for implementation, based on the level of impact and feasibility offered by the services.

To determine the level of impact, applications were evaluated against the following five criteria which defined “high impact” and were given ratings across each criteria.
- **High Visibility**: Represents a symbolic, highly visible, pioneer application
- **High Value Delivered**: Creates tremendous benefit and value to public
- **High Usage Level**: Applies to a large cross section of citizens and businesses
- **Improved Efficiencies**: Generates high productivity and efficiency gains, and improves revenue collection to government
- **High Urgency**: Requires immediate attention or is of an urgent need

To estimate the level of feasibility, applications were assessed against the following five dimensions which constituted "high feasibility" and were scored across each dimension.

- **Availability of Technology**: Incorporates leading edge, yet proven technology with no significant implementation issues
- **Ease of Implementation**: Involves a manageable level of complexity with respect to organisations, processes, and regulatory environment
- **Low Capital Outlay**: Results in minimal cost to government
- **Quick-Win**: Can be implemented in a short timeframe to generate a "quick-win" for public and government
- **High User Acceptance**: Generates likely user acceptance

Figure 4: Application Prioritization Approach

The figure above illustrates the approach taken by the Electronic Government Project Team in evaluating the applications to determine pilot selection and the implementation roll-out schedule. The team scoring of the applications against the impact and feasibility criteria generated the initial cut for application prioritisation. This prioritisation was then verified against independent market research and internal government surveys.
The market research, commissioned by MAMPU, on citizens and business across Peninsular Malaysia, has confirmed the preliminary prioritisation of the team. The research results reaffirmed the “impact” of various applications as perceived by citizens and businesses. Figure 5 below lists the top ten services perceived by citizens and businesses to have greatest opportunity for improvement. The services in bold are covered in the pilot. Please see Appendix for additional market research findings.

**Figure 5: Top 10 Services With Greatest Opportunities For Improvement**

<table>
<thead>
<tr>
<th>Citizen</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Passport, visa, work permit application/renewal</td>
<td>• Passport, visa, work permit application/renewal</td>
</tr>
<tr>
<td>• Identity card application/renewal</td>
<td>• Summons payment</td>
</tr>
<tr>
<td>• Summons payment</td>
<td>• Commercial vehicle permit</td>
</tr>
<tr>
<td>• Utilities bill payment</td>
<td>• Utilities bill payment</td>
</tr>
<tr>
<td>• Income tax filing</td>
<td>• Operations permit</td>
</tr>
<tr>
<td>• Vehicle registration and licensing</td>
<td>• Vehicle registration and licensing</td>
</tr>
<tr>
<td>• Driver license application/renewal</td>
<td>• Trade license</td>
</tr>
<tr>
<td>• Registration of birth and death</td>
<td>• Registration of companies/businesses</td>
</tr>
<tr>
<td>• TV license renewal</td>
<td>• Tax payment</td>
</tr>
<tr>
<td>• EPF/SONCSO withdrawal, claims, inquiries</td>
<td>• EPF/SONCSO withdrawal, claims, inquiries</td>
</tr>
</tbody>
</table>

In addition, brief surveys were conducted across several government agencies to determine “feasibility” and to better understand the implementation complexity as perceived by the Government. Based on these three sources that is, the Electronic Government Project Team, the external market research, and the internal surveys, two applications were selected and designated as pioneer pilots for public to government services. These pioneer pilots are 1) “Electronic Delivery of Driver & Vehicle Registration, Licensing and Summons Services, Utility Bill Payments and Ministry of Health On-line Information” and 2) “Electronic Government Procurement”. Concept Request for Proposals (CRFP) has been written for the two pioneer pilots, with an expected public release at the end of July.

The remainder of the identified citizen and business applications was then grouped into Tier 1, Tier 2 and Tier 3 applications for eventual roll-out. CRFPs for Tier 1 applications, “High Impact, High Feasibility”, will be written in 1997, followed by CRFPs for Tier 2 applications, “High Impact, Low Feasibility” and “Low Impact, High Feasibility” in 1998, ending with CRFPs for Tier 3 applications, “Low Impact, Low Feasibility” in 1999. Figure 6 and 7 below shows the initial prioritisation of citizen and business applications.
2.4.2. Citizen Pilot: Driver & Vehicle Registration, Licensing and Summons Services, Utility Bill Payments and Ministry of Health On-line Information

2.4.2.1. Selection Rationale

The "Electronic Delivery of Driver & Vehicle Registration, Licensing and Summons Services, Utility Bill Payments and Ministry of Health On-line Information" pilot was chosen based on the high impact delivered by the service and the high feasibility of implementation.

The impact derived from the pilot application is as follows:

- **High Visibility**: The pilot is highly visible, because all Malaysian citizens transact at least one of the services in the pilot on a monthly and annual basis.

- **High Value Delivered**: The pilot will enable citizens to transact more easily with government and utility companies. Some of these services which currently require multiple on-site visits shall be improved upon to allow greater convenience and flexibility to the public. Citizens will no longer be limited to conducting these services at agency branches and utility offices. Instead, citizens will be provided with a choice of multiple delivery channels, which they can access anytime of the day, anywhere at their convenience. Successful implementation of the pilot will also set the standards for future Electronic Government applications.

- **High Usage Level**: The Road Transport Department (JPJ) currently provides the highest number of counter services relative to other government agencies. Driver, vehicle and summons transactions amount to over 5 million per annum. Utility payment also cuts across a wide user base. Over 4 million households pay electricity and telephone bills every month, amounting to over 80 million transactions per year.

- **Improved Efficiencies**: JPJ, Ministry of Health (MOH) and utility companies will benefit from the process automation, which will facilitate form lodgement, payment, data processing, data retrieval and updating. Some business processes may be streamlined for greater efficiency, productivity, transparency and accountability. Multiple delivery channels will also compete to deliver best quality services, and help enhance revenue collection efforts.

- **High Urgency**: Market research commissioned by MAMPU indicates that driver licensing services, vehicle registration and licensing services and utility payment services are three areas where citizens and business would like to see improvements made.

The feasibility of the pilot was determined by the following:

- **High Availability of Technology**: Technology that is relevant to "Driver & Vehicle Registration, Licensing and Summons Services, Utility Bill Payments and Ministry of Health On-line Information" is
already available and mainly proven. Such technologies include multimedia kiosk technology, web-based technology, biometrics, PC Internet, interactive television, interactive voice recognition, and so forth. In addition, other technology infrastructure that is relevant to the project, for example the Government Integrated Telecommunication Network (GITN), the Corporate Information Superhighway (COINS) and the various Internet service providers, are already in place.

- **Ease of Implementation**: JPJ, Tenaga Nasional Berhad (TNB) and Telekom Malaysia Berhad (TM) have computerised many of their functions and service processes, especially relative to many agencies and organizations. Although some process reengineering may still be required to align the new technology, organisation, and infrastructure, the implementation is deemed relatively simple. In addition, JPJ, TNB and TM have embarked in multiple computerisation initiatives and the organisations possess relevant experience, background, and skills that will contribute towards the implementation of the pilot project. Ministry of Health On-line Information is deemed relatively easy to implement as the Telemedicine Flagship Application will develop the information content and display, and will simply leverage the Electronic Government access devices like kiosks to display the information.

- **Low Capital Costs**: The preferred “Open Market Business Model”, which will be described in following section, is based on a transactional model. Therefore, government outlay is minimised, as vendors are compensated on a per transaction basis. As such, the financial viability of the pilot project is deemed high.

- **Short Timeframe - Quick wins**: As JPJ, MOH, TNB and TM have computerised most of their functions and have efficient processes in place, the timeframe to implement the services is deemed relatively short. As such, the pilot project is suitable for gaining quick wins.

- **High User Acceptance**: User acceptance is expected to be high, based on the market survey commissioned by MAMPU. Citizens and business indicate a high propensity to use the electronic service delivery of the pilot services.
• Multiple delivery channels: Wide variety of access devices like kiosks, PCs, telephone, fax, interactive TV, upgraded ATM, located in public and communal areas, business and residences to provide convenience to public.

• One-stop service window: Multiple government services provided at each access device to offer a one-stop shop service.

• Multilingual capabilities: Multiple language capabilities offered at each access device.

• Equality of access: Tailoring of service for various population segments (i.e. elderly, IT disadvantaged, physically disabled) to make the electronic service delivery more user-friendly, multimedia and help-responsive.

Improved service quality includes:

• Reliability: Fewer mistakes due to less “rework” and fewer forms to fill out as government agencies share common data (i.e. name and address).

• Speed: Faster turnaround time due to more efficient electronic processing of government services.

• Transparency: Better accountability as citizens can track progress and status of transactions.

• Security: Privacy and integrity of information ensured due to security measures like controlled access of data and other security mechanisms.

2.4.2.3. Operational Model

The operational model for the pioneer pilot can be applied across delivery channels, and to other Electronic Government applications. There are primarily four major process steps in how the electronic service is delivered. See figure 9 for details.

• Access: Citizens & business access user-friendly, access devices like PCs, kiosks, etc. to conduct government services.

• Input: Citizens & business browse through easy-to-use, multi-lingual menus to input data, obtain information, conduct and pay for transactions.

• Processing: Government agencies process, update, and cross-validate transaction requests on-line with minimal waiting time.

• Output: Citizens and business receive soft or hard copy output and verification of transaction.
Figure 9: OPERATIONAL FRAMEWORK

Figure 10 and 11 illustrates the operational framework for Driver Licensing services and Utility Payment services.
**Figure 10: Driver Licensing Operation**

<table>
<thead>
<tr>
<th>Access</th>
<th>Input</th>
<th>Processing</th>
<th>Output</th>
</tr>
</thead>
</table>

**Figure 11: Utility Bill Payment Operation**

<table>
<thead>
<tr>
<th>Access</th>
<th>Input</th>
<th>Processing</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification - Standard - MCC no. - Account no. - dates - Authentication - PIN - Digital signature - Certificate authority - Biometrics - Personal info. eg date of birth</td>
<td>Request for service - information - Gender - Privacy - Payment - Data input - Service information - payment information - Issued card - Challan card - Date and - E-Cash - Cash</td>
<td>Validation - Payment information - Calculation - Payment Due to - Payment received - Interconnection, renewal &amp; update - Company details - TIN - TMB</td>
<td>Confirmation - Travels - Fine - Bank - Others - appeal - payment - public - Pennal</td>
</tr>
</tbody>
</table>
2.4.2.4. Business Model Requirements

A new “Open Market Business Model” has been developed to bring significant improvement in the delivery of services to the public. This model has been adopted for all public-to-government Electronic Government projects, the success of which requires the following conditions to be met:

CONDITIONS FOR SUCCESS

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usage:</td>
<td>High, widespread public adoption and usage of electronic government services</td>
</tr>
<tr>
<td>Access:</td>
<td>Wide variety and choice of delivery channels delivered on an open architecture to provide maximum public access</td>
</tr>
<tr>
<td>Equality:</td>
<td>Electronic Government for the people of Malaysia, reaching to all segments of society</td>
</tr>
<tr>
<td>Quicker roll-out:</td>
<td>A quick, focused yet comprehensive roll-out of Electronic Government services</td>
</tr>
<tr>
<td>Expense:</td>
<td>Minimal government capital outlay in providing electronic government services</td>
</tr>
</tbody>
</table>

2.4.2.5. Business Model

In the traditional service delivery model, there is a single role, with the government as sole supplier and deliverer of services. In the new Electronic Government business model developed, three roles are created to allow market forces to drive improvements in service delivery to the public, shown in Figure 12:
The "Open Market Business Model" defines three distinct roles for service delivery: 1) Service Supplier; 2) Gateway Provider; and 3) Service Provider

a) Service Supplier: In this model, the government agency or utility organisation becomes the service supplier responsible for creating services for citizens and ensuring the quality and integrity of all aspects of service provision. Specifically, the role of the Service Supplier encompasses the following:

- Service owner
  - owns service process
  - owns citizen data
  - re-engineers back office processes where appropriate (may outsource)

- Market creator
  - licenses Service Providers and Gateway Providers
  - pays or receives payment for transactions

- Design authority
  - develops and supports basic API into government applications
across the gateway) to provide customers with the ability to conduct a transaction

- To be paid per transaction by government and/or citizen
- To co-ordinate with financial institution for payment processing
- To own and manage all aspects of service delivery
  - Price within the boundaries defined by government
  - Service bundling or packaging
  - Marketing and promotion
  - Delivery channel e.g. kiosks, PC, telephones, counters
- To comply with government design.
- To obtain a license to operate from government which is reviewed annually

2.4.2.6. Business Model Benefits

The "Open Market Business Model" delivers the following benefits which meets the Conditions for Success outlined in Section 2.4.2.4.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Open Market Business Model Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usage:</td>
<td>The business model creates significant efficiencies by letting market forces drive Service Providers to offer better services at lower prices. The Service Providers or entrepreneur will be paid per transaction, creating incentives to provide better service quality, innovative service delivery, targeted marketing and enhanced support facilities in order to ensure customer usage and hence increased profits.</td>
</tr>
<tr>
<td>Access:</td>
<td>The business model provides a wider choice of service delivery channels, by allowing many Service Providers to participate. In order to reach customers, Service Providers are encouraged to explore multiple delivery channels via a range of access devices like kiosks, ATMs, PCs, telephones and interactive TVs. The services will be delivered over a highly accessible and flexible, open platform like the Internet. Service Providers will strategically locate access devices to target various customer groups e.g. at home, offices, retail outlets, public centres, transportation centres and post offices for maximum user penetration.</td>
</tr>
<tr>
<td>Equality:</td>
<td>The business model also ensures access equality by paying Service Providers for each transaction, which encourages Service Providers to reach as many customer groups as possible, whether they are in the urban or rural centres, are IT-literate or IT disadvantaged, or young or old.</td>
</tr>
</tbody>
</table>
Service Provider: The Service Provider may choose to charge the public a "convenience" fee for the electronic service, on top of the current price of the service. This convenience fee is subject to a ceiling to be determined by the respective government agency and organisation. This fee may vary by service and delivery channel, according to the Service Provider's economics for providing the service on the kiosk, or PC, or telephone, or TV. Note that convenience fee can be RM0 if the Service Provider wishes to encourage high public usage on his access device. The Service Provider also charges a transactional fee for delivering the electronic service to the public. As such, the Service Provider must propose the convenience fee charged to public, if any, and the transactional fee for delivering the service electronically to the public.

Example: Simplified Fund Flow

| Current price for government service "X" | RM100 |
| Service Provider convenience fee       | RM1   |
| Service Provider transaction fee       | RM1   |
| Gateway Provider transaction fee       | RM1   |

A current over-the-counter government service costs RM100. A Service Provider provides the government service electronically over the kiosk and charges a citizen RM103 (RM2 Service Provider convenience and transaction fee and RM1 Gateway Provider transaction fee). The Service Provider receives verification from the financial institution for payment clearance of RM103 and proceeds with the citizen's transaction by using the gateway provided by the Gateway Provider to transmit and update information between the Public Domain and Government or Organisation Domain. The Service Provider then remits RM103 to the Service Supplier (i.e. government or utility organisation) within a specified timeframe (e.g. on-line, daily, weekly, etc). The Service Supplier (i.e. government or utility organisation) pays the Service Provider a fee of RM2 (convenience fee of RM1 plus transaction fee of RM1) within a specified timeframe for providing the service electronically. The Service Supplier also pays the Gateway Provider a transaction fee of RM1 within an agreed-upon time period.

2.4.2.9. Technical Model

The technical model in Figure 13 describes the network communication environment envisaged for all Electronic Government public-to-government applications.
- **Public Domain**: The Public Domain refers to the front-end of the Electronic Government technical model. The technical model has an open architecture based on the Internet. This architecture allows Service Providers to develop a wide variety and choice of delivery channels in the Public Domain to provide Electronic Government services, thereby increasing public access throughout the country. Utilising the Internet also standardises access to a globally recognised platform and leverages on R&D on the Internet.

- **Government or Organisation Domain**: The Government or Organisation Domain refers to the back-end of the technical model which houses the government’s or TNB’s and TM’s back office IT systems, databases, and networks, containing citizen and business data. Government or utility organisations are required to develop the APIs to enable the Gateway Providers to interface into the Government or Organisation Domain.

- **Gateway**: The gateway links the public domain to the Government or Organisation Domain. Gateway providers are expected to develop secure interfaces to government’s or organisation’s back office system. Depending on the agency, links can be directly established to the back-office system or to the existing government network.

- **Security**: Security mechanisms such as firewalls must be in place to provide secured and authorised communication between domains.

- **Financial Domain**: The Financial Domain refers to the financial institutions’ back office IT systems, databases, and networks. Service Providers must establish communication routes between the Public Domain and the Financial Domain for payment settlement. The financial institution may be an acquiring bank.
2.4.3. Business Pilot: Electronic Government Procurement

2.4.3.1. Selection Rationale

The Electronic Government Procurement pilot was chosen based on the high impact delivered by the service and the high feasibility of implementation.

The impact derived from the pilot application is as follows:

- **High Visibility**: Electronic procurement pilot is highly visible, because currently all government agencies, on a federal, state and local level, procure goods and services. Upon full roll-out, over 200 government agencies and more than 25,000 registered suppliers will be enabled on the electronic procurement system.

- **High Value Delivered**: Successful implementation of the electronic procurement application will benefit both government and business community. The procurement system will enable government to become a smarter and more efficient buyer by reducing costs and leveraging scale economies, and improve control and accuracy in the ordering and billing process. Government will also reap the benefits of receiving up-to-date supplier information and better managing supplier performance.

Under the new procurement system, suppliers, both large and small, will be IT-enabled and will reap the benefits of increased transparency and faster payment turn-around time. Suppliers will also be able to extend their reach to new customers on a global basis, with the creation of an electronic catalogue with internationally recognised product classifications. The value created to both parties will grow exponentially, as the procurement system is replicated and extended across government and suppliers.

- **High Usage Level**: Usage level is high, from a 'buyer' (i.e. government) and 'supplier' (i.e. businesses) perspective. Latest statistics indicate that government agencies spend an estimated RM3.5 billion1 per annum on total procurement, or 15% of Malaysia's GDP. An estimated 24,000 suppliers are registered with Ministry of Finance to date. These figures are expected to grow over time.

- **Improved Efficiencies**: Both the government and business community will benefit from the electronic procurement pilot application. Government will benefit from reduced costs and cycle time, by minimising off-contract and uncontrolled purchases. The availability of improved information will also assist in procurement decisions and will also facilitate other functions like demand/supply planning, inventory control, accounting and financial budgeting.

Suppliers will benefit from efficiencies from more accurate orders and fewer product returns. Electronic retrieval and submission of quotations and tender information will result in reduction in cycle time and operation costs.

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1 Statistics obtained from The Star (21-May-97) "Online Tenders"
• **High Urgency**: The current procurement process in government is mostly manual in nature. Given the growing annual transaction volumes, a more effective and efficient procurement system is required, especially in the new era of borderless trading.

The feasibility of the pilot was determined by the following:

• **Availability of Technology**: Technology relevant to electronic procurement is already available and more importantly, proven. Such technologies include multimedia-based application, web-based application and so forth. Similarly, the technology infrastructure relevant to the project, for example the Government Integrated Telecommunication Network (GITN), the Corporate Information Superhighway (COINS) and the various Internet Service Providers, is also in place.

• **Ease of Implementation**: Multiple governments world-wide have implemented electronic procurement projects. These examples provide key insights and benchmarks for the Malaysian pilot. In addition, an incremental approach for the scope and reach of pilot has been adopted, across the dimensions of 1) buyer, 2) supplier, and 3) functionality. This staggered approach will serve to develop an initial scaled-down working model, which can then be easily rolled out across government agencies and the supplier community.

• **Low Capital Outlay**: The business model adopted for the pilot is primarily transaction-based and consequently should result in minimal cost outlay for government. In addition, given the large procurement volumes, financial viability and success of the pilot project is deemed high, from both a supplier and buyer perspective.

• **Quick Wins**: The pilot is rolled out in 3 phases with Phase I covering central contract procurement. A quick-win is expected to be achieved in the relatively short timeframe planned for Phase I, based on the accumulated global experience on central contract procurement and the relatively low complexity of automating central contract processes.

• **High User Acceptance**: With the Malaysian Government’s commitment to Electronic Government and the electronic procurement pilot, user acceptance, both agencies and suppliers, is expected to be high. In addition, the pilot will ensure the development of an user-friendly and secure system, and will provide training and awareness programs to maximise user adoption.

2.4.3.2. Concept Solution

Today, government procurement is primarily a manual operation. With the introduction of an electronic procurement system, it is envisioned that most processes can be automated, re-engineered and transformed into more effective and efficient processes. Malaysia’s new procurement system will allow government agencies to electronically select items to be procured from the desktop, initiate an electronic approval process and also create, submit and receive purchase orders, delivery orders and other related documents electronically.
The vision for electronic procurement, will however, extend beyond electronic ordering. The new procurement system will also enable government to become a 'Smart Buyer'. Up-to-date statistical information on products and suppliers, like transaction volumes, service and performance levels, and satisfaction ratings, will be captured and utilised for better supplier management and for more effective negotiations leveraging scale economies. The statistics will also facilitate and link other government agency functions like demand/supply planning, financial budgeting, accounting and inventory management to create an integrated procurement system, enabling government to become even more efficient. Electronic procurement will not only lead Malaysia's initiative to develop Electronic Government, but increase the collaboration between the business sector and government.

2.4.3.3. Operational Model

The operational model for Electronic Procurement is outlined in the high level steps labelled 'Procurement Stream' and 'Purchasing Stream' in Figure 14. Central Contract Procurement, Direct Purchase, Quotation and Tender utilise portions of the process streams, depending on their complexity.

Figure 14: Procurement Process Flow Overview

Under this operational framework, Central Contract Purchases undergo steps 5 to 9 while Direct Purchases will use step 1 and step 7-9. The more complex Quotation and Tender processes will undergo step 0-4 and step 7-9. Below is a more detailed explanation of what each process step involves with respect to functionality.
The Electronic Procurement pilot will cover Central Contract, Direct Purchases, Quotation and Tender which should include the electronic tender, award, order purchase and payment of products from suppliers to government agencies via the Internet.

- **Central Contract Procurement**: Central Contract process is the centralised government procurement of typically high volume or value products. Products on the Central Contract list have already been pre-negotiated, tendered and awarded by government to approved suppliers.

<table>
<thead>
<tr>
<th>Product Requisition</th>
<th>Selection of Contracted Supplier</th>
<th>Issuance of Purchase Order</th>
<th>Fulfillment of Order</th>
<th>Payment of Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic catalogue</td>
<td>Product evaluation</td>
<td>Electronic submission</td>
<td>Order tracking</td>
<td>Payment</td>
</tr>
<tr>
<td>Electronic browsing</td>
<td>Electronic requisition</td>
<td>PO acknowledgement</td>
<td>Delivery acknowledgement</td>
<td>Ledger</td>
</tr>
<tr>
<td></td>
<td>Budget control</td>
<td></td>
<td>Invoice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic approval</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Direct Purchase**: Direct purchasing allows government agencies to issue a Government Procurement Order to procure goods and services up to the value of RM10,000 directly from known suppliers, not necessarily registered with the Ministry of Finance, who consistently supply goods at acceptable quality and reasonable price. For purchases above RM10,000 but not exceeding RM20,000 in value, government agencies are required to issue a Government Procurement Order only to Bumiputera suppliers who are registered with the Ministry of Finance.

<table>
<thead>
<tr>
<th>Product Requisition</th>
<th>Selection of Contracted Supplier</th>
<th>Issuance of Purchase Order</th>
<th>Fulfillment of Order</th>
<th>Payment of Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic catalogue</td>
<td>Product evaluation</td>
<td>Electronic submission</td>
<td>Order tracking</td>
<td>Payment</td>
</tr>
<tr>
<td>Electronic browsing</td>
<td>Electronic requisition</td>
<td>PO acknowledgement</td>
<td>Delivery acknowledgement</td>
<td>Ledger</td>
</tr>
<tr>
<td></td>
<td>Budget control</td>
<td></td>
<td>Invoice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic approval</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Quotation**: Quotation process applies to item purchases above RM20,000 and under RM50,000 in value. Procurement through the Quotation process typically begins with the preparation, and sending out of the 'Request for Quotation' to a minimum of 5 registered Bumiputera suppliers, followed by collation and evaluation of supplier quotations, and finally award of the procurement order.

<table>
<thead>
<tr>
<th>Product Requisition</th>
<th>Selection of Registered Supplier</th>
<th>Issuance of RFQ</th>
<th>Evaluation of Proposal</th>
<th>Negotiation Award of Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic survey</td>
<td>Supplier database</td>
<td>Electronic RFQ/EFT</td>
<td>Evaluation summary</td>
<td>Electronic</td>
</tr>
<tr>
<td>Electronic requisition</td>
<td>Supplier selection</td>
<td>Electronic publishing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Budget control</td>
<td>Electronic payment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic approval</td>
<td>Electronic submission</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Tender: Tender purchase applies to items purchases at or above RM50,000 in value. Procurement through the Tender process typically begins with the preparation, and broadcasting of the tender opportunity to all possible respondents. Again, collection and evaluation of supplier tenders is conducted, followed by award and signing of the contract order.

<table>
<thead>
<tr>
<th>Product Requisition</th>
<th>Selection of Registered Supplier</th>
<th>Issuance of RFP</th>
<th>Evaluation of Proposal</th>
<th>Negotiation/ Award of Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Electronic survey</td>
<td>- Supplier database</td>
<td>- Electronic RFP/ RFP</td>
<td>- Evaluation summary</td>
<td>- Electronic notification</td>
</tr>
<tr>
<td>- Electronic requisition</td>
<td>- Supplier selection</td>
<td>- Electronic publishing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Budget control</td>
<td>- Electronic payment</td>
<td>- Electronic submission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Electronic approval</td>
<td>- Time based information</td>
<td>- Electronic acknowledgement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.4.3.4. Business Model

The business model that is proposed for the implementation of the Malaysian Electronic Procurement Services is an END-TO-END model. Procurement requires a complete integration from the buyer right to the supplier and vice versa. In this model, there are three distinct communities, the supplier community, the buyer community and the Procurement Service Provider. Figure 15 describes the various roles as defined in the business model.

Three Delivery Roles

1) Supplier Community

The supplier community consists of suppliers who have registered with the Ministry of Finance to supply goods and services to the government. There are approximately 200 suppliers supplying central contract products to the Malaysian Government and over 24,000 registered suppliers supplying products for quotation and tender processes. These suppliers bear the responsibility to register and coordinate with the procurement service provider, in order to supply goods to government electronically under the new system. All suppliers will need to provide and update the necessary information regarding the items that they supply. Central contract suppliers are required to provide detailed product information and other data in order to develop a central electronic product catalogue system.

2) Buyer Community

The buyer community consists of government ministries, agencies, and departments. As with many other governments in the world, the Malaysian Government is the single largest procuring body in the country, purchasing products high in quantity and value from its
multiple suppliers. The cost of processing and managing this process is extremely high, with increasing expectation from the supplier side for the government to be more efficient. It is the responsibility of the buyer in this model to develop the necessary processes in order to be able to accept & respond to suppliers for procurement.

3) **Procurement Service Provider**

The procurement service provider provides the electronic concept solution which enables the full transaction of the procurement process between the buyer and the supplier. The END-TO-END model requires the service provider to provide a total solution to both the supplier and buyer community. This includes applications, hardware and software if necessary, and more importantly the capability to exchange business documents between the communities e.g. Purchase Orders, Request for Quotation, Tender documents etc. The security and confidentiality of this document must be ensured so as not to compromise the confidence of both communities. In addition, the Service Provider must adhere to all necessary government procurement policies and legal requirements. However, should the provider find it necessary to change or to restructure the process or policies, the provider should advise the government and provide the facts. This is especially true if changes should enhance the efficiency and the lower the cost of operation for the government.

The Malaysian Government is seeking to minimise capital outlay. As such, the preferred financial model can be a “build, operate and own” i.e. BOO or “build, operate and transfer” i.e. BOT, or another model which meets the “conditions for success” as described in the previous section. The procurement service provider is expected to build the necessary infrastructure and will be given the license to operate the services for a specific period of time. The service provider will then charge the supplier and/or buyer community a price for the services rendered. This should be in the form of a transaction fee. The transaction fee may also be coupled with either a fixed registration fee and/or an ongoing access fee.
### Figure 15: Procurement Business Model Roles

<table>
<thead>
<tr>
<th>Buyer Community</th>
<th>Procurement Service Provider</th>
<th>Supplier Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>The government will be the buyer community.</td>
<td>Provide suppliers and buyers access to electronic procurement services with following functionality:</td>
<td>These are the registered suppliers to the government. The list of registered suppliers to government in the central contract procurement is estimated 300.</td>
</tr>
<tr>
<td>It is the responsibility of the buyer in this model to have the necessary processes in place to conduct procurement electronically.</td>
<td>- Provides supplier access to government procurement services</td>
<td>It is the responsibility of the supplier in this model to register with the procurement service provider.</td>
</tr>
<tr>
<td>The government owns the procurement process and can reengineer if necessary.</td>
<td>- Paid per transaction by buyer and supplier community</td>
<td>Provide the necessary information regarding the items that they supply.</td>
</tr>
<tr>
<td></td>
<td>- Funds own development cost</td>
<td>Ensure information is up to date as possible.</td>
</tr>
<tr>
<td></td>
<td>- Complies with government design requirements under license and relevant Treasury Instructions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Economically incented to provide reliable, easy access to user communities (both buyers and suppliers)</td>
<td></td>
</tr>
</tbody>
</table>

### 2.4.3.5. Technical Model

The following technical model has been adopted for Electronic Government Procurement project, which is in line with the business model. See Figure 16 for details.

### Figure 16: Procurement Technical Model
Public Domain: The Public Domain refers to the front end of the electronic procurement system, which is based on an open Internet architecture. This open architecture enables large and small suppliers to easily access and register onto the procurement system. The Public Domain should ensure secure and reliable communication, and enable the fast and easy retrieval of required information.

Government Domain: The Government Domain refers to the back end of the electronic procurement system. In the Government Domain, the concept solution should integrate or interface with the existing network infrastructure, and provide network security to keep administrative domains logically isolated and separated by default, even though they may share a common network backbone facility. It should isolate logical networks from unauthorised use of facilities and resources, while allowing the flow of authorised information between users. It should also control the entry from, and exit to, other networks by managing the access points.

Security: Security mechanisms such as firewalls must be in place to provide secured and authorised communication between the domains.

Financial Domain: The Financial Domain refers to the financial institutions' back office IT systems, databases, and networks. Procurement Service Provider must establish communication routes between the Public Domain and the Financial Domain for payment settlement. The financial institution may be an acquiring bank.
2.4.4. Inter-agency Application Landscape

This Blueprint identifies all the services required by the government and the spectrum of multimedia applications that will help deliver these services according to the objectives of the Electronic Government vision. The Electronic Government initiative is concerned with dramatically improving the productivity of the internal workings of government. These processes and systems will be applied to both services between government agencies (inter-agency) as well as services delivered within an agency (intra-agency). The applications discussed hereinafter are inter-agency applications. The figure below shows the landscape:

Figure 17: Landscape And Universe Of Inter-Agency Application

The objective of the inter-agency applications is to contribute towards achieving a higher capability of governance through the implementation of Information Technology and through the transformation of the inter-agency processes at the operations, supervisory and policy levels. The new systems address the improvement of communication and information sharing capabilities among agencies and improvement of information capability management among agencies as well as improvement of core operational capabilities and functions of the agencies involved.

Inter-agency processes are complex requiring coordination, collaboration over a wide range of agencies. The new systems will take those process complexities and scope of the agencies involved into consideration and will put the proper technologies in place to meet the needs of the agencies.
2.4.4.1. Inter-Agency Applications

Using the impact and feasibility analysis, major applications, which support inter-agency processes, are identified as shown below:

**Figure 18: Spectrum Of Potential Interagency Applications**

- **Project Monitoring**: to provide a mechanism for monitoring the implementation of government projects. The service also provides a platform for exchanging ideas and demonstrating best practices models in information management and communication services.

- **Human Resource Management**: to provide a single interface for the government to perform Human Resource Management functions effectively and efficiently in an integrated environment.

- **Development Planning**: to enable the government to perform intra and inter-agency planning functions efficiently using integrated information management and network services.

- **Accounting**: to improve accountability by ensuring transparency and timely closing of accounts. It is also to ensure the effective management of accounting information among agencies.

- **Budgeting**: to improve the budgeting process by ensuring accuracy, timeliness and streamlining of budgeting processes.
Public Complaints and Information Services: to provide a single interface for the public to relay grievances to the government effectively and conveniently and enables government employees and the public to access on-line information on regulations, services, tariffs, etc.

Integrated Inventory Management: to provide effective inventory management including electronic procurement and automated distribution systems to achieve cost saving and reduction of waste.

Supplier Profile: to provide the government with an on-line interactive supplier information system to evaluate the performance of government contractors.

2.4.4.2. Inter-Agency Prioritisation

Through the impact and feasibility analysis, priorities for the applications were identified as follows:

- Project Monitoring
- Human Resource Management
- Development planning
- Accounting
- Budgeting
- Public Complaints and Information Services
- Integrated Inventory management
- Supplier profile
Figure 19: Impact And Feasibility Analysis

Parameters used for the impact and feasibility analysis are as follow:

Impact
- Scope
- Visibility
- Value
- Urgency/need
- Information quality
- Economic

Feasibility
- Resistance of people
- Technology feasibility
- Funding viability
2.4.5. Inter-Agency Pilot: Project Monitoring System

2.4.5.1. Objective

The objectives of the Project Monitoring System (PMS) are as follows:

- To establish a richer collaborative systems environment among the agencies to maximise the efficiency and effectiveness of project monitoring and communication processes.

- To provide an open and flexible system, which will fulfil and improve the information needs of operational and managerial processes at different levels of agencies.

- To provide paperless project monitoring capabilities among agencies involved for the project monitoring.

2.4.5.2. Functions

To achieve these objectives the following application functions and infrastructure will need to be implemented:

Application services

Application services are to support the processes involved in project monitoring and are classified into the following management process levels.

a) Managerial functions

To provide the capabilities for managing the outcome of the organisation, including formulating its overall mission, goals and objectives and monitoring the organisation's performance.

Adjusting functions

To provide the capabilities to highlight deviations of actual versus plan in terms of time, cost and resources. These processes also have the capability to recommend corrective actions.

Forecasting and simulation of projects

To provide the capability to analyse the development trends and to identify the patterns of achievement for the projects.

Information synthesising

To provide information relevant to strategic decision making.

Change approval and change order

To provide the mechanism for management to receive and approve the change requirements to the strategic plan being implemented.
Executive Information System (EIS)

To consolidate the capability to gather and process information for improving strategic direction formulation functions.

Decision Support System (DSS)

To provide a mechanism for the development of various decision-making scenarios for evaluating the various options and alternative courses of action.

Track record management

To enable the tracking of tasks such as completion of milestones and deliverables within target and budget, variances in projected activities versus actual implementation data, and workload distribution.

b) Operational function

To capture the raw information of individual projects and progress reporting at operational agencies which is responsible for individual project monitoring.

Support standard reporting format

To provide a common document interface for document interchange across agencies involved in a particular project.

Project information capturing

To capture the critical and key factors influencing the achievement of a project. It is also to capture progress data on the project in terms of schedule, cost and resources.

Progress Reporting

To monitor the progress of the projects in order to identify problem areas (schedule, cost, resource overrun) and to produce a comprehensive reporting mechanism. It has to have flexibility to allow users to customise reports according to their requirements.

Data analysis

To provide feedback mechanism for performance and productivity improvement.

Change approval

To process request and approval for change of unplanned project adjustments across agencies at the operational level.

Evaluation report

To provide a channel for reporting outcomes for the specific process being undertaken.
Data services

Data services include the development of several databases as stated below:

- **Common data dictionary**

  Common data dictionary database containing clearly defined terms to be used for all projects. Integration of a data dictionary is used as a cross reference to resolve the problem of different project codes and template of terms for the various projects. It is also the initial basis for the development of the knowledge base.

- **Collaborative Databases**

  This database should be capable of receiving data from various agencies and compiling them with minimal manual intervention, and must be done in a secured manner. The collaborative databases include discussion databases, which hold various types of electronic discussions, categorised into various discussion groups.

- **Knowledge Base**

  This is to provide a repository of knowledge for various projects that have been implemented successfully, and includes information on type of methodologies and best practices used. The database must also collect information on failures and problems and the methods used to overcome them. This knowledge base is to facilitate accurate strategic planning.

- **Data Mining**

  This is to provide capabilities to classify and synthesise information into various levels with various viewpoints for information analysis.

Communication services

The communication services installed must provide connectivity across agencies in order to enable data exchange and resource sharing to take place in a timely and efficient manner.

- **Workflow Management**

  This is to allow routing and tracking of documents to various levels of the organisation automatically in a secured manner.

- **Collaborative communication**

  This is to provide time sensitive communication capabilities across agencies to facilitate "many-to-one",
and "many-to-many" communications. The technologies used include e-mail, video/voice conferencing, tele-conferencing, etc.

2.4.5.3. Technical model

The following figure illustrates the technical model with major hardware and software components.

Figure 20: Technical model

Hardware components, which will be used in the Project Monitoring Systems, are as follows:

Server

An appropriate number of servers are to be allocated to the agencies to run application services, data management services and communication services. Hardware components of each server must be based on widely accepted standards. Through the use of a multiprocessing architecture, hardware should be scalable. Hardware systems should be equipped with enough data storage to keep the project information at operational and central agencies and to archive the track record and knowledge database. It should also be equipped with the necessary memory storage and CPU power to meet the needs of high speed processing of multimedia information like images and sounds as well as text. It must be scalable to increase performance by adding components. Servers must be sized for the services they provide and designed for interoperability, portability and scalability. As a measurement for the required high availability of the system,
servers should be capable of redundancy configuration of hardware components and constant power supply even in the case of power failure.

End-user devices

Personnel involved in project monitoring should be equipped with at least one mobile or desktop computer (depending on their work requirements), which is capable of seamless data communication with servers and other end-user devices. Operating systems and hardware components of the server must be based on widely accepted standards. It should be equipped with enough disk space, CPU and memory to carry out efficient operations.

Communication devices

Communication devices are the hardware, which enable servers and end-user devices to connect to the network (Local Area Network and Wide Area Network). Hardware components of the communication devices must be based on widely accepted standards and should be incorporated into the server hardware and end-user devices.

Software components of the PMS are as follows:

Operating systems

Operating systems both in server and end-user devices must be based on widely accepted standards. Operating systems of the server should be multitasking and multithreaded.

Workgroup computing software

Workgroup computing software should be capable of supporting collaborative work across the agencies as well as within a single agency. It includes sophisticated information management capability to share the non-structured multimedia information like office document with text, graphics and sound. Also it should be equipped with the collaborative communication capability like e-mail, electronic bulletin board, electronic meeting and web access. Collaborative communication also provides for workflow management capability to automate the process.

Database software

Relational database

For the management and effective processing of large number of structured information on project monitoring, relational database software is required. It should provide sophisticated information management and constantly high performance both in the transactional (high traffic and low volume) and managerial (low traffic and high volume) operation. Since the database will be distributed across the agencies, the capability of synchronising the data is
required. It must support the SQL standards, distributed database
capability, support for large volume of data.

Knowledge database

Knowledge database should be capable of highly
sophisticated management of structured information as well
as non-structured information. Since it will be used during
the development of plans for strategic projects, information
to be referenced could be any type of information with
different format and different media. For consistent retrieval,
logical links to that information should be established within
the knowledge database.

Worldwide Web software

For public access to the selective information of project,
Worldwide Web software is required. It should provide a
series of functions related to Web publishing including
document browsers, authoring tools, file and document
management and Firewall.

Applications software

For the day-to-day monitoring of the project at operational agencies,
the following basic monitoring features are required.

- Project information capturing.
- Progress reporting.
- Project information analysis.
- Evaluation reporting.

The applications must support the defined standard information
formats and at the same time should be flexible enough to add an
individual agency's specific requirement. End-user interfaces should
be easy and simple, to avoid the need for extensive training.

For the managerial processes at central agencies the following
application features are required.

- Adjusting and recommending the modification of the
  schedule, resources and budget, and expenses.
- Forecasting and simulating of the project schedule, resources
  and budget and expenses.
- Synthesising the raw information of the project for the
  management reporting.
- Executive information function.
- Decision management function.
- Information retrieval from track record and knowledge
database.

Each of the central agencies has its own management processes and
those functions above should be designed to meet the individual
agency's purposes if it is required. End-user interfaces should be easy, to avoid the need for extensive training but at the same time it should be equipped with richer functionality for the specialist.

Application to automate the process of change approval and change order across the agencies is required.

For application development, standards-based application programming interface (APIs) should be adopted, and tools and programming languages proposed must support this standard.

For daily office work, Office Automation (OA) software is required. The software proposed must support a seamless information interchange across agencies.

Security

As many people from agencies and ministries will use PMS, the proposed system must provide the following security features:

- Use a security mechanism that can authenticate a user or entity, authorise access rights and provide administrative capabilities.
- Ensure that activities on a system can be traced to an authorised person or entity. Use security systems with thresholds that can be set to alert systems management if the thresholds are exceeded.
- Document security must follow guidelines from the Security Department of Malaysia.
- Ensure that communication in WAN environment is secure.
2.4.5.4. Operational model

The following figure illustrates the operational model.

Figure 21: Operational model

Operation at Operational agencies

Operational agencies are responsible for capturing the progress information of an individual project and reporting it to their management, ministry and central agencies. This operation should be done through a simple and easy user interface. The user interface should also allow the input of inter-agency common monitoring information as well as information specific to the agency. In this regards the technology for the user interface should be flexible enough to be able to include the agencies' specific requirements.

The information will be processed through the collaborative communication and collaborative database mechanisms, which allow the management in agencies and ministries to share the same information.

The collaborative databases should also allow the storage of multimedia information like graphics and pictures. The information collected at the level of operating agencies is to be fully shared and utilised within the agency and ministry.
Operation at Central agencies

At the same time the monitoring information for the central agencies are extracted from the collaborative databases automatically and will be passed to the collaborative databases in the central agencies.

These collaborative databases aggregate all the government project information and will be shared among central agencies for their own monitoring and management processes like information synthesising, project adjusting, forecasting and simulation.

Selective information for general public access will be extracted from the collaborative databases and will be placed on the kiosk and public access database.

A common data dictionary is to be used for the resolution of differences of codes and terminology employed in each agency.

The Track Record Management and Knowledge Database are auxiliary databases for the management processes at central agencies.
2.4.6. Inter-Agency Pilot: Human Resource Management Information System

2.4.6.1. Objectives

Objectives of the Human Resource Management Information System (HRMIS) are as follows:

- To achieve effective staffing and rightsizing of the civil service through better availability of HRM information.
- To automate human resource management operational processes.
- To build up-to-date consolidated HRM information for effective HRM planning among agencies.
- To achieve better communication, horizontal integration and more streamlined processes through establishing a richer collaborative system environment among the agencies so as to provide a single window access to HRM transactions which usually cut across agencies.
- To improve paperless human resource management capabilities among agencies such as electronic distribution of human resource policy manuals and circulars electronically.
- To provide an open and flexible system, which will fulfill and improve the information needs of operational and managerial processes at the different level of agencies.

2.4.6.2. Function

To achieve these objectives the following application functions and infrastructure will need to be implemented:

Application services

Application services are to provide capabilities to support the processes involved in HRMIS and to improve general efficiency and effectiveness. The application services are classified into the following functions:

a) Managerial Function

Within the managerial function, the following is the scope of the pilot:

Overall Human Resource Management Information Analysis Capabilities

- Data mining
- Forecasting
- Training needs
- Analysis of skill sets
- Manpower needs
- Inter-agency process tracking
- On-line job posting
- On-line job applications
In addition, there must also be integration of systems to realize the wider availability of HRMIS. These systems are

Training System
Pensions System
Establishment System: Positions
Accountant Generals' System
Employee Provident Fund System
Social Security Organisation System

b) Operational Function:

Within the operational function, the following is the scope of the pilot:

- Automation of the current HR administration processes.
- Web-based front-ends to Central DB of Human Resource Management Information.
- Collaborative environment for information sharing.
- Employee locater services: personnel information retrieval.
- Web Publishing for the distribution of documents to agencies.
- Distribution of HR Policy manuals to the agencies and departments.
- Distribution of circulars to the agencies and departments.
- Distribution of instructions to the agencies and departments.

Data Services

Data services include the development of several databases as stated below:

Shared Database for the Human Resource Management Information

It should provide sophisticated information management and constantly high performance both in terms of transactions conducted for example in information collection (high traffic and low volume) and managerial, such as data analysis and data mining (low traffic and high volume) operation.

Collaborative Databases

This database should be capable of receiving data from various agencies and compiling them with minimal manual intervention, and must be done in a secured manner. The collaborative databases include discussion databases, which are categorised into various discussion groups.

Knowledge Base

This is to provide a repository of knowledge for various human resource management policies that have been implemented successfully, and includes information on the type of methodologies and best practices used.
Communication Services

The communication services must provide connectivity across agencies in order to enable data exchange and resource-sharing in a timely and efficient manner.

Workflow Management Function

This is to allow routing and tracking of documents to various levels of the organisation automatically in a secured manner.

Collaborative Communication

This is to provide time sensitive communication capabilities across agencies to facilitate "one-to-many", and "many-to-many" communications. The technologies used include e-mail, video/voice conferencing, teleconferencing, etc.

2.4.6.3. Technical model

The following figure illustrates the technical model with major hardware and software components.

Figure 22: The HRMIS Technical Model
Hardware components, which will be used in the HRMIS, are as follows:

Server

An appropriate number of servers are to be allocated to the agencies to run application services, data management services and communication services. Hardware components of each server must be based on widely accepted standards. Through the use of a multiprocessing architecture, hardware should be scalable. Hardware systems should be equipped with enough data storage, memory storage and CPU power to meet the needs of high speed processing of multimedia information like images and pictures as well as text. It must be scalable to increase performance by adding components. Servers must be sized for the services they provide and designed for interoperability, portability, and scalability. As a measurement for the required high availability of the system, servers should be capable of redundancy configuration of hardware components and constant power supply even in the case of power failure.

End-user devices

Personnel involved in human resource management should be equipped with at least one mobile or desktop computer (depending on their work requirements), which is capable of seamless data communication with servers and other end-user devices. Operating systems and hardware components of the server must be based on widely accepted standards. It should be equipped with enough disk space, CPU and memory to carry out efficient operations.

Communication devices

Communication devices are the hardware, which enable servers and end-user devices to connect to the network (Local Area Network and Wide Area Network). Hardware components of the communication devices must be based on widely accepted standards and should be incorporated into the server hardware and end-user devices.

The software components of the HRMIS are as follows:

Operating systems

The operating systems must be based on widely accepted standards. The operating systems of the server should be multitasking and multithreaded.

Workgroup computing software

Workgroup computing software should be capable of supporting collaborative work across the agencies as well as within a single agency. It includes sophisticated information management capability to share the non-structured multimedia information like office
document with text, graphics and picture. Also it should be equipped
with the collaborative communication capability like e-mail,
electronic bulletin board, electronic meeting and web access.
Collaborative communication also provides workflow management
capability to automate the process.

Database software

Relational database

For the management and effective processing of large
number of structured information on human resources,
relational database software is required. It should
provide sophisticated information management and
constantly high performance both in terms of
transaction conducted (high traffic and low volume)
and managerial (low traffic and high volume)
operation. Since the database will be distributed across
the agencies, the capability of synchronising the data
is required. It must support the SQL standards,
distributed database capability, and large volume of
data.

Knowledge database

The knowledge database should be capable of highly
sophisticated management of structured information as
well as non-structured information.

World Wide Web software

For public access to selective information on human
resources, World Wide Web software is required. It should
provide a series of functions related to Web publishing
including document browsers, authoring tools, and file and
document management.

Applications software

For the day-to-day human resource management processes at
operational agencies the following basic features are
required:
Personnel profiles creation and update
Up-loading personnel profiles to central database
Leave processing
Loan processing
Performance appraisal
Establishment data processing
Payroll

The applications must support the defined standard information
formats and at the same time should be flexible enough to add an
individual agency's specific requirements. End-user interfaces should
be easy and simple, so as to avoid the need for extensive training.
For the managerial processes at central agencies the following application features are required:

- Data mining
- Forecasting
- Analysis of skill sets
- Manpower needs
- Training needs
- Inter-agency process tracking
- On-line job posting
- On-line job applications

Each central agency has its own management processes and the functions above should be designed to meet the individual agency's purposes if it is required. End-user interfaces should be easy to avoid the need for extensive training but at the same time it should be equipped with richer functionality for the specialist.

For application development, standards-based application programming interface (APIs) should be adopted, and tools and programming languages proposed must support this standard.

For daily office work, Office Automation (OA) software is required. The software proposed must support a seamless information interchange across agencies.

Security

As many people from agencies and ministries will use the HRMIS, the proposed system must provide the following security features:

- Use a security mechanism that can authenticate a user or entity, authorise access rights, and provide administrative capabilities.
- Ensure that activities on a system can be traced to an authorised person or entity. Use security systems with thresholds that can be set to alert systems management if the thresholds are exceeded.
- Document security must follow guidelines from the Security Department of Malaysia.
- Ensure that communication in WAN environment is secure.

2.4.6.4. Operational model

a) Operation at operational agencies

Operational agencies are responsible for capturing the records of individual personnel with the agencies. This operation should be done through a simple and easy user interface.

Update of the central database should be done automatically as changes are made to the individual personnel records at the agency level.
The personnel records aggregated at the central database should be easily accessible and analysed by managers at the central agencies and departmental HQ.

Operational agencies are responsible for processing performance evaluation of personnel and updating the common user appraisal database at PSD.

Operational agencies are responsible for preparation of salary, loans and expense claim vouchers for submission to the AG's office.

b) **Operation support at operational agencies**

HR managers at the agency level need to access the information regarding policies, directives and guidelines related to HR disseminated by central agencies.

Person to person communication via e-mail is required at the agency and central agency level.

The information will be processed through the collaborative communication and collaborative database mechanisms, which allows management in agencies and ministries to share the same information.

The collaborative databases should also allow the storage of multimedia information like graphics and pictures. The information collected at the level of operating agencies is to be fully shared and utilised within the agency and ministry.

c) **Operation at Central Agencies**

PSD gets appointment information from the PSC and establishment information from the Treasury and from other systems in the PSD (Pension, training sponsorship, performance appraisal, and benefit & remuneration).

It generates personal profiles of senior executives for the consumption of SMPKE.

PSD is responsible for the distribution of non-structured information (regarding policies, directives and guidelines related to HRM).
Figure 23: Public Sector Human Resource Information Management System Model (Current)
Figure 24: Operational model
2.4.7. Intra-Agency Application Landscape

It is the vision of Electronic Government to transform administrative processes of government through usage of leading edge information technology, to dramatically improve the performance of government processes, and foster government effectiveness. In developing the intra-agency application, focus was on the Prime Minister’s Office (PMO) to identify the generic intra-agency application landscape. The project methodology is illustrated below, and it can be generically applied to other government agencies as well:

```
ASSESSMENT  ARCHITECTURE  IMPLEMENTATION
```

a) Phase I

This phase includes an assessment of the information resources of the PMO including its current stage of development and the major requirements of individual units. This information is used to identify the generic services in a government agency and high-impact IT applications, and to select a pilot project.

An assessment of the environment of the PMO was based on an analysis of information received from user questionnaires, staff interviews, and a review of background documents. Interviews were held with staff from the PMO, Cabinet Division, MAMPU, EPU, and ICU. These interviews concentrated on identifying the types of information used in the agency’s business processes, sources of information, and limitations or deficiencies in the information or the way in which it is presented to the users. The information from these interviews was synthesized to produce a composite picture of information requirements, information management practices, and operational procedures. This information was utilised to identify and prioritise the set of IT applications that could deliver high impact to the agencies.

b) Phase II

In this phase, concept solutions were developed for all the applications identified, with emphasis on the pilot applications. An implementation roadmap for the pilot, as well as the roll-out schedule for all the other applications are detailed. Potential obstacles are identified and action plans are suggested to remove these obstacles.

c) Phase III

The final phase comprises a “rolling” implementation plan that provides details of initiatives including deliverables and milestones and a Conceptual RFP for the pilot selected for implementation.

This approach ensures that investments in information technology are directly related to the organisational mandates, and that they will result in enhanced business performance.
Figure 25 illustrates the generic services identified in a government agency, and the benefits derived if they are delivered electronically:

**Figure 25: Map Of Intra-Agency Services**

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>To provide timely access to information and efficient distribution</td>
</tr>
<tr>
<td>Communication</td>
<td>To improve collection and dissemination of information, and increase media average</td>
</tr>
<tr>
<td>Planning</td>
<td>To enhance information flow</td>
</tr>
<tr>
<td>Formulation and Implementation of Policies</td>
<td>To improve process of information</td>
</tr>
<tr>
<td>Audit</td>
<td>To improve traceability</td>
</tr>
<tr>
<td>Project Management</td>
<td>To improve capabilities to plan, organise and monitor</td>
</tr>
<tr>
<td>Human Resource</td>
<td>To improve management of human resource and availability of personal information</td>
</tr>
<tr>
<td>Finance</td>
<td>To improve financial management and accountability</td>
</tr>
<tr>
<td>Support Services</td>
<td>To improve workflow, increase productivity and effectiveness</td>
</tr>
</tbody>
</table>

These services were then categorised into three groupings, i.e., information management, collaboration management, and communication management, to generate a full range of IT applications that can deliver the government services identified. The figure below illustrates a list of applications for intra-agency.

**Figure 26: Spectrum Of Potential Intra-Agency Applications**
2.4.7.1. Intra-Agency Application Prioritisation

A total of 17 IT applications were identified for intra-agency services. All the applications identified were then evaluated and prioritised according to two criteria, namely, impact & feasibility.

In terms of impact, the factors considered important include:

- Value generated: create value measurable in terms of productivity, effectiveness and efficiency of the organisation.
- High visibility: represent a highly visible project, thus encouraging buy-in from other agencies.
- Organisational needs: meet the users’ requirements and organisational needs.
- Reach: benefit not just a small group of users, but the entire organisation.
- Support the vision of Electronic Government. Move the organisation towards the long-term goals of Electronic Government.

In terms of feasibility, the following factors serve as important assessment criteria:

- Readiness of the organisation: implement the applications that are readily acceptable or implementable in the agency. Factors such as the existence of a sound infrastructure and database are considered.
- Availability of technology: utilise world-best and yet proven IT solution that can be implemented and deployed given the resource level of the organisation.
- Availability of resources: does not consume a level of resources that will affect the normal operation of the agency.
- Fit into migration schedule to Putrajaya: meet the migration schedule to Putrajaya, and hence should not have major obstacles to implementation.
- Quick win: achieve successful deployment and implementation in a short timeframe.

The applications identified were then evaluated and scored against these criteria. They were prioritised in the figure below, illustrating the relative position of each application.
The applications falling in the quadrant of "high-impact-high-feasibility" and "high-feasibility-low-impact" were selected as part of the pilot project.

**Impact:**

Value generated: the most significant value to the organisation and its knowledge workers is derived when the applications are bundled, integrated and delivered via a single interface. The applications selected serve as fundamental building blocks that construct a Generic Office Environment in which all future applications can be built upon.

High visibility: the agencies involved in the pilot phase, Prime Minister’s Office, Deputy Prime Minister’s Office, Chief Secretary to the Government’s Office, Cabinet Division and MAMPU will be among the first few agencies moving to Putrajaya. These agencies should serve as model agencies for all the other agencies to follow, thus expediting widespread buy-in and roll-out. Selection of a set of applications that impact different groups of users would achieve this goal.

Organisation need: the IT competency and infrastructure levels of the agencies involved in the pilot is among the highest in the government.

Reach: these applications not only reach a large number of users, it also reaches all level of users in an agency. These applications cover a wide range of business processes, such as meeting management, document management, and executive information management, and will ensure high usage level.

Support the vision of Electronic Government: these applications are the fundamental building blocks creating a Generic Office Environment on which all future applications
can be built upon. By building this foundation first, and as users become more competent with IT, it is envisaged that future IT initiatives would be truly driven by users, achieving the Electronic Government’s goal of knowledge worker’s empowerment, and achieving productivity improvements.

Feasibility:

Readiness of the organisation: the agencies involved are among the most IT competent in the government and a number of IT initiatives has already been underway in the agencies.

Availability of technology: the technology used in the solution is already available and proven world-wide.

Availability of resources: these agencies have their own IT unit, whose future plans is in line with the vision of Electronic Government.

Fit into migration schedule to Putrajaya: the applications will fit into the objectives of the paperless environment in Putrajaya.

Quick win: the applications with “high feasibility”, will ensure results in the short timeframe envisaged.

2.4.8, Intra-Agency Pilot: Generic Office Environment

Bundling and integrating the applications identified as intra agency services resulted in the pilot project termed the Generic Office Environment (GOE). The Generic Office Environment must be fully integrated, distributed, manageable and scalable environment in which the current pilot and future functional components can be implemented. The GOE acts as a ‘universal container’ that is able to accommodate various types of business functional components which closely reflect any organisation’s business processes. According to user demand and requirements, these components can be used and reused to meet specific business needs, or to construct more sophisticated additional functional components.

The architecture of the GOE is a step towards supporting the common and universal needs of any office environment. Yet, it maintains the flexibility to allow customisation, capable of evolving to any specific need. Its purpose is to provide a generic environment, one that will enable vendors, in conjunction with the agency’s staff, to bridge between the islands of technology.

The GOE consists of three modules:

1. Enterprise-wide Information Management System (EIMS)
2. Enterprise-wide Communication Management System
3. Enterprise-wide Collaboration Management System

The EIMS provides a universal interface for users to manage, find, retrieve and compose the information that they need in their day-to-day operation. Through the Communication and Collaboration Management Systems, users can communicate
and collaborate in a group to perform work functions. All three systems work together in an integrated fashion to provide the technical transparency for the users. In the future, it is envisaged that these systems can be easily customised to build additional systems to suit the business processes of government agencies, as they become apparent. Otherwise, they can be enhanced into a more sophisticated system with more functionalities.

With the basic foundation of a Generic Office Environment in place, and with the increased awareness and expertise of IT as a result of intense usage and training programmes, the transformation towards a more sophisticated multimedia office environment would be user-driven. It is envisioned that the IT expertise within the government would be strongly enhanced through the process, and would be able to serve the users on a timely basis.

2.4.8.1. Overall Application Infrastructure

In order to provide a distributed and integrated environment for the GOE, the use of Object-oriented or Component-based technology is required. Any component that is developed as part of a distributed application is a candidate for future reuse. Organising the development process around the component paradigm will allow the GOE to continuously raise the level of functionality in new applications and reduce the deployment time by building on previous work. Reusability creates a common layer of functional components like Analysis, Planning and Accounting to be used across the government. As such, ministries or agencies need not waste time on reinventing the wheel but merely reuse functional components available from the GOE and customise it for their own usage.

A good foundation of application layers will include the following modules:

- Load balancing
- Error Handling
- Security
- System Core
- Business Objects
- Host Access
- Database Access

With this foundation layer, pilot agencies can build essential "building blocks" on which all applications will depend upon. As more and more applications are being built, this application infrastructure will be further refined and enhanced to become more flexible and workable. The overall application infrastructure is depicted in the following figure.
Without throwing away existing applications, they can be wrapped around using the object oriented technology and provide external interfaces to the rest of the applications. This will protect, to a certain extent, investments in legacy systems and provide higher integration with newer systems. In this way, an agency can use the legacy systems as a type of data storage for the entire system.

With the open systems architecture, the enterprise is able to choose “best of class” components without being tied down to one particular vendor. Open systems have consortiums, which generally agree with a common set of protocols which member vendors can use as an industry standard.

2.4.8.2. Enterprise-Wide Information Management System

A key component in the Generic Office Environment is Enterprise-wide Information Management System (EIMS). EIMS is a system used to help users manage, organise, compose, and retrieve data and information embodied in multimedia form i.e. paper, electronic document, fax, e-mail, letters, bulletins, circulars, voice mail, etc. The EIMS will provide a universal interface to various information sources that leverages the value
of information by providing tools that enable anyone within government, based upon appropriate access rights, to access information, from any node of the government network, no matter what type of equipment is being used. Moreover, the EIMS must integrate and interface with the other GOE components namely, Communication System and Collaboration System. Hence, users can use the functionality of these other systems from within the EIMS.

Most of an agency's information would be, without automation, in document form. The creation, retrieval, distribution and management of this document form a major role of an agency. Hence the key components of the EIMS include the following:

- Executive Information Manager
- Enterprise Document Management System
- Search & Retrieval
- Web filter/Online Information Personalisation

Some central principles of the EIMS are:

Central Management and Administration for sharing resources, business rules in a distributed fashion, e.g., form handling, document writing and publishing, accounting, etc., that can be shared and reused.

Integrity of information must be maintained and is of utmost concern. The replication of data must be seamlessly integrated so that the user is unaware of potential differences that could have occurred. The government data repository should be normalised to facilitate access and maintain integrity. It is imperative that current information store be able to integrate into the EIMS for usage.

Efficient Management of Objects (text, graphics, tables, bit maps, images, sound, video, etc.) and the interrelationships between objects.

Intelligent Processing of Objects such that the internal structure, the embedded rules, of the object is accessible and ready to use. The synchronisation of object management with object processing creates an environment where information can be dynamically rendered and distributed while also being effectively managed.

An Enterprise-Wide Solution enables the organisation of document collections into libraries of reusable information.

a) Executive Information Manager

Today, computer users have no shortage of information, but finding a specific piece of information can be difficult. Consider all the places where information is stored in the average work environment — paper calendars or planners, hard disks on
computers, e-mail messages and attachments, databases and group schedulers, groupware, custom browsers, file servers, and, of course, the Internet and Intranets. Today, with each of these applications, users must learn to use different tools and commands for finding, entering, displaying and organising information. They must remember not only where they last saw a piece of information, where it is being stored, and what application they were running.

The Executive Information Manager envisages helping a user to do the following:

Organize, find and view all the information on the desktop
Work seamlessly with the other GOE components
Communicate and share information with other users
Create and view the information using a consistent interface
Integrate into multiple data sources

The Executive Information Manager integrates and organizes a variety of information — e-mail, calendar scheduling, contacts, tasks and to-do lists, and documents or files on the hard drive. Integrated with the Communication System, the Executive Information Manager helps users to communicate with others and to share information with others by means of the Collaboration System.

b) Enterprise Document Management System

The Enterprise Document Management System incorporates a query, retrieval and display of documents while maintaining extensive security. User profiles are required to implement a complete and secure solution to document management in the government. An application architecture that fulfils the demanding requirements set by both government records and the business office is needed.

While a basic EDMS should address the requirement to capture, archive and retrieve scanned images, data files and computer reports, it should be tightly integrated with the Communication System and the Collaboration System, providing comprehensive flow of how that information actually moves through the PMO.

The various key functionalities of the Document Management System are:

Authoring

During the document creation process, multiple authoring technologies are used. The Document Management solution should be able to manage multiple document formats. The solution must be able to:
- Provide API (Application Program Interface) to common authoring tools
- Accept various type of document format such as: Word, Excel, Lotus 123, PowerPoint, Freelance, WordPerfect, AmiPro, HTML, images, video, voice, etc.

Publishing/Distribution

The electronic distribution technologies are dissemination means, utilising different platforms and technologies to deliver electronic documents across networks. Electronic distribution will play an important role in the overall document life-cycle, and the publishing/distribution processes must be integrated smoothly with the creation and management processes.

Repository

The repository component will provide central management (including archiving) of data, information and knowledge and their processes. Proposed solution shall be based on Sequential Query Language (SQL) compliance and client/server architecture complete with the appropriate links and query facilities. The documents can reside in a central repository or be stored in various locations throughout the Pilot Agencies but they must be centrally managed.

Scanning

Scanning is a framework for imaging and indexing batches of paper documents. It is designed to maximise operator productivity and effectiveness as well as to capitalise on the investment in scanning technology. The solution should have the following functionalities:

- Designed for manual scanning and indexing.
- Completely scaleable architecture.
- An interactive program for rapidly scanning paper documents into digital images that can be electronically managed by the system.
- An import facility that provides for capturing and classifying a batch of documents that have been scanned by an external process.
- Productivity-oriented batch scanning and manual indexing.
- Batch scanning with automatic indexing.
- Intelligent Character Recognition.
- Optical Character Recognition.

Document Viewing

Document viewing should have the following functionalities
- The ability to view multiple types of document regardless of the authoring tools used to create the document; while having the ability to retain the original formats.
- The system will also have the ability to accommodate and display Compound Documents; i.e. text and images.

Synchronisation

Synchronisation enables a document management system to extend the capabilities of the system to mobile users. Synchronisation should:

- Run on Windows-based notebooks and automatically synchronise new and edited documents when they are checked back into the network;
- Extend document management functionality to mobile users away from the office and provide access to the government document libraries.

c) Search & Retrieval

The Search & Retrieval should have the following functionalities:

- Provide an easy way to search and retrieve information (text, images, video, voice) with location independence.
- Searches can be done by topic, word, proximity search etc.
- The search and retrieval requirements are the ability for the user to easily search and retrieve information (text, images, video, voice, etc.) with location independence from a central data repository.
- The search criteria should be fully customisable by the user and must allow for searches to be done by topic, word, proximity search etc.
- The user should also be provided with the ability to specify a series of words or phrases that the user is not interested in retrieving files on.
- The search results should include the ability for rating the suggested files from highest to lowest based on the selection criteria.

d) Web Information Filter/On-line News with Personalisation

The objective of this functionality is to enable the user to customise a series of special interest topics from data sources such as Internet news services, Internet news groups and Internet search sites.

The requirements are:
The user should be provided with a configuration screen that will present a series of topics that can be selected without limitation.

The user should also be provided with the ability to specify a series of words or phrases that the user is not interested in accessing information on.

The user should also be provided with additional free form fields that will enable the user to request additional topics of interest that may not be presented on the configuration screen.

The system will then monitor all incoming information from the Internet and the central data repository for the search and retrieval system for information related to the topic of interest.

When the user establishes a session with this service the available information should be presented in a grouped fashion to enable the user to select the order in which he intends to access the information.

2.4.8.3. Enterprise-wide Communication Management System

The objective of the Enterprise-wide Communication Management System is to implement appropriate communication applications in the Pilot Agencies to improve the effectiveness and efficiency of personal and workgroup communication. Travelling time for attending meetings will be reduced, and the communication boundary is extended, where there is no location, distance, and time limitations.

The initial modules that have been identified include the following:

- Messaging System
- Electronic Meeting
- Bulletin Board

a) Messaging System

The ideal messaging system should possess some the following key features:

Integrated Interface

There are three kinds of interface integration that can help users be more productive:

- One interface for all of the messaging channels used, namely, e-mail, fax, file transfer, Internet traffic, and so on.
- A messaging interface should be consistent across hardware platforms and operating systems, so users would not have to re-learn the procedures for using
messaging systems when they move from one platform to another.
- Messaging should be integrated with the applications people work with routinely.

Intelligent Messaging

The messaging system should go beyond the simple ability to deliver messages. It should be smart enough to help the user filter, sort, store, and reply to messages and other information.

Group Computing

The messaging system should help team and workgroup members, both on-site and remote, to work together more efficiently and effectively. The functionalities of good collaborative computing are:
- Make it easy to share information
- Provide tools for automating group processes
- Help users keep track of schedules for people and resources
- Help organise and track tasks

Standards-Based and Global

The messaging system should be able to cross organisational, geographic, political, logical, physical, language, and time boundaries. It should be able to use common standards for communication, and it should present a standard programming interface for use by others.

Secured Messaging

The messaging system must be secured from unauthorised access, and it must offer security for information as it travels over networks. At the same time, the security features must be easy to use and unobtrusive so they do not impede users.

Manageable Messaging

The messaging system should be as friendly behind the scenes as it is to the user. That is, it should be designed for easy, efficient administration and support. It should be easy to add, move, and delete users.

Integration to GOE

It is imperative that the messaging environment shall be part of the overall Communication Management System component of the GOE.
b) Electronic Meeting

It shall be a real-time network data, video and voice communications client that includes support for international conferencing standards and provides true multi-user application sharing and data conferencing capabilities. Electronic Meeting is based on standards from the International Telecommunications Union, which set standards for modems and the global phone system. Electronic Meeting users can talk to other users regardless of the products they use as long as they are based on interoperable standards.

Multi-user data conferencing support allows two or more users to work together and collaborate in real-time over the Internet or corporate Intranet using application sharing, whiteboard, and chat functionality.

Electronic Meeting provides feature-rich functionality for video, audio and data conferencing on the Internet or corporate Intranet. Features include:

**Internet Phone**

Communicate with point-to-point audio conferencing over the Internet or corporate Intranet, allowing voice calls to be placed to friends, family, and associates around the world. High quality audio support is provided using a range of compression formats optimised for the speed of network or modem connection used.

**User Directory Services**

The User Directory Services provides a dynamic directory of users that are currently running Electronic Meeting – accessible directly from within the program, or from a web page - making it easy to connect to other users as part of a conference.

**Multipoint Data Conferencing**

Support for multipoint data conferencing allows two or more people to communicate and collaborate as a group in real-time over the Internet or corporate Intranet. Electronic Meeting enables users to work together by sharing applications, exchanging information between shared applications through a shared clipboard, transferring files, collaborating on a shared whiteboard, and communicating with a text-based chat feature.

**Application Sharing**

Multipoint Application Sharing enables users to share a program running on their computers with other people in a conference, allowing them to see the same data or information on the PC. Electronic Meeting works with existing Windows-based programs, allowing applications to be shared transparently without requiring any special knowledge of conferencing capabilities. When an application has been shared, the other
people in the conference see the actions that are performed as the person sharing the application works on the program (e.g., editing content, scrolling through information, etc.). In addition, the person sharing the application can choose to collaborate, allowing other people in the conference to take turns editing or controlling the application. Each member of the conference does not need to have the given application on their system – only the person that is sharing the application.

Shared Clipboard

The Shared Clipboard allows a user to exchange the contents of the clipboard with other participants in a conference. This allows, for example, a user to copy information from a local document and paste it into the contents of a shared application as part of a group collaboration. This capability provides seamless exchange of information between shared applications and local applications, using the familiar cut/copy/paste operations.

File Transfer

The file transfer capability in Electronic Meeting enables users to send a file to a specific person or all the people in a conference. The file transfer occurs in the background as everyone continues sharing an application, using the whiteboard, or chatting.

Whiteboard

The whiteboard program should be a multi-page, multi-user drawing application that enables users to sketch diagrams, organisation charts, flow charts, or display other graphic information with other people in a conference.

It should be object-oriented (versus pixel-oriented), allowing users to move and manipulate the contents by clicking and dragging with the mouse.

It should allow users to use a remote pointer or highlighting tool to point out specific contents or sections of shared pages. This capability would extend the application sharing feature of Electronic Meeting by supporting ad hoc collaboration on a common drawing surface.

Chat

Chat provides a text-based mechanism to communicate with participants in a conference. Chat can be used to communicate about common ideas or topics with fellow conference participants, or record meeting notes and action items as part of a collaborative process.

Desktop Video Conferencing

Video conferencing allows groups of people and individuals in different locations to hold interactive meetings. The participants
can hear each other, and they share live, motion video images of each other. Images of documents and objects can also be exchanged, and personal computers at each end can be used to share files and applications.

A video conferencing system can provide all the same presentation choices and information exchange capabilities that are available in a face-to-face meeting. Many regularly scheduled meetings, where everyone knows one another, are perfect candidates to be held over video.

To prevent abusive usage and network congestion, video conference management is vital to the implementation of such technology government-wide.

c) Bulletin Board

Electronic bulletin board services (BBS) can provide easy-to-use access to government information, allowing public servants to immediately enjoy both the benefits of the Internet/Intranet and more of a feeling of "virtual community" than other on-line technologies can bring.

The Bulletin Board shall provide a place for GOE users to exchange the latest information and opinions in diverse areas, and can be very friendly places to find help and to offer help in your areas of expertise. It should be secure with the ability to enable users to get their own private areas on the Bulletin Board.

The Bulletin Board should allow integration to the EIMS such that documents posted to the Bulletin Board are managed by EIMS.

2.4.8.4. Enterprise-wide Collaboration Management System

The Enterprise-wide Collaboration Management System is a system of electronic workgroup computing that allows users to effectively work together in a familiar and intuitive way and at the same time supports the sophisticated business processes, regardless of location and time. Today, workgroup software is optimised to meet the organisations' needs for highly structured information flow. While these needs are certainly important, a great deal of the communication and collaboration that occurs within an organisation takes place at a much more informal and ad hoc level. A comprehensive collaborative solution should support all levels of interaction, from simple communication and sharing of ideas to more structured business processes.

Based on the traditional hierarchical government organisation, highly structured information flow still represents a relatively large percentage of the overall interaction among employees in the government. Current workgroup solutions focus on emphasising customised applications and server-side controls. However, a comprehensive workgroup collaboration
solution must support not only the structured high end, but also the more informal interaction that routinely takes place in an organisation.

The figure below illustrates this concept of workgroup collaboration. Each tier represents a distinct type of workgroup solution. Moving up from the base of the pyramid represents a shift from informal, ad hoc interaction to more structured processes. The tapering that occurs along this spectrum represents the smaller portion of total interaction that is highly structured compared to more ad hoc activities. This pyramid rests on the “information infrastructure” — or where information is stored and accessed. Examples include network file servers, the World Wide Web, and corporate Intranets, topic discussion. The various layers are defined as follows:

Figure 29: Workgroup Collaboration Spectrum

Information Routing

Currently 70 million people use e-mail, making it the most popular workgroup activity and the most popular application on the Internet. In many organisations, e-mail is becoming the primary means of interoffice communication and information routing. Software for routing and basic communication must be flexible and reflect the informal way in which people work.

Document Collaboration

End user research shows that more than 60% of word processing and spreadsheet documents are shared with others, either during creation or to communicate final results. Sharing ranges from ad hoc discussion to more formal collaboration and review.
Instant Groupware

Moving up the spectrum, information sharing becomes more structured, yet ease of use is still a significant requirement. Instant Groupware is a new category that represents structured workgroup solutions that work right out of the box, without any programming knowledge required. There are three basic types of information that are commonly shared among a team: Calendars, contacts, and tasks. Instant Groupware means easily creating a team calendar, contact or task list among a group of people.

Business Processes

At the high end, workgroup software supports the highly structured information flow common to business processes such as document libraries, information tracking applications, discussion databases, workflow, and custom forms applications. At this level, central administration, security, and replication are required. These solutions typically require some programming knowledge.

The pilot agencies Collaboration Management System shall bring a new approach to collaboration by making the system an integral component of the workgroup solution. This is a logical approach given its role as the primary tool for knowledge workers in most organisations. At the broad end of the spectrum, much of the material being discussed or shared is 'created using the productivity applications in the suite. Moving up the scale, organisations benefit by leveraging their investment in the suite as a development platform for custom applications. Rather than switching among several types of applications to create, communicate, and collaborate, users perform all tasks within a common, familiar environment.

The strengths that the Enterprise-wide Collaboration Management System brings to the desktop — integration, ease of use, customisation — are applied across the spectrum of workgroup activity. This makes working in a collaborative environment a natural extension of existing workstyles and habits, rather than requiring a completely new set of tools.

The Enterprise-wide Collaboration System shall provide the following functional components:

- Decision Tracking
- Meeting Management
- Discussion Database

The objective of the Enterprise-wide Collaboration Management System is to increase the efficiency and effectiveness of collaborative activities such as group meetings and discussion forums such as group meetings and discussion forums, by facilitating time- and cost-saving workflow. In particular, meeting management increases the efficiency of meetings by allowing quicker meeting organisation, sharing document electronically, reviewing minutes of meeting on-line, and
better decision making with easily available accurate information. The ability to view documents by many different persons at the same time enhances the worth of any information product, especially if this avoids having to produce hard copies.

a) Decision Tracking

The objective of the decision tracking system is to provide a common formal communications mechanism, which will enable key people to track the implementation of government decisions.

The decision tracking solution should provide the following functionalities:

- The ability to display a short synopsis or extract for the user to browse, prior to opening or selecting the document.
- The ability to drill down into the source document to read the detailed information.
- The ability to access historical information stored in the decision tracking system.
- The ability for all users to access the decision tracking solution from anywhere within the government network.
- The ability for access to particular decisions to be restricted to a series of users and/or groups.
- The ability for groups of decisions to be password-protected to prevent unauthorised access to sensitive information.
- The ability for users to store objects (word processing documents, spreadsheets, images, audio & video files, etc.) in the decision tracking database.
- The ability for users to access objects which are stored in the decision tracking database.
- The ability for members of the decision tracking system to be automatically notified when a particular decision tracking database has received a new posting.

b) Meeting Management

The Meeting Management component shall allow the GOE users the ability to organise, manage and run meetings more effectively and efficiently. It should allow users to:

- Publish and view minutes of meeting on-line.
- Prepare meeting agenda and publish them for approval, alteration or viewing.
- Prepare minutes of meeting on-line or off-line.
- Scheduling of meetings: booking time for all attendees, checking of free time slot, and notification of meetings.
- Increase meeting efficiency since the meeting management allows quicker meeting organisation, sharing document electronically, reviewing minutes of
meeting on-line, better decision making with easily available accurate information.
- Reservation, organisation and management of meeting resources (rooms, overhead projector etc.).

c) Discussion Forum

The objective of the discussion forum is to enable users from all parts of a ministry or across government to interact electronically on issues which they are interested in or responsible for. The discussion forum should encourage a feeling of co-operation and interaction between all members of government and assist in the quick dissemination of information across the whole of government.

The discussion forum solution should provide the following functionalities:
- The ability for users to access any discussion forum to which access has been granted.
- The ability for users to submit information or comments to discussion forums.
- The ability for users to select the discussion forums of interest to read.
- The ability for users to access the discussion databases from anywhere within the government network.
- The ability for access to particular discussion forums to be restricted to a series of users and/or groups.
- The ability for discussion groups to be password-protected to prevent unauthorised access to sensitive information.
- The ability for users to store objects (word processing documents, spreadsheets, images, audio & video files, etc.) in the discussion forum database.
- The ability for users to access objects which are stored in the discussion forum database.
- The ability to use the discussion forum for user to register and vote on a forum topic, with the polling results being computed automatically and instantly.
- The ability for a user to chat interactively with other forum members (like Inter-Relay Chat (IRC)).
- The ability for forum members to be automatically notified when a particular discussion forum has received a new posting.
3. Implementation Roadmap

3.1. Implementation Strategy

The vision of Electronic Government will require a comprehensive development and implementation program touching all aspects of government. It will require new processes, systems, structures, training to develop new skills, and shared values. Due to the nature and scope of these changes implementation will begin with a few small steps. Initially, the Electronic Government flagship application will target a few key services - drivers license renewal, government procurement, the Prime Minister’s Office activities, human resource management and project monitoring. Once these are implemented successfully, more will be undertaken, expanding with time to a wide ranging roll-out program embracing more government departments and services - on a federal, state and local level.

The strategy of expanding from simple pilots into a broad roll-out program requires roll-out to occur simultaneously in three separate dimensions. As a pilot implementation is completed successfully the pilot application itself will expand in both reach and functionality. Also, the roll-out program will continue with new Concept RFPs initiating new pilot applications to touch other aspects of government. Thus Electronic Government will grow in reach, functionality and application solution. (See figure below).

Figure 30: Implementation Approach
3.1.1. Implementing New Applications

Each new application solution will be made of three distinct components - process re-engineering or design; application development and deployment; and user training. The implementation of each pilot therefore will involve all three aspects. Concept RFPs will describe the specific requirements identified and proposals must detail vendors solutions to each requirement. Implementing the pilot will then involve initially creating the new process to capitalise on the new multimedia environment.

Multimedia applications will also be developed and deployed throughout the organisation and integrated into existing systems as required. Comprehensive training programs will also be undertaken to ensure users not only adopt the new technology but also become empowered to take full advantage of the tools available. As one new application solution is piloted, additional concept RFPs will be developed to ensure that ongoing stream of new applications are deployed throughout the government.

3.1.2. Expanding Reach

Once a pilot is successfully implemented the vendor will continue to expand the pilot in both reach and functionality. Reach will be defined differently depending on the nature of the pilot application but could include variables such as the number of government users, the number of departments addressed, geographic locations covered, number of citizens using the system and so on. Increasing the reach of an application will most likely be the responsibility of the vendor and the willingness of new participants - users or departments. Depending on the business models, vendors are likely to be incented to increase reach as fast as possible. Given the scalability of modern applications, increasing reach involves only incremental cost to vendors. This makes increasing reach highly profitable within transaction based business models.

3.1.3. Expanding Functionality

As well as incentive vendors to increase reach over time, concept RFPs will commit vendors to deliver increasing functionality over the life of the contract. In order to achieve early wins and reduce the risk of deployment, most contracts are expected to require vendors to produce high impact functions first, and then deliver increasing functionality over time. As a result, as each application grows in reach it will also grow in functionality. Vendors are also contracted to ensure that applications can adapt to new technologies as they become available which is also likely to lead to increasing functionality over the life of the application.
3.2. Citizen and Business Roll-out

The two citizen and business pioneer pilots will generate the first visible sign to the public on the implementation and success of Electronic Government in Malaysia. These pilots will not only lay the foundation for Electronic Government, but also pave the way for future applications to be rolled out. The overall objectives of the pilot roll-out are:

- **Quick-wins:** Create successful high-impact, highly feasible pilots early.
- **Benchmark:** Set high quality standards for other Electronic Government applications to benchmark.
- **Momentum generator:** Generate confidence and support to drive the implementation of new Electronic Government applications.
- **Showcase:** Demonstrate the effectiveness and efficiency of leading edge multimedia technologies, supporting the efforts of the Multimedia Super Corridor.
- **Collaboration:** Forge collaborative partnerships with citizens and businesses to make the vision of Electronic Government a reality for the people of Malaysia.

3.2.1. Citizen Pilot Roll-out

The scope and roll-out of the “Electronic Delivery of Driver & Vehicle Registration, Licensing and Summon Services, Utility Bill Payments and Ministry of Health On-line Health Information” pilot is staggered across three phases. Roll-out of phases can be measured across two dimensions, service functionality and user reach. The full scope for the citizen to government pilot roll-out should cover the following:

3.2.1.1. Phase I

**Functionality:** The scope for Phase I include driver licensing and summons services, and Tenaga Nasional Berhad (TNB) & Telekom Malaysia (TM) utility bill payment services.

1. **JPJ services:** Only driver licensing services and summons services are included in Phase I. The following driver licenses are covered in the pilot.

   - PDL: Provisional Driving License
   - P-plate: Probationary Driving License
   - CDL: Competent Driving License
   - GDL: Goods Driving License
   - PSV: Public Service Vehicle License

For JPJ licenses, the following processes are covered. See Figure 31 for additional details.
- License testing: Includes electronic test scheduling, test booking, test taking, test evaluation and test notification services.

- License issuance: Includes electronic form access, data input, data submission, data processing, payment and output services.

- License renewal: Includes electronic form access, data input, data submission, data processing, payment and output services (for all licenses except for P-plate).

- License change of information: Includes electronic form access (if applicable), data input, data submission, data processing, payment (if applicable) and output services.

- License information display: Includes general information display (e.g. JPJ website) and personal inquiries with respect to licenses, testing services, and application status tracking.

For JPJ summons, the following processes are covered. See Figure 31 for additional details.

- Summons payment: Includes electronic summons access, payment, processing, account update and output.

- Information update: Includes changes in information with respect to summons (compounds or court cases).

- Information display: Includes general information and personal inquiries with respect to summons (e.g. accumulated demerit point "Kejara" record, accumulated JPJ compound record or court case status).

2. TNB services: For TNB electricity bill services, only bill payment and information services are covered. See Figure 31 for details.

- TNB bill payment: Includes electronic account access, payment, payment processing, account update and output.

- TNB account inquiry: Includes electronic account access and output.

3. TM services: For TM bill payment services, only bill payment and information services are covered. See Figure 31 for details.

- TM bill payment: Includes electronic account access, payment, payment processing, account update and output.

- TM account inquiry: Includes electronic account access and output.

User Reach: The scope of roll-out for the services in Phase I is focused in the Klang Valley. This development period should span 6 months. After 6 months, an evaluation of Proof of Concept will take place, to ensure the viability and success of the concept solution. This Proof of Concept period will last 3 months, whereby a decision will be reached by the respective
government agency and organisations, to determine whether the appointed vendors shall continue the roll-out of driver licensing, summons and utility bill payment services into Phase II. Upon successful demonstration of Proof of Concept, the contractors will be granted the opportunity to continue the roll-out of driver licensing, summons services and utility bill payment, and in addition, pursue vehicle registration and licensing services and Ministry of Health on-line information display.

3.2.1.2. Phase II

Functionality: The scope for Phase II continues with driver licensing, summons services and utility bill payment services. During this phase, the contractor can potentially add on vehicle registration and licensing services and Ministry of Health on-line information display.

1. JPJ services: All driver licensing and summons services described in Phase I will be continued. In addition, the following new electronic services should be developed.

- Vehicle registration: Includes electronic form access, data input, data submission, data processing, payment and output services.

- Vehicle license tax issuance and renewal: Includes electronic form access, data input, data submission, data processing, payment and output services.

- Vehicle ownership transfer: Includes transfer of ownership for vehicles.

- Vehicle information display: Includes general information display (e.g. JPJ vehicle regulations) and personal account status inquiry with respect to vehicle services.

2. TNB services: Electronic electricity bill payment and account inquiry services should continue to be rolled out.

3. TM services: Electronic bill payment and account inquiry services should continue to be rolled out.

4. Ministry of Health On-line Information: Includes display of on-line Ministry of Health information on Electronic Government access devices. Potential scope may include displaying the information and user interface as provided by the Telemedicine consortia, or developing a user interface which gives public an option to view Ministry of Health webpage

User Reach: The scope of roll-out for driver licensing and summons services in Phase II extends beyond Klang Valley to cover the rest of Malaysia. In addition, vehicle registration and licensing services, and Ministry of Health on-line information services roll-out should begin with Klang Valley for a three-month development period. After this period, a second Proof of Concept evaluation will take place, to ensure the viability and success of the vehicle and on-line health information services. This Proof of Concept period will last 3 months, whereby a decision will be reached by the respective government agencies and organisations, to determine whether the contractor shall continue the roll-out of driver and
vehicle registration, licensing and summon services, utility bill payment services, and Ministry of Health on-line information services into Phase III. Upon successful demonstration of the second Proof of Concept, the vendor will be granted the opportunity to continue the roll-out.

3.2.1.3. Phase III

**Functionality:** Upon successful Proof of Concept, the scope for Phase III continues JPJ licensing services, summons services, vehicles services, utility payment services, and health information services.

**Reach:** Upon successful Proof of Concept, vehicle services and health information services will be rolled out to cover the rest of Malaysia, along with the continuous roll-out of licensing, summons and utility payment services.

**Timeline of the pilot**

The timeline for the implementation of the applications in the pilot project is shown in the figure below. The pilot applications will be rolled out in three phases.

**Figure 31: Driver & Vehicle Registration, Licensing and Summons Services, Utility Bill Payments and Ministry of Health On-line Health Information Roll-out Pilot**

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3.2.1.4. High Level Performance Metrics and Milestones

In addition to adhering to the roll-out timeline of the pilot, performance metrics need to be developed, and met, to track the progress in achieving the goals of Electronic Government and of pilot projects. These high-level performance metrics include the following:

- Citizen satisfaction barometer: Citizen satisfaction on government services can be gauged based on public complaints, surveys conducted by third parties, or short polls asked at the end of every electronic transaction. This barometer provides a starting benchmark measuring current satisfaction level. Annual progress assessment will be conducted, to update each government agency on their progress against the barometer.

- Electronic Government self-assessment: Each government unit will be requested to develop an agenda defining its aspirations and plan for Electronic Government in the following year. Progress against this agenda can be reviewed annually with objectives agreed upon for the following year.

- Productivity benchmarking: Productivity metrics can developed for each government unit. These should be based on measurable outputs that are most meaningful for the "customers" of the unit compared with number of employees in the unit. For some units, these customers may be other government agencies. Progress can be assessed by the trend and rate of improvement over time.

- Number of services electronically available. The number and reach of services that can be accessed outside of government offices could be tracked.

- Adherence to the Electronic Government Roadmap. The Electronic Government Roadmap to be detailed in the next section, defines the timing of applications to be rolled out. While this map is only a guide, which will evolve over time, it provides a starting point that can be useful in maintaining the momentum in developing Electronic Government.

3.2.1.5. Pilot-specific Metrics and Milestones

In addition to high level performance metrics, the following non-exhaustive list of metrics should be captured for the pioneer pilot, and for subsequent citizen-to-government pilot applications, in order to monitor progress over time. Service providers and government agencies can be asked to submit the following statistics, which can be aggregated to track performance.

To measure USAGE
- Number of transactions delivered electronically versus over the counter.
- Number of transaction by type (driver license, summons payment, vehicle license, etc.).
- Spread of usage by geography (by state or urban vs. rural).
- Usage by location (residences, retail outlets, post office, businesses, etc.).
- Spread of usage by delivery channel (kiosk, PC, telephone, etc.).

To measure PERFORMANCE
- Vendor performance against service level agreement.
- Vendor adherence to milestones set in the timeline.
- User satisfaction rating by government service.
- User satisfaction by geography or location.
- User satisfaction rating by delivery channel.
- Number of complaints by service, geography, location and channel.
- Survey on top areas for improvements – user, vendor, government.
- Number of security breaches or unauthorized transaction.

To measure EFFICIENCY
- Cycle time to process transaction – user.
- Cycle time to process transaction – government.
- Government cost savings.

3.2.1.6. Action plans to remove obstacles
In addition to monitoring the progress of the pilot, it is necessary to identify the potential obstacles to implementation of the Driver & Vehicle Registration, Licensing and Summons Services and Utility Bill Payment pilot project. Potential resolution for the obstacles have been outlined, and action is required to be taken by the government and citizens, before pilot implementation to ensure successful development of Electronic Government in Malaysia.
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<tr>
<th>Situation</th>
<th>Potential Obstacles</th>
<th>Potential Resolution</th>
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<tr>
<td>Electronic Government pilots and future applications require electronic</td>
<td>Current policy does not allow Internet payments or credit card payments to government, preventing implementation of Electronic Government. Approval procedure from both from Bank Negara and the Attorney General may be time-intensive, which might result in delay in the implementation of Electronic Government.</td>
<td>Obtain approval from Bank Negara and the Attorney General to allow Internet payments as soon as possible. Identify interim solutions until decisions are made. Potential role for Payment Consortium?</td>
</tr>
<tr>
<td>Electronic Government pilots and future applications require electronic</td>
<td>Standard government hardcopy or softcopy receipt format for new delivery channels does not currently exist.</td>
<td>Develop and approve a government receipt format, with standards for physical receipt or an electronic receipt, as soon as possible.</td>
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<tr>
<td>Electronic Government pilots and future applications require electronic</td>
<td>Potential conflict of roles and responsibilities between the third party consortium and new Service Providers and Gateway Provider designated under Electronic Government CRFP. Increased complexity in co-ordination and reporting structure for JPJ.</td>
<td>Clearly establish and obtain consensus on the scope, roles and responsibilities of third party consortium and future Service Providers and Gateway Providers. Establish working arrangement on contractor co-ordination and reporting structure for JPJ.</td>
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<td>Electronic Government pilots and future applications require electronic</td>
<td>Potential compromise in the innovation of the concept solution if usage of the same supply/paper is stipulated Potential financial impact if new contract or new paper material is used, since both existing contract and new contract need to be honoured.</td>
<td>Renegotiate contract with Fima to revise terms &amp; conditions or propose innovative strategy that will be win-win for JPJ, Fima and the selected contractor for the pilot. e.g. Fima provides license paper but formatted for different delivery channels like kiosk. Continue using the existing paper i.e. contract until the smartcard is rolled out.</td>
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<td>- The scope of the pilot covers JPJ summons.</td>
<td>- Delay in licensing issuance because PDRM summons cannot be paid via the new channels developed under the pilot.</td>
<td>- Develop Electronic Government Concept RFP for PDRM summons as the second wave of CRFP’s to be issued.</td>
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<td>- However, issuance and renewal of licenses require summons payment from JPJ and the Royal Malaysia Police (PDRM)</td>
<td>- PDRM summons payment under current initiatives (i.e. PDRM kiosk project) may not be integrated and may potentially have different designs, separate channels, etc.</td>
<td>- Establish a team from both agencies to interface and integrate summons payment services.</td>
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<td>- Current driver license will eventually be replaced by the smartcard.</td>
<td>- Pilot concept solution may not take into account the migration to smartcard.</td>
<td>- Establish close communication with smartcard flagship project so progress will be monitored.</td>
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<td>- Pilot agency, organisations and citizens are more familiar with traditional, over the counter service delivery.</td>
<td>- Potential unwillingness to change and accept new electronic service delivery.</td>
<td>- Establish change management programme/approach and execute it in timely fashion.</td>
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<td></td>
<td>- Lack of resources and skills to use the new system.</td>
<td>- Establish awareness programs and training programs for government agencies, organisations as well as for the citizens and businesses.</td>
</tr>
</tbody>
</table>

### 3.2.2. Business Pilot Roll-out

In implementing the electronic procurement system, the scope can be defined across 3 dimensions. The dimensions are:

The **Buyer** or government agency who procures the products.

The **Supplier** who supplies their related products to the buyer.

The **Functionality** of the procurement system required to be implemented.

These 3 dimensions are inter-related, as the buyer agency would require specific products that they procure, which in turn determines the specific supplier and the level of procurement functionality. In the electronic procurement project, the scope will be defined in 3 phases across the 3 dimensions described.

#### 3.2.2.1. Phase 1:

The objective for Phase 1 is to provide an end-to-end concept solution for the Central Contract procurement that will involve the automation of procurement processes (see Figure 32: step 5-9) and provide connectivity between buyers and suppliers. Concept solution should also include ability to add new products to the central contract list (see Figure 32: step
0 implemented in Phase 1 and step 1-4 to be implemented in Phase 2.

The concept solution should ensure that Treasury Instructions will be complied with.

Buyer: Phase 1 will begin with 2 government agencies. The pilot agencies are:

The Treasury, Ministry of Finance: Administration Division of Treasury and the Government Procurement Management Division
MAMPU, Prime Minister’s Department: Management Services Division of MAMPU

Supplier: For the two agencies, all related central contract suppliers for goods (does not include works or services, or items like petrol which are under contract but are not ordered) to the agencies should be included.

Functionality: Phase 1 will cover the Central Contract process. This will include the automation or computerisation of central contract product procurement (see Figure 32: step 5-9) as well as the process involved with placing an item on the central contract list (see Figure 32: step 0 “product requisition” to be implemented in Phase 1).

3.2.2.2. Phase 2:

The purpose of Phase 2 is to extend the central contract functionality to include additional government agencies and enable additional central contract suppliers. This will include completing the process steps for placing an item on central contract list (see Figure 32: step 1-4). In addition, an end-to-end concept solution for Direct Purchase, Quotation and Tender process should be developed which will involve the automation of purchasing and procurement processes (see Figure 32: step 0-4 ‘and step 7-9) and provide the connectivity between buyers and registered suppliers.

Buyer: Phase 2 should include 10 additional government ministries and should include the following:

Prime Minister’s Department
Ministry of Defence
Ministry of Home Affairs
Ministry of Education
Ministry of Health
Ministry of Works
Ministry of Agriculture
Ministry of Primary Industries
Ministry of Energy, Telecommunications and Post
Ministry of Science, Technology, and Environment
Supplier: For the 12 agencies (10 new agencies plus 2 Phase 1 agencies), all related central contract suppliers providing goods to the agencies should be included. In addition, the registered suppliers who are candidates for Direct Purchases, Quotation and Tender processes should also be included.

Functionality: Phase 2 will cover the Central Contract process which encompasses the automation or computerisation of central contract product procurement (see Figure 32: step 5-9) as well as the process involved with placing an item on the central contract list (Figure 1: step 1-4) i.e. the tendering and award of central contract item. In addition the automation and computerisation of Direct Purchases, Quotation, and Tendering processes should also be covered (see Figure 32: step 0-4 and step 7-9).

3.2.2.3. Phase 3:

The objective of Phase 3 is to roll-out the central contract, direct purchase, quotation and tendering functionality to all federal government ministries and agencies and include all centralised and registered suppliers.

Buyer: Phase 3 should include the remaining federal government agencies that follow treasury procurement policies and instructions.

Supplier: For all the remaining federal agencies, all related central contract suppliers and registered suppliers should be included. In addition, the registered suppliers for Direct Purchases, Quotation and Tender processes should also be included.

Functionality: Phase 3 should roll-out the functionality under Central Contract, Direct Purchase, Quotation and Tendering process developed in Phase 1 & Phase 2.

Figure 32: Electronic Procurement Roll-out Plan
3.2.2.4. Pilot-specific Metrics and Milestones

The following non-exhaustive list of metrics should be captured for the pilot, and for subsequent business-to-government pilot application, in order to monitor progress over time. Service providers and government agencies can be asked to submit the following statistics, which can be aggregated to track performance.

To measure USAGE

- Number of transactions.
- Number of transaction by type (central contract, direct purchase, quotation and tender).
- Usage by government level (federal, state and local).
- Number of government suppliers enabled on system (target of 100%).
- Usage by supplier category (international, local or small, medium, large).
- Number of products and items on catalogue.

To measure PERFORMANCE

- Vendor performance against service level agreement.
- Vendor adherence to milestones set in the timeline.
- User satisfaction rating by user community (buyer, supplier).
- Number of complaints by user community (buyer, supplier).
- Survey on top areas for improvements – buyer, supplier.
- Number of security breaches or unauthorized transaction.
- Accuracy of demand projection against actual for adding items on central contract.

To measure EFFICIENCY

- Government cost savings.
- Cycle time to process various transactions – user.
- Cycle time to process various transactions – government.
- Cycle time for demand projections for adding items on central contract.
- Cycle time for procurement budgeting.
3.2.2.5. Action plans to remove obstacles

The possible obstacles to the implementation of the Electric Procurement and Tendering pilot project is identified below:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Potential Obstacles</th>
<th>Potential Resolution</th>
</tr>
</thead>
</table>
| - Government agencies are used to the traditional, manual method of procurement. | - Lack of commitment to procure from the electronic procurement system, especially if existing manual method for procurement is provided as an on-going alternative to the electronic system.  
- Lack of skills and training to use the new system.                  | - Mandate that government agencies ONLY procure electronically once the electronic procurement system is implemented.  
- Develop awareness programs and training programs for government agency buyers. |
| - Suppliers are used to the traditional, manual method of procurement.    | - Low commitment or slow participation from the supplier community resulting in small pool of suppliers to procure from.  
- Lack of skills and training to use the new system.                   | - Stipulate that all suppliers wishing to supply to government need to register in the electronic procurement system.  
- Develop incentive programs and training programs to assist the supplier to sign-up to the electronic procurement services. |
| - New procurement system necessitates changes to government procurement policies and processes. | - Difficulty in making changes to policies and processes expeditiously, which may delay in the implementation of the pilot project. | - Appoint an entity to undertake responsibility for electronic procurement project, in order to table issues and resolve them immediately and effectively. |

3.2.3. Citizen and Business Total Roadmap Roll-out

3.2.3.1. Objectives

In addition to the overall objectives described in section 3.2.1, the purpose for the Roadmap is to provide a guide and starting point that can be useful in maintaining the momentum in developing Electronic Government in the next few years. This roadmap will naturally evolve over time, but high level milestones should be met to ensure progress.

3.2.3.2. Other Applications Roll-out

The roll-out plan for the entire Electronic Government initiative is divided into a pilot phase followed by 3 subsequent waves. Each wave consists of multiple concept solutions grouped together, based on high impact coupled with high feasibility. High impact applications, as identified in the market
research, have been grouped in Wave 2 and 3 for immediate implementation. In addition, some applications are logically bundled together based on synergies and related functionality. Please refer to the three figures below:

**Figure 33: EG Citizen/Business Application Roll-out**

![Diagram showing EG Citizen/Business Application Roll-out]

**Figure 34: EG Citizen/Business Application Roll-out**

![Diagram showing EG Citizen/Business Application Roll-out]
Wave 4 applications are described below:

**Figure 35: Electronic Government Citizen / Business Application Roll-out**

<table>
<thead>
<tr>
<th></th>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Electronic pension processing
   Electronic social welfare benefits management
   Electronic student loan payment and processing
2. Electronic polling/survey
   Electronic voting
   Electronic census
3. Electronic land ownership registration
   Electronic GIS, land information and land zoning
4. Electronic stamping and certification
5. Electronic patent and copyright management
6. On-line case information

Wave 4
### SITUATION

<table>
<thead>
<tr>
<th>Adoption rate of Electronic Government.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timely approvals to operationalise Business Model of Electronic Government including:</td>
</tr>
<tr>
<td>Approval from Bank Negara Malaysia for making payments through the Internet.</td>
</tr>
<tr>
<td>Approval from Attorney General’s Office for payment to government using credit card and other related government requirements (e.g. government receipt).</td>
</tr>
<tr>
<td>Co-ordination with other MSC flagship applications such as Telemedicine and related projects (e.g. development of Putrajaya and GITN, demonstrator applications).</td>
</tr>
<tr>
<td>Lack of resources and skills for tender management (e.g. answering bidders’ queries, technical evaluation, contract management), and preparation of Concept RFPs.</td>
</tr>
</tbody>
</table>

### POTENTIAL OBSTACLES

| Low adoption rate of Electronic Government by citizens and businesses. |
| Lack of critical mass for successful roll-out of Electronic Government services. |
| Delay in implementation of the full Business Model which supports electronic payments over the Internet. |
| Redundancy or duplication of work. |
| Lack of integration between related applications. |
| Issue resolution could be prolonged resulting in implementation delay. |
| No single authority to identify and implement common interfaces resulting in wrong, inefficient, or ineffective interface/integration design. |
| The best concept solution may not be selected. |
| Prolonged contract negotiation resulting in delay in commencement of work. |
| Delay in release of Concept RFPs. |

### POTENTIAL RESOLUTIONS

<p>| MAMPU to ensure full implementation of Business Model with multiple service providers to drive greater adoption by the public. |
| Bank Negara to address Internet bank payments prior to the award of the pilot contracts. |
| Attorney General’s Office to approve credit and debit card payments prior to the award of pilot contracts. |
| Formalise appointment of an authority e.g. MDC to: |
| Establish coordination and communication procedures. |
| Establish programme management function to ensure areas that are common to all initiatives are addressed uniformly (e.g. project, risk, quality, resource, financial, contract, timeline and procurement management, performance reporting, etc.). |
| Identify integration task force to address integration issues. |
| Establish evaluation strategy and plan. |
| Acquire skilled resources. |</p>
<table>
<thead>
<tr>
<th>SITUATION</th>
<th>POTENTIAL OBSTACLES</th>
<th>POTENTIAL RESOLUTIONS</th>
</tr>
</thead>
</table>
| Lack of resources and skills for project management and implementation of projects as well as ongoing project monitoring. | - Project failure.  
- Poor project monitoring and feedback for further actions.  
- Project overruns.                                                                                                     | - Acquire and train skilled resources.  
- Engage third party service providers.                                                                                     |
| Lack of participation from the agencies due to shortage of manpower and skills.                                                 | - Little acceptance of the project implemented (e.g. delay in the roll out of the system, system is not used).  
- Little transfer of technology to agencies.                                                                                       | - Acquire and train more people in the agencies.  
- Establish detail plan for the project so that better planning for resources can be established by the agency.  |
| Resistance to change by agencies and/or citizens. (e.g. does not want to replace the current systems due to high investment, fear for new roles and responsibilities, lack of confidence in the technology used). | - Impedes initiatives for reinventing the government.  
- No buy-in for the Electronic Government projects.  
- Delay in the implementation/completion of the projects.                                                                 | - Establish change management programme and communications from the outset.                                                                                     |
| Lack of viability in certain projects e.g. online information kiosks (perceived or real).                                           | - Low or no-response to the RFPs released.  
- Vendors selected incur losses.                                                                                             | - Establish strategy to ensure the viability of the projects (e.g. contract duration, rights to government services, prototypes/proof of concepts to determine viability, etc.)  |
| Citizen expectations are not consistent with the Vision of the Electronic Government.                                               | - Electronic Government does not meet the expectations of citizens thus resulting in low adoption of EG.                                                                                                             | - Communicate Vision to public and agencies via a well thought public relations programme.  
- Continue to solicit public feedback on Electronic Government via market research or short polls.                                                                 |
3.3. Inter-Agency Roll-out

3.3.1. Pilot Roll-out: Project Monitoring System

3.3.1.1. Objectives

The objectives of the pilot PMS Roll-out are:

- To provide quick visibility of the outcome of the PMS in order to gain confidence and motivation of the agency staff in the use of the PMS and their continued support for next stage of implementation.
- To provide proof-of-concept and demonstrate the appropriate use of technology for improving in efficiency and effectiveness of project monitoring.
- To provide a richer collaborative systems environment facilitated by automated PMS and streamlined work processes to improve the operational capabilities of agencies and to maximise the efficiency and effectiveness of project monitoring and communication processes.
- To provide a richer collaborative systems environment and necessary information to improve the managerial capabilities in project monitoring.

3.3.1.2. Scope of Pilot Project

The scope of the pilot project is discussed in three aspects, namely, implementation in terms of functionality, roll-out in terms of reach and types of projects:

a) Implementation of Functionality

The first stage of implementation is limited to the data/communication infrastructure and operational application functions. The functions in the first stage are:

- Data Services
- Collaborative Databases
- Common Data Dictionary

Communication Services

The WAN infrastructure will not be covered in this CRFP. It is assumed the network infrastructure will be covered by the government network.

- Messaging Infrastructure
- Workflow
- Collaboration
Application Services

- Capturing information on projects
- Support Standard Form
- Progress reporting
- Change approval / change order
- Evaluation report
- Track record management
- Public Access Service
- Kiosk data channel

Training

The second stage of implementation is to realise the managerial (directional and capability management) application functions. The following services will need to be implemented:

Data Services

- Knowledge base
- Data mining

Application Services

- Information synthesising
- Statistical trend analysis
- Change approval / change order
- Executive Information System (EIS)
- Decision Support System (DSS)
- Adjusting
- Forecasting/simulation project

b) Roll-out in terms of reach

Minimum reach: The first stage of the pilot project is to prove the concept of the new PMS through monitoring some of the Seventh Development Plan projects of one Ministry (Ministry of Education) and three of its agencies (State Education Department of Negeri Sembilan, Sarawak and Pahang) and the five Electronic Government pilot projects. Its reach is kept to a minimum. Through the evolution of the proof-of-concept stage, other Electronic Government projects will be monitored as they come on stream.

Maximum reach: Through the evolution of the first phase of roll-out targets the other national development projects will be monitored.

c) Type of Projects

The new PMS has to cover all types of projects right from the first stage of implementation. Currently three types of projects are identified namely:

- Electronic Government projects;
- Five-Year Plan Development Plan projects; and
- Special projects.
Three types of projects may have different business processes, information flows and funding sources. For example, kiosks under the Electronic Government project may be funded by the private sector and does not follow the payment procedures of the Five-Year Development Plan projects which are funded by the Federal Government and paid through the Accountant General’s Office. Special Projects of interest to the Prime Minister may also follow different procedures.

3.3.1.3. Schedule of Implementation

The schedule of implementation is as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Second stage of implementation</td>
<td>October 1998 – February 2000</td>
</tr>
<tr>
<td>First phase of roll-out (minimum reach and all of 1st stage functionality)</td>
<td>October 1998 – February '99</td>
</tr>
<tr>
<td>Second phase of roll-out (phased roll-out for maximum reach and some of the 2nd stage functionality)</td>
<td>March 1999 – February 2000</td>
</tr>
<tr>
<td>Full roll-out (full reach and full functionality)</td>
<td>March 2000 onwards</td>
</tr>
<tr>
<td>Consortia performance evaluation</td>
<td>December 2000</td>
</tr>
</tbody>
</table>

First stage of implementation

The first stage of implementation is limited to data and communication services and operational application functions. The data and communication infrastructure is to enable staff within an agency and across agencies to work in a collaborative environment facilitated by workgroup computing, workflow management systems, common database access and messaging services. The operational applications enable agencies to capture project status information, and enable ministries to consolidate and produce analysis report for management.

First phase of roll out

At the end of the first phase of implementation the PMS is tested and migrated to Putrajaya. From September 1998 onwards, PMS is rolled out to monitor some of the Seventh Development Plan Projects of one Ministry (Ministry of Education) and three of its agencies (State Education Department of Negeri Sembilan, Sarawak and Pahang) and the five Electronic Government pilot projects. It will also be extended to the other Electronic Government projects in due course.

Second stage of implementation

The second stage of implementation starts from September 1998. It focuses on managerial application functions providing data services such as data mining on the knowledge base and application services
such as statistical trend analysis, forecasting and simulation to support managerial decisions.

Second phase of roll out
The second stage of implementation is rolled out in phases, beginning from February, 1999 onwards when the reach is extended beyond the first phase roll-out projects and includes some of the second implementation functionality. From this date onwards, more development projects for the other Ministries will be covered by the PMS. The remaining projects that are not monitored by the PMS will continue to be monitored by the existing monitoring system of ICU.

Full roll out
By January 2000, maximum reach and full functions of the second stage implementation would have been realised; and all projects (ie. EoG and all development and special projects) will be covered by the new PMS.

Figure 36 : Timeline of the project

3.3.1.4. Performance metrics and milestones

Performance of the PMS is measured by the extent to which the objectives have been achieved against the target set. In order to measure the objectives, some performance metrics have been identified. Targets for PMS performance will be set later when more information is known. Post Implementation Review will have to be done to assess the performance of the PMS. Information feedback from this review and information collected from the system will form the performance metrics. Below are some of the performance metrics for the various objectives of PMS:

To measure effectiveness
- Percentage of project within schedule
- Percentage of project within budget
- User's satisfaction survey in terms ease of work

To measure efficiency
- Time spent on sampled project monitoring task
- Percentage of increase of electronic documents
- Percentage of the projects covered by PMS out of total projects

To achieve paperless monitoring
- Percentage of increase of electronic documents
- Percentage of increase of electronic mail transaction
- Percentage of the projects covered by PMS out of total projects

To achieve information availability
- Percentage of the project covered by PMS out of total projects
- User's satisfaction survey in terms of information requirement satisfaction
- Number of fulfilled queries out of total queries

To achieve collaboration
- Percentage of e-mail and electronic meeting usage increase
- Number of active users of group computing

Milestones
- Milestones are set at six-month intervals successively after the date of each roll-out. At each of these milestones the PMS performance assessment report must be compiled.

3.3.1.5. Action plans to remove obstacles

Unified Project Coding System
In order for the PMS to work a consistent project coding system will need to be implemented. The following actions are suggested to overcome issues in this area:
- Review the suitability of the present ten-digit project code and implement remedial actions if necessary.
- Persuade co-operation among all agencies in the adoption of the common coding for projects.
- Enforce the use of a common coding.

Review Regulations
All Treasury regulations, especially those regarding the use of the Seven-digit Code in the Budget Book need to be reviewed vis-a-vis the regulations in other agencies like ICU, EPU and the Accountant General’s Office so that they are coordinated and support the PMS.

Increase Accountability of Project Development
In order to increase the effectiveness of the PMS it is necessary to increase accountability among the users of the PMS. It is suggested that heads of agencies be made more accountable for the success or failure of projects.

Review organisation structure in order to reflect increased importance and emphasis on project monitoring.
Place professional project managers to make decisions on project management.

3.3.2. Pilot Roll-out: Human Resource Management Information System

3.3.2.1. Objectives and the Roll-out Program

The objectives of the pilot Human Resource Management Information System (HRMIS) roll-out are:

- To achieve effective staffing and right sizing of the civil service through better availability of HRM information.
- To automate human resource management operational processes.
- To build up-to-date consolidated HRM information for effective HRM planning among agencies.
- To achieve better communication, horizontal integration and more streamlined processes through establishing a richer collaborative systems environment among the agencies so as to provide a single window access to HRM transactions, which usually cut across agencies.
- To improve paperless human resource management capabilities among agencies such as electronic distribution of human resource policy manuals and circulars electronically.
- To provide an open and flexible system, which will fulfill and improve the information needs of operational and managerial processes at different level of agencies.

3.3.2.2. Scope of Pilot Project

The scope of the pilot project is discussed in two aspects namely implementation in terms of functionality and, roll-out in terms of reach.

a) Implementation of Functionality

The first stage of implementation is limited to the data/communication infrastructure and operational application functions.
Communications Services:
- E-mail
- Master Employee E-mail Directory
- Net Chat

Application Services:
- Automate current HR Administration Processes
- Capture and maintenance of personnel records
- Payroll and benefits claims
- Transfers, promotions, and confirmation
- Disciplinary measures
- Performance appraisal

Develop web-based front-ends to Central Database of PSD.
- Collaborative environment for information sharing
- Employee locator services: personnel information retrieval

Web Publishing
- HR policy manuals
- Circulars
- Instructions

The second stage of implementation cover the following:

Organisational Integration of Systems
- Personnel Information System
- Training System
- Pensions System
- Establishment System
- Accountant General
- PFP
- SOCSO

Managerial functions
- Data mining
- Forecasting
- Training needs
- Analysis of skill sets
- Manpower needs
- Inter-agency process tracking
- On-line job posting
- On-line job applications

b) Roll-out in terms of reach

Minimum reach: The first phase of roll-out is limited to SMPKE, PSD, Administration Division of the Prime Minister's Department and MAMPU. The first stage of the pilot project is a proof-of-concept of the new automated HRMIS. Its reach is kept to a minimum. Through the evolution of the proof-of-concept stage, other agencies will be included in the HRMIS.
Maximum reach: Through the evolution of the first phase of roll-out targets, the other agencies will be covered. Maximum reach will cover all Federal Statutory bodies, 240 State Civil Service, 107 State Statutory Bodies and 148 Local Authorities.

Schedule of Implementation

The schedule of implementation is as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Second stage of implementation</td>
<td>August 1998 – February 2000</td>
</tr>
<tr>
<td>First phase of roll-out (minimum reach and first stage functionality)</td>
<td>August 1998 – January 1999</td>
</tr>
<tr>
<td>Second phase of roll-out (phased roll-out for maximum reach and some of the second stage functionality)</td>
<td>February 1999 – February 2000</td>
</tr>
<tr>
<td>Full roll-out (full reach and full functionality)</td>
<td>March 2000 onwards</td>
</tr>
<tr>
<td>Vendor performance evaluation</td>
<td>February 2001</td>
</tr>
</tbody>
</table>

First Stage of Implementation

The first stage of implementation is limited to data and communication services, and operational application functions. The data and communication infrastructure is to enable staff within an agency and across agencies to work in a collaborative environment facilitated by workgroup computing, workflow management systems, common database access, and messaging services. The operational applications enable agencies to capture and update human resource management information, and enable ministries to consolidate and produce analysis reports for management.

First Phase of Roll-out

At the end of the first phase, i.e. from August 1998 onwards, HRMIS will be rolled out to capture and update human resource information such as personnel records, payroll and benefits claims, transfers, promotions, confirmation, disciplinary measures and performance appraisal. First phase roll-out also include web-based front-ends to Central Database of PSD, and web publishing.

Second Stage of Implementation

The second stage of implementation starts from August 1998. It focuses on HRM managerial application functions providing data services such as data mining on the knowledge base and application services such as analysis of skill sets and manpower needs, financial analysis of scheme and salary changes, forecasting and simulation to
support managerial decisions. Second stage functionalities also include organisational system integration.

Second Phase of Roll-out

The second stage of implementation is rolled out in phases, beginning from February 1999 onwards where the reach is extended to other agencies and includes some of the Second Stage implementation functionality. From this date onwards, HRMIS system with full operational capabilities and some managerial capabilities will be extended nation wide in phases.

Full Roll-out

By March 2000, maximum reach and full functions of the second stage implementation will be realised, and all Federal Statutory Bodies, 240 State Civil Service, 107 State Statutory Bodies and 148 Local Authorities will have automated HRMIS with full managerial capabilities.

Figure 37: Timeline For Full Roll-out
3.3.2.3. Performance metrics and milestones

The measurement of the performance of HRMIS involves the measurement of the extent to which the objectives have been achieved against the targets set. In order to measure the objectives, some performance metrics have been identified. Targets for HRMIS performance will be set later when more information is known. Post implementation review will have to be done to assess the performance of the HRMIS. Information feedback from this review and information collected from the system will form the performance metrics. Below are some of the performance metrics for the various objectives of HRMIS:

To measure efficiency
- Number of relevant information items.
- Number of ways of analysing the information.
- Number of forecasting available.
- Number of agencies using HRMIS.

To measure effectiveness
- Time spent on HRMIS administration.
- Users' satisfaction survey in terms of ease of work.

To achieve up-to-date HRM information availability
- Time lag between actual information change and information update.
- Percentage of increase in usage of HRMIS.
- Users' satisfaction survey in terms of information requirement satisfaction.
- Number of fulfilled queries out of total queries.

To achieve organisational system integration
- Number of existing stand-alone HRM sub-systems integrated with the main HRMIS.
- Number of related systems linked to the HRMIS.

To achieve paperless and electronic distribution environment
- Percentage of increase in electronic document.
- Percentage of increase in electronic mail transaction.
- Percentage of increase in e-mail and electronic meeting usage.
- Number of agencies reached in electronic distribution.
- Number of documents distributed electronically.

To achieve flexibility and openness
- Number of system changes requirements fulfilled.

Milestones

Milestones are set at 6-month intervals successively after the date of each roll-out. At each of these milestones the HRMIS performance assessment report must be compiled.

3.3.2.4. Action Plans to Remove Obstacles

Concerted effort for integration
Because of the disparate stand-alone HRMIS sub-systems owned and implemented by various agencies, the following measures need to be taken:

- Top management commitment is needed to motivate various related agencies to collaborate and integrate the various disparate stand-alone HRMIS sub-systems.
- Legacy systems, which are mission critical and usable, should be retained.
- Adherence to standards.

Unified Coding System

In order for the HRMIS to work, a consistent coding system will need to be implemented. The following actions are suggested to overcome issues in this area:

- Review the suitability of the present coding system for HRM data and implement remedial actions if necessary.
- Persuade co-operation among all agencies in the adoption of the common coding system.
- Enforce the use of a common coding through circulars.

Review Regulations

Review regulation to facilitate HRM information collection.

Address privacy issues

In order to secure confidence of Government employees in the use of the HRMIS, it is necessary to convince them of the data protection available.

Increase accountability among the users of the HRMIS.

It is suggested that heads of agencies be made more accountable for the security of HRMIS information.
3.3.3. New applications – Non pilots

Objectives

The objective of the roll-out plan is to implement the inter-agency systems in a timely and systematic fashion. The timetable shown is an indicative timetable. The release of the RFPs for these applications will be announced from time to time.

Timetable

The overall implementation timetable is illustrated in the following figure and tables.

Figure 38: Implementation Timetable For New Applications – Non pilots
### Development Planning

<table>
<thead>
<tr>
<th>Task</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of RFP, vendor proposal and</td>
<td>September '97 – March '98</td>
</tr>
<tr>
<td>evaluation:</td>
<td></td>
</tr>
<tr>
<td>First stage of implementation:</td>
<td>April '98 – September '98</td>
</tr>
<tr>
<td>Second stage of implementation:</td>
<td>October '98 – April 2000</td>
</tr>
<tr>
<td>First phase of roll-out (minimum reach and 1st stage functionality):</td>
<td>October '98 – March '99</td>
</tr>
<tr>
<td>Second phase of roll-out (phased roll-out in terms of reach and functionality):</td>
<td>April '99 – April 2000</td>
</tr>
<tr>
<td>Full roll-out (full reach and full functionality):</td>
<td>May 2000 – April 2001</td>
</tr>
<tr>
<td>Vendor performance evaluation:</td>
<td>May 2001</td>
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### Accounting

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### Budgeting

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### Supplier profile

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<tr>
<td>Vendor performance evaluation:</td>
<td>March 2002</td>
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### 3.3.3.1. Action plans to remove common obstacles

The major obstacles facing the implementation of the inter-agency systems are expected to be related to human and organisation factors.

New technologies are enablers for individuals and their organisations to achieve maximum productivity and effectiveness. But their success will depend mostly on the acceptance of these technologies by both the individual and organisation. Since the new technologies have a great impact on people and thus their organisations, considerable thought will be required to remove any implementation obstacles.

#### Human factor

**Human Resistance**

Human resistance is a major obstacle in many IT implementations. The introduction of IT enabled processes require the need to learn new skills and processes. These new requirements may cause anxiety and a sense of inadequacy, especially among the older staff members. This is compounded by the rapid change in IT products and services.

Possible plans to remove the obstacle are:

- **Training**
At the initial phases, it is necessary to provide computer literacy training to all staff. The training course should be programmed in such a way that people can attend these courses at their convenience. Attendance of these courses should be monitored and linked to the personnel assessment programme. The next stage of training is to learn how to maximise the use of information, i.e. information literacy. This is to empower the individual with the skills to effectively use information through the Information Technology tools provided.

Attitude change of management

Sometimes managers become an obstacle to the use of collaborative communication with IT. They are in a position to ask their staff to prepare reports (in many instances in paper format) thus limiting their interactions with the IT systems in place. Therefore, computer literacy training should be targeted first for the management.

The senior management in the agency should be encouraged to use the system as the first user. They are the key people to ensure success through the wider use of the collaborative system. A system to monitor the level of system usage may be needed to give a clear indication of success or otherwise.

System enhancement

The systems to be implemented should be designed taking into account the levels of IT literacy among the users. Additionally, the selection of the various applications should be evaluated against their usability in the current work environment.

Empowerment of officers

Because of the rapid changes in technology, the IT skills among government employees are constantly eroded. Staff is able to cope with the day-to-day IT functions well until such a time when problems occur. When this situation occurs, staff generally do not have the technical skills to overcome the problem. Solutions to this problem will need to be addressed.

Organisational factors

Difference of format, code and procedures

Currently, each agency has its own way of working and suffers from unique constraints. Because of this it is sometimes difficult to establish a consistent standard of information format, code and procedures across agencies. Even if these are established, there are often agencies that do not follow the standard.

Standardisation is the crucial factor in implementing the EG inter-agency applications so that the government can benefit from productivity gains. Thus, it will be necessary to appoint a lead agency to formulate standards, disseminate them and maintain them through time.

Organisational hierarchy and old work methods
The public sector has been using a command and control hierarchy since its inception. The work methods also reflect this mode of operations. IT-enabled work processes, on the other hand, favour collaborative work methods.

Therefore these new methods of doing work will need to be introduced through training and pilot projects. Adoption of the pilot project approach will give people time to adjust to the new environment. A formal organisational transformation process may also have to be instituted to capitalise on the potential productivity gains of IT-enabled work methods.

3.4. Intra-Agency Roll-out

3.4.1. Intra-Agency Pilot Roll-out

3.4.1.1. Objectives

The objectives of the pilot roll-out are:

- To ensure fast and comprehensive deployment of the pilot project to the entire government upon migration to Putrajaya.

- To provide high visibility to all government agencies on the success and positive impact of the project, thereby expediting the adoption of the solution.

- To showcase to other agencies in the state and local government the success of Electronic Government, thus encouraging buy-in and roll-out to the entire country.

- To roll-out into a large national project that attract interest from leading IT companies around the world to participate in the Electronic Government project, thereby catalysing MSC.

3.4.1.2. Pioneer Pilot: Generic Office Environment

3.4.1.2.1. Roll-out Approach

The pilot project, the Generic Office Environment, is intended to build all the essential components of a state-of-the-art multimedia office for the Prime Minister’s Office, Deputy Prime Minister’s Office, Chief Secretary’s Office, Cabinet Division and MAMPU. The roll-out of this pilot can be measured in terms of agency reached, and functionality:

**Agency**

The objective of Electronic Government is to roll out to as many agencies as possible. To enable this to be achieved, two approaches need to be adopted:
1) Ensure quick success at the pilot phase: By building state-of-the-art offices at the pilot phase, the pilot application serves as a prototype for all the other agencies to follow. Witnessing the success of this pilot may prompt other agencies to adopt the solution. The success or failure of the pilot at this phase would be highly visible due to the enormous attention the Electronic Government Project is receiving, as well as the high visibility of the Prime Minister's Office. Therefore, a quick win is absolutely necessary.

2) Top-down approach: In addition to the above approach, MAMPU as the lead agency for Electronic Government can also take the initiative to encourage buy-in from other agencies. Agencies should be prioritised so that MAMPU can systematically market this project to other agencies. Prioritisation can be linked to the migration schedule to Putrajaya, as well as the needs of each organisation. Agencies involved in MSC Flagship Applications, such as the Ministry of Health in Telemedicine, the Ministry of Education in Smart School, are good candidates to be the pioneer agencies in the roll-out phase.

Functionality

The additional functionality to be built on top of the Generic Office Environment is expected to be achieved through two methods:

1) It is stated in the CRFP that the successful vendor(s) needs to incorporate input from users to install additional functionality to the pilot while implementing the solution required in the CRFP. This would ensure a more comprehensive solution which caters to the needs of users as the input from the users are derived while the vendors conduct detailed user-requirement assessment.

2) Upon the completion of the project, the enhancement of additional functionality on top of the installed applications is expected to be driven internally. It is proposed that all the IT initiatives should be managed centrally by an IT division within each agency. It is also envisaged that the users will be given a certain period of time to get familiarised with the functionality of the applications. This familiarisation coupled with the training program should ensure users are more adept at using the technology, and in turn would be more aware of the additional features that they may require. They could then drive the process of upgrading the applications, either by tendering, or by doing it themselves. The most significant benefit of the Generic Office Environment is realised when its different
components are integrated in various ways to cater to the users' specific needs.

Reach

We define "reach" as the number of people using the applications implemented by the Electronic Government. In the context of Intra-agency, reach is dependent on the number of agencies involved in the project. Thus the same method described in the "Agency" section above will be employed to achieve roll-out of this pilot. The extent in which the applications is used by the users depends on user acceptance, and this requires a change in behaviour through training program, and change management.

3.4.1.2.2. Roll-out Timetable

The pilot phase of the project will cover the Prime Minister's Office, Deputy Prime Minister's Office, Chief Secretary to the Government's Office, Cabinet Division and MAMPU:

Pilot Phase

Purpose: To fully develop and implement the pilot in PMO by December 1998.


Operational Review Phase:

Purpose: To review the performance of the responding organisation, and to decide whether the preferred responding organisation's status should be extended to all other agencies.


Roll-out phase:

Purpose: To roll-out to all other government agencies, with focus on ministries moving to Putrajaya by the year 2000.

3.4.1.2.3. High Level Performance Metrics and Milestones

To ensure successful delivery of the project by the vendors, the agency involved needs to monitor the implementation process by going through a checklist continually. The required functionality are checked when it is delivered, and this has to be an ongoing process. At the end of the implementation, a one-week operational review phase is arranged so that the Steering Committee and/or the agency involved would do an overall assessment of the project to ensure that all the functionality have been delivered. Failure to deliver all the required functionality would result in financial penalties.

To measure the success of intra-agency Electronic Government blueprint, additional measures need to be determined to gauge the impact of the projects on the agencies. Below are some of the performance metrics:

Benchmarking of value created:
There are many ways that value can be created from the implementation of the pilot. Some of them have been identified, and more specific targets will be set later when more information is known:

To measure information availability:
- Users' satisfaction survey in terms of ease of information retrieval
- Percentage of information gathered from computers
- Turnaround time for information retrieval

To measure extent of the "paperless" environment:
- Percentage of paper holdings
- Percentage of correspondence in paper

To measure effectiveness:
- Percentage of projects on schedule
- Number of complaints from users
- Time spent on commuting to and from office
- Users' satisfaction survey in terms of ease of work

To measure efficiency:
- Percentage of increase of electronic documents
- Turnaround time for decision making
- Turnaround time for approval

To measure degree of collaboration:
- Percentage of e-mail and electronic meeting usage increase
- Number of active users of group computing

Adherence to the Electronic Government Implementation Roadmap: the roadmap has been developed to measure the roll-out plan of Electronic Government. Even though this implementation schedule may serve as a high-level guide, it has
3.4.1.2.4. Action plans to remove obstacles

<table>
<thead>
<tr>
<th>Situation</th>
<th>Potential obstacles</th>
<th>Potential solutions</th>
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</thead>
<tbody>
<tr>
<td>The deployment of intra-agency systems require extensive IT infrastructure.</td>
<td>The backbone and network infrastructure of MSC and Putrajaya might not be able to be set up on time, or does not deliver the capacity as promised.</td>
<td>Put in place alternatives.</td>
</tr>
<tr>
<td>Physical move to Putrajaya.</td>
<td>Move to Putrajaya may be delayed.</td>
<td>A mirror site of solutions might need to be set up; close co-ordination between MAMPU, MIMOS and Putrajaya Holding is needed.</td>
</tr>
<tr>
<td>Development of an integrated EG system.</td>
<td>Lack of integrated and centralised IT initiatives and support within agencies.</td>
<td>An IT Management Committee should be set up in each agency*.</td>
</tr>
<tr>
<td>User acceptance of EG.</td>
<td>User acceptance might be slow, thus affecting roll-out</td>
<td>Training program of INTAN is crucial, thus should be incorporated into the EG initiative; agency should be aggressive in implementing the change program; migration to new systems should be swift, and users should be limited to access to the new systems, without using the old system as an alternative.</td>
</tr>
<tr>
<td>Vendors’ preference for high margin projects.</td>
<td>Given the preferred vendor status, successful vendor might only want to target those agencies providing the highest return, leaving other behind.</td>
<td>Achieving buy-in from the “high-priority” ministries (those involved in MSC and those moving to Putrajaya first), and then lay them in implementation sequence.</td>
</tr>
<tr>
<td>Evaluation process and procedures.</td>
<td>The financially most attractive solution, not the technically superior one might be selected.</td>
<td>The guidelines for selection criteria should be defined clearly that favour technically superior solution.</td>
</tr>
<tr>
<td>Establishment of an information sharing culture in the public sector.</td>
<td>Reliability, supportability, ability of the agency to share information, effectiveness of a client/server platform, and cost of PC ownership.</td>
<td>Establish a Personal Computer Common Operating environment*.</td>
</tr>
<tr>
<td>EG project roll-out.</td>
<td>To maximise returns, vendors might roll-out so extensively that there are not enough resources to cope with it.</td>
<td>The Steering Committee should approve the implementation in each agency.</td>
</tr>
<tr>
<td>IT security.</td>
<td>Security is still a big concern, and may hamper the widespread and fast deployment of many applications.</td>
<td>Government’s IT Security Policy should be delivered as soon as possible. Technology can</td>
</tr>
</tbody>
</table>
### 3.4.2. Intra-Agency Total Roadmap Roll-out

#### 3.4.2.1. Objectives

The roll-out of other non-pilot applications is to:

- build a complete multimedia paperless environment in which users are skilled with the usage of IT technologies.
- provide a total IT solution to government agencies that generate analytical, management and decision support tools for the knowledge workers.
- build within the IT division of each agency the capabilities to constantly upgrade their IT systems to stay at the leading edge of technology.
- build bridges to other initiatives across South East Asia and around the globe.

#### 3.4.2.2. Other Applications

**Roll-out Approach**

This roll-out should be internally driven by the agencies because the success of it depends on the readiness of the users. All the components of the Generic Office Environment must be in place and running, and the users must have achieved a high level of competence and familiarity in utilizing the system, before any further applications should be added on. The readiness of users depends on the existing IT competency level of the agency, as well as the timely and effective implementation of the training and change programs.

**Roll-out**

The following chart illustrates the schedules based upon the approach recommended. The schedule is subjective and is therefore changeable depending on the availability of resources:

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*For details please refer to appendices.*
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<tr>
<th>PROJECTS</th>
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<th>1998</th>
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<td>HR Mgt - Requirements</td>
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<tr>
<td>Planning</td>
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<tr>
<td>Establish organisation</td>
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<td>Develop methodologies</td>
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<td>Implement</td>
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<table>
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<td>Financial Modelling</td>
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<td>Integrated Voice Messaging System</td>
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<td>Requirements</td>
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<tr>
<td>Implementation</td>
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4. Appendix

4.1. Citizen and Business Applications

The following diagrams described the processes of some government to citizens/businesses services.

Figure 38: EPF/SOCPO Process Diagram
Figure 39: Smart Commercial Vehicle Licensing

<table>
<thead>
<tr>
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<th>INFORMATION/DOCUMENTATION</th>
<th>PROCESSING</th>
<th>OUTPUT</th>
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<td>Function</td>
<td>Feature</td>
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<tr>
<td>Identification</td>
<td>Access to multiple services</td>
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<td>Online/Financial processing</td>
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<td>- Smart Card</td>
<td>- User-friendly/quick cards</td>
<td>- 24-hour assistance</td>
<td>- Error inquiry</td>
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<tr>
<td>- Vehicle number</td>
<td>- Quick access</td>
<td>- 24-hour/7-day assistance</td>
<td>- Data validation</td>
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<td>- Multi-language support</td>
<td>- 24-hour/7-day assistance</td>
<td>- Transaction success</td>
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<td>- Name</td>
<td>- Online help</td>
<td>- 24-hour/7-day assistance</td>
<td>- Transaction amount</td>
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<td>H姓名</td>
<td>- Identification</td>
<td>- 24-hour/7-day assistance</td>
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<td>Registration</td>
<td>- Application information</td>
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<td>- Digital signature</td>
<td>- Credit card, Debit card, &amp; Cash and Cash</td>
<td>- 24-hour/7-day assistance</td>
<td>- Transaction amount</td>
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<tr>
<td>- Fingerprint</td>
<td>- Credit card, Debit card, &amp; Cash and Cash</td>
<td>- 24-hour/7-day assistance</td>
<td>- Transaction amount</td>
</tr>
<tr>
<td>- PIN</td>
<td>- Credit card, Debit card, &amp; Cash and Cash</td>
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Figure 40: Electronic Procurement

<table>
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<th>INFORMATION/DOCUMENTATION</th>
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<th>OUTPUT</th>
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<td>Feature</td>
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<td>Identification</td>
<td>Feature</td>
<td>Feature</td>
<td>Feature</td>
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<td>- User-friendly/quick cards</td>
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<td>- High security pay</td>
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<td>- Application information</td>
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<td>- Availability</td>
</tr>
<tr>
<td>- Digital signature</td>
<td>- Credit card, Debit card, &amp; Cash and Cash</td>
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<td>- Availability</td>
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<td>- Fingerprint</td>
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<td>- Availability</td>
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<td>- PIN</td>
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<td>- Transaction amount</td>
<td>- Availability</td>
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</table>

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Figure 41: Drivers License

<table>
<thead>
<tr>
<th>Function</th>
<th>Access</th>
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<th>Processing</th>
<th>Output</th>
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<td>Validation</td>
<td>Conference</td>
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<tr>
<td>- Handwritten</td>
<td>- Driver's license to computer</td>
<td>- License to application software</td>
<td>- Transfer of data</td>
<td></td>
</tr>
<tr>
<td>- Driver's license to computer</td>
<td>- Personal information</td>
<td>- Update of database</td>
<td>- Authentication</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- Payment information</td>
<td>- Credit card</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- Bank account</td>
<td>- Debit card</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- E-card</td>
<td>- Debit card</td>
<td>- Debit card</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- E-card</td>
<td>- Credit card</td>
<td>- Credit card</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- E-card</td>
<td>- Bank account</td>
<td>- Bank account</td>
<td></td>
</tr>
</tbody>
</table>

Figure 42: Easy TV License Issuance and Renewal

<table>
<thead>
<tr>
<th>Feature</th>
<th>Access</th>
<th>Information/Lodgment</th>
<th>Processing</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Driver's license to computer</td>
<td>Request for service</td>
<td>Validation</td>
<td>Conference</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- License to application software</td>
<td>- Transfer of data</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- Payment information</td>
<td>- Credit card</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- Bank account</td>
<td>- Debit card</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- Social security number</td>
<td>- Social security number</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- Debit card</td>
<td>- Debit card</td>
<td></td>
</tr>
<tr>
<td>- Handwritten</td>
<td>- Personal information</td>
<td>- Bank account</td>
<td>- Bank account</td>
<td></td>
</tr>
</tbody>
</table>

Feature descriptions:
- IDEs
- Handwritten
- Personal information
- Personal information
- Payment information
- Bank account
- Social security number
- Debit card
- Bank account
- Social security number
- Debit card
- Bank account
- Handwritten
Figure 43: On-Line Foreign Trade & Incentive Information

<table>
<thead>
<tr>
<th>Function</th>
<th>Access</th>
<th>Information/Lodgment</th>
<th>Processing</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Request</td>
<td>Request for credit</td>
<td>Validation</td>
<td>Confirmation</td>
</tr>
<tr>
<td></td>
<td>Approval</td>
<td>Sales/Company</td>
<td>Payment of products</td>
<td>Transmittal</td>
</tr>
<tr>
<td></td>
<td>Audit</td>
<td>Credit report</td>
<td>Internationa</td>
<td>Exporter</td>
</tr>
<tr>
<td></td>
<td>Confirmation</td>
<td>Credit for additional information</td>
<td>Open</td>
<td>Foreign</td>
</tr>
<tr>
<td></td>
<td>Process</td>
<td>Credit for additional information</td>
<td>Open</td>
<td>Foreign</td>
</tr>
<tr>
<td></td>
<td>DOB</td>
<td>Credit for additional information</td>
<td>Open</td>
<td>Foreign</td>
</tr>
</tbody>
</table>

**Feature**
- Multiple service access
- International
- Incentive
- Intelligent capability
- Security
- User interface
- Report
- Print
- Customer service
- Day to day access
- Information access

**Feature**
- Secure and data protection
- Multi-peak analysis
- Secure memory capability
- Accountability
- Audibility
- Internal security

**Feature**
- Exporter security
- Open standard compliance
- Import capability
- International trade
- Multi-peak analysis
- Secure memory capability
- Accountability
- Audibility

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4.2. Results of Market Survey

Figure 44: Demographic Profile: Residential Sample

Figure 45: Demographic Profile: Business Sample
Figure 46: List Of Government Services Surveyed In Sample

RESIDENTIAL
- TV licence
- Road tax/vehicle tax
- Quit rent/eviction fee
- Employment/retirement permit
- Commercial vehicle license
- Birth/Death registration
- Flood payment
- CEMA fee payment
- School registration
- Voting registration
- Passport, visa application and renewal
- IC application, renew, change of address
- Residential land application/transfer
- Income tax processing
- Social welfare benefits
- Local land use application
- EPPSCA withdrawal, enquiries and disputes
- Government permits

BUSINESS
- Registration of company/business
- Trade license and permits
- Safety registration
- Real estate andivalent registration
- Pre-public processing /work permit
- Commercial vehicle license and permit
- EPPSCA
- Bank state tax
- BBD lobby processing
- BBD 60 payment
- Pre-completion (supply of product in government)
- Operational permit
- Tax permit tax
- Information and data on regulations, statistics and demographics
- Plan payment

Figure 47: Residential Sample

Q: How satisfied were you with the government service provided to you? Why were you dissatisfied with the service?

Level of satisfaction
- Not satisfied
- Quite satisfied
- Satisfied
- Very satisfied
- Highly satisfied

Problems faced
- Long queue at counter
- Slow processing time
- Insufficient office hours
- Insufficient/incorrect guidance
- Staff were not responsive to queries
- Request more information
- Too many forms
- Multiple offices/department required
- Excessive time of payment

11 Not satisfied
9 Quite dissatisfied
4 Satisfied
2 Very satisfied
1 Highly satisfied

26 in 100 respondents
Figure 48: Business Sample

Q: How satisfied were you with the government service provided to you? Why were you dissatisfied with the service?

![Diagram showing satisfaction levels and problems faced]

Figure 49:

Q: What is your overall view of Electronic Government?

![Diagrams showing opinions on residential and business perspectives]
Figure 50:

Q: The electronic government service can be delivered using various methods. Please rank the methods you most likely to use in the future to conduct government services.

Figure 51:

Q: How important are these features in the delivery of electronic government services?
Figure 52:

Q: Do you have any concerns about the delivery methods for electronic government services?

[Pie chart showing responses]

Yes 37%
No 63%

Figure 53:

Q: What concerns do you have using the kiosk for conducting your transactions?

<table>
<thead>
<tr>
<th>Concern</th>
<th>Residential</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment delay</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>Privacy of information</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>Long lines to buy ingredients</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Not only available accessible</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Difficulty of new technology</td>
<td>36</td>
<td>18</td>
</tr>
</tbody>
</table>
Figure 54: Level of Importance to Have Multiple Service

Figure 55: Residential Sample

Q: Would you prefer to use a kiosk located indoor or outdoor? Where are you most likely to use a kiosk for electronic government services?

<table>
<thead>
<tr>
<th>Location</th>
<th>Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post office</td>
<td>35%</td>
</tr>
<tr>
<td>Shopping center</td>
<td>30%</td>
</tr>
<tr>
<td>Bank</td>
<td>20%</td>
</tr>
<tr>
<td>Government office</td>
<td>40%</td>
</tr>
<tr>
<td>Library</td>
<td>10%</td>
</tr>
<tr>
<td>Park</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
</tbody>
</table>
Figure 56: Business Sample

Q: Would you prefer to use a kiosk located indoor or outdoor? Where are you most likely to use a kiosk for electronic government services?

100% = 125 respondents

- Shopping complex: 77%
- Mall: 51%
- Hotel: 40%
- Post office: 37%
- Train station: 21%
- Government center: 20%
- Rural shop/hand outlet: 17%
- Airport: 6%
- LRT station: 3%
- MRT station: 3%

Figure 57:

Q: Do you think it is justified for the government to charge a reasonable fee for providing the various convenient electronic government services?

RESIDENTIAL: 100% = 400 respondents

- Too much fee: 30%
- Fair: 10%
- Very good: 10%
- Too good to be true: 10%

COMMERCIAL: 100% = 125 respondents

- Too much fee: 20%
- Fair: 10%
- Very good: 30%
- Too good to be true: 20%
- Other: 10%
Figure 58: Grouping Of Electronic Government Services Surveyed In Sample

GROUP A
- On-line consumer information
- On-line motor and pedestrian
  event information
- On-line consumer and business
  information
- On-line public service
- Electronic voting
- Electronic poll and survey
- On-line citizens rights
  information

GROUP B
- Electronic driver’s license
  renewal
- On-line trafficfine payment
- On-line utility bill payment
- Electronic quit rent
  processing and payment
- Electronic license renewal
- Electronic tax payment and
  processing
- Electronic change of address

GROUP C
- Electronic IC removal
- Electronic registration of
  companies, businesses, vehicles
- Integrated passport and visa
  processing
- Enrol employment
- Birth/Death certificates
- Electronic education
- Electronic college admissions
- Electronic medical registration
- Electronic marriage
- Electronic property
  valuation
- Electronic tax payments

Figure 59: Residential Sample

Q: How much are you willing to pay for using the following groups of electronic government services?

GROUP A

<table>
<thead>
<tr>
<th>Service</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td></td>
</tr>
</tbody>
</table>

GROUP B

<table>
<thead>
<tr>
<th>Service</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td></td>
</tr>
</tbody>
</table>

GROUP C

<table>
<thead>
<tr>
<th>Service</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td></td>
</tr>
</tbody>
</table>
Figure 60: Business Sample

Q: How much are you willing to pay for using the following groups of electronic government services?

GROUP A
- RM50.00: 22
- RM25.00: 47
- RM12.50: 54
- RM6.25: 83

GROUP B
- RM5: 0
- RM2.50: 27
- RM1.25: 33
- RM0.63: 82

GROUP C
- RM5: 3
- RM2.50: 17
- RM1.25: 42
- RM0.63: 7

Figure 61:

Q: Which payment method do you most prefer to pay for electronic government services?

BUSINESS
15% Credit
21% Cash
54% Bank
1% Other

RESIDENTIAL
15% Credit
21% Cash
54% Bank
1% Other
Figure 62:

Q: Does your household currently own or use the following?

| Residential | | | Desktop |
|-------------|-------------|-------------|
| TV          | 32          | TV          |
| PC Computer | 14          | PC Computer |
| Telephone   | 77          | Telephone   |
| Internet    | 0           | Internet    |
| Fax         | 0           | Fax         |
4.3. Non Pilot Intra-Government Applications

4.3.1. Financial Information System

4.3.1.1. Introduction

Implementing integrated Financial Information System will be a target of intra-government applications. The Government's critical integration requirements are not known at this time, although it is assumed the General Ledger needs to be integrated with Budgetary Control. However, it is proposed to utilise SAGA or some other proprietary system where the applications requirements will be determined through a requirement analysis.

Implementing a Financial Information System will incur major costs. The variables, conversion and training, etc. in implementation makes it impossible to provide accuracy in estimates. As a general rule, implementation costs are directly related to the cost of the software. More costly packages cost more to implement because of flexibility in the software. For example, complex account coding can be addressed by giving the user the ability to define their own chart of accounts rather than a fixed format. This flexibility is a double-edged sword, as improving functionality increases training requirements.

If SAGA is not used, for costing purposes a licensed Data Base Management System (DBMS) may need to be purchased and an integrated set of applications obtained.

4.3.1.2. Objectives

The fundamental objective of the Financial Information System is to create better and additional financial information products that will lead to better decision making.

Having the ability to be viewed by many different persons at the same time enhances the worth of any information product, especially if this does not involve producing a hard copy.

A significant benefit of an enhanced Financial Information System for an agency would be the savings of labour time. Most financial related tasks are being done manually right now. Thus, there is the cost avoidance of not hiring staff for functions that are not now being undertaken satisfactorily.

It is envisaged that the Financial Information System will bring about the following benefits:

- Accurate and timely useful financial information.
- Improve productivity of financial unit.
- Integrate or link financial applications with operational applications.
- Strengthen financial and management controls.
- COLD and Imaging technology will assist in a paperless environment.
- Production on short notice.

4.3.1.3. Description

The overall goal in planning, defining requirements, evaluating software and implementing a Financial Information System is to achieve the defined objectives outlined in the investment table. Thus an explicit understanding of why the objectives exist is an important first step in the planning process.

Figure 63: Implementation of Financial Information System

Phase-1

Every Financial Information System addresses the basic accounting and record keeping of recording expenses and accounting for assets, liabilities and budgets.

Phase-2

This phase is characterised by the management's use of financial information typically to determine cost of operations and performance information. Asset management is also introduced at this phase but involves moving beyond just accounting for the asset to using the Financial Information System on a proactive basis to support their operating decisions. Assets in this case include cash, inventory and human resources.

Phase-3

In this phase record keeping is still supported but the need for additional functions of management control and decision support are addressed.
The detailed action steps designed to achieve objectives are quantified as expense budgets and capital requirements. For example, an increase in the number of financial transactions, resulting in a specified increase in the number of resources required to keep the total manageable within a performance objective, at a cost of $X, are all business objectives. The quantified objectives and planned resource allocations would be recorded in the Financial Information System as forecasts or budgets. The monitoring of actual performance versus plan is a management control mechanism.

Another typical characteristic is the emphasis placed on planning, a shift to a proactive versus reactive approach to the development of an agency's strategies. Financial information is used as input to the strategic decision making process - future versus historical.

4.3.1.4. Scope

The scope defines the applications (business processes) addressed by the planned Financial Information System.

An understanding of the characteristics of an integrated Financial Information System is necessary in order to understand how the Financial Information System scope impacts the integration objectives as specified in the Information Resource Management Objectives and Strategies.

The table below identifies the major characteristics of both interfaced and integrated Financial Information System.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Integrated FIS</th>
<th>Interfaced FIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference databases</td>
<td>Shared across applications</td>
<td>Application specific</td>
</tr>
<tr>
<td>Transaction databases</td>
<td>Shared across applications</td>
<td>Application specific</td>
</tr>
<tr>
<td>Transaction processing</td>
<td>Single entry</td>
<td>Multiple entry</td>
</tr>
</tbody>
</table>

Integrated applications shared databases and single entry of transactions, which can only be achieved by designing multiple applications to work together, are included in the Financial Information System scope.

Interfaced applications result when multiple applications are designed independently of each other and are excluded from the Financial Information System scope.

Thus, an Financial Information System scope that includes all financial/operational applications is necessary to achieve the optimum integration.
4.3.1.5. Assumptions

There are assumptions that constrain the PMO and may prevent it from defining the optimum Financial Information System scope. These are:

Lack of resources - a scope of all financial and financial/operational applications ranges from a minimum of six to twelve or more individual applications, i.e., the greater the scope the greater the financial and resource requirements.

Existing investment in applications. SAGA is relatively new and planning to replace this in order to achieve integration may be difficult to justify in the short term.

The scope of the Financial Information System spans organisational boundaries.

A key objective is to eliminate the constraints or define the impact of the constraints on the planned Financial Information System.

It is possible to eliminate the resource constraints but only through the use of external resources. Replacing SAGA is not desirable at this time because it is becoming acceptable and to justify a change at this time may not be acceptable. However, during any analysis this must be seriously considered.

An important step in the planning of an integrated Financial Information System is to understand that the scope will span operational boundaries. This means that operational units must agree to share common databases.

With the exception of critical integration requirements, the PMO business requirements can be achieved through links provided there is a single input of transactions. However, some critical integration between accounts payable and purchasing is necessary. Another critical integration is between the general ledger and interactive budgetary control.

Integration requirements are possible by acquiring a software package from one vendor. If SAGA does not offer this at this time, the strategy proposed is to explore another approach. For example, find a local product that needs investment.

4.3.2. Call Accounting

4.3.2.1. Introduction

This application puts the power of managing the use of data communication lines in the hands of the department. It is assumed that the function will be facilitated through Centrex and not a PABX. However, from a conceptual point of view it is of no consequence. From the costing aspect, a Centrex solution is provided by the service provider (such as GITN or Telecom and thus costs are recovered by charging for the service). If on the other hand a PABX installation is installed, a Call Accounting application would become the responsibility of the agency. In either case it is important that the solution implemented conforms to ISO 9000 standards to ensure functionality and quality in the solution provided.
4.3.2.2. Functionality

Conceptually what is required is the ability to capture, process and distribute Message Detail Records (MDRs) in a timely fashion and then manipulate that data from a workstation.

The most basic functional requirements are that the system must be ISO 9000 compliant, allocate costs on a source (Telephone #) basis, optimise the telephone Network, report on Abuse and Misuse of the communication facility and provide itemised billback.

The Message Detail Recording system should provide from Centrex, PABX or a Virtual Private Network (VPN), a message accounting capability for gathering and managing MDR data.

The complete picture

A flexibility of components should be combined to benefit VPN/Centrex users regardless of their level of call record use. From the central office, to network operations and billing centers, it must provide a fully automated, capture-and-transport mechanism for call record data. At the PMO the call accounting software should provide telecommunication resource management in a Microsoft Windows environment. A minimum of three modules are envisaged, namely Call Record Retrieval, Alarms Management and Statistical Gathering modules. These are in addition to the switch interface.

As the ministries at Putrajaya get populated the call throughput should define the system's configuration by adding ports, modems, and data storage as your Centrex requirements grow.

Regardless of the switch used the system should provide a flexible interface. Any switch interface not supported should be developed upon request.

From the switch to the desktop

A central processor would capture and forward MDR data from the switch to either a central information collector or to the PMO. The collector would retrieve and validate MDR data and make it available at either a service provider or the PMO location.

A software application should analyse data and offer reporting capabilities complete with graphs and charts.

Configurability

A flexible architecture should allow the agencies to customise the Centrex MDR delivery offering to meet various levels of service and users expectations. Thus as requirements increase, through Centrex, the agencies will pay for network equipment as needed.

Information Manager

Telecommunications industry analysts agree that the future success of Centrex may depend in part on offering users the ability to bring MDR
information from the switch to the desktop. Thus an information manager must have graphical and intuitive screens, so that managers can quickly and easily manipulate detailed call record data into customised reports. Those reports can be used to analyse an agency’s calling activity for purposes of telephone cost allocation, to prevent phone misuse and abuse and to improve the quality of service.

Information Collector

An Information Collector should poll, aggregate and store call record data from a network. This centralized data is accessed by the agency’s equipment.

Hardware

An open system environment is required. However, for speed and security, in case a Centrex solution is not implemented, the following minimum configuration is necessary:

- Support for dial-up or dedicated access by the agency’s equipment.
- Provide for a direct and dial-up maintenance interface.
- Support for mirrored or separate Information Collectors for redundancy and security.
- Support Redundant Array of Inexpensive Disks (RAID) Technology for data integrity.
- Offer a remote alarm interface to the Administrator Processor (AP).

Software

The Information Collector software should have a minimum of four major components:

1. A user interface that provides a series of menus and forms to perform such tasks as set up of record sources (MF) port group parameters and call record storage devices.

2. A Data Storage system with Data Element Standard Storage (DESS) files that are located in a storage module within the collector network. The DESS files are partitioned by data type, source and date to allow flexible access to the data by multiple sources.

3. A Data Retrieval function that polls data on a scheduled basis. Access to the collector by dial-up operation is limited by Login ID and password security measures. The data retrieval element of the collector should use a file transfer protocol for reliable data transfer.
4. The Reports/Logs feature should provide a series of administrative tools such as database table reports, summary file transfer statistics, performance statistics and log files that report on major system processes.

The Administrator Processor

The Administrator Processor (AP), typically located at a network operations center or other administrative location, configures and monitors a network. The AP is usually accessed by a system or operations administrator, sets up polling parameters and options for handling error records, and process alarms.

The software should include:

- System databases that control the data collection network, and define parameters such as polling intervals, disk partitioning and call record status.

- An Open Windows graphical user interface that utilizes menus and forms, and has a help utility. Any interface should also define and support different classes of users.

- A Reporting Module that provides database table reports, transaction reports, system utilisation reports and error/alarm reports.

- A series of log files that report on major system processes for diagnostic purposes.

4.3.3. Business Resumption Planning

4.3.3.1. Introduction

A quick assessment of government survivability indicated that there is a lack of detailed contingency planning for the government. It is important to protect the government's information assets and also to ensure the availability of essential systems. Generally accepted industry practices recognise the importance of establishing plans. However, Managers are accountable and have discretion on how to implement the process. Thus, it is proposed to review security and develop and test contingency plans to minimise any potential damage or loss to PMO holdings.

4.3.3.2. Objective

The objective of the Business Resumption Plan is to enhance the ability of an agency to continue operations in the event of disasters. The Plan will cover fires, floods, power outages, disruption of critical information resources, viruses, strikes, loss of key employees, theft, communications breakdowns and disruption of office facilities.

A disaster recovery plan is a living document as dynamic as the organisation it purports to describe. It is never static and must be continually updated. For the government, maintaining the plan will be a
challenge as generally it is viewed as an unnecessary overhead. However, as has been demonstrated the critical mission systems are the lifeblood of the government and if for some disasters, natural or man-made, Cabinet Minutes, EPU and ICU data were put out of commission and recovery was impossible, the cost of reinstalling the whole systems would be prohibitive.

4.3.3. Description
The essence of this project is to prepare an Impact Assessment, a Business Resumption Plan and to verify the adequacy of existing security policies and procedures. The project will identify:

- applications critical to the continuation of PMO business function.
- current and survival levels for each essential application.
- survival levels of personnel and services for each essential application.
- alternative methods of continuing critical business functions pending recovery.
- recovery prioritisation of critical applications.
- review of security together with improvements.
- threat and risk assessments for business resumption and security effectiveness.

A plan will be developed and subsequently tested to ensure that an agency's holdings are secured and that it is able to recover with the minimum of delay in the event of a disaster.

The project would consist of four phases:

Phase-1
Determine current business recovery status.
Determine security capabilities and requirements.
Threat and Risk assessment.

Deliverable: Recovery/Security strategies

Phase-2
Implement detailed security strategy.

Phase-3
Implement Business Resumption strategy.

Phase-4
4.3.4. Personal Computer Common Operating Environment (PC COE)

4.3.4.1. Introduction

As the resource supply tightens and markets become more competitive, it is necessary to get more work done with fewer resources. To increase productivity, the PMO needs to apply new technology at an ever-increasing rate.

The Personal Computer Common Operating Environment (PC COE) in parallel with the Generic Office Environment is one way to meet this challenge. PC COE manages desktop and mobile PCs using network-based tools and processes. The PC COE service is very effective at getting more value from information technology while keeping costs under control. The PC COE concepts, processes and technologies can be applied to other government organisations as well. To understand how to implement PC COE, the problem PC COE was designed to solve and the strategy used to solve it will be reviewed and a model used for marketing PC COE’s services within the PMO will be described. This model incorporates PC COE’s services and the processes used to provide them, the benefits to application providers, IT organisations and end-users and the steps necessary to create a desktop management service.

4.3.4.2. The Problem

Before PC COE, organisations could not get a satisfactory return on their PC investment. PCs were neither proactively managed nor well integrated into the overall-computing environment. The problem was divided into five key areas:

1. Reliability.
2. Supportability.
3. Ability to share information.
4. Effectiveness as a client/server platform.
5. Cost of PC ownership.
1. Reliability
Problems As the rate of new technology adoption increased, PCs became increasingly unstable. Problems were introduced each time a user installed new software. Software vendors’ installation tools required the user to make configuration choices. AUTOEXEC.BAT, CONFIG.SYS and Windows SYSTEM.INI entries were made incorrectly, and PCs sometimes couldn’t even boot. Users became increasingly frustrated as they rebooted their hung systems, lost hours of work and spent more time trying to solve technical problems.

2. Supportability Problems
At the same time, PC support calls were swamping IT help desks. Help desk personnel spent an average of one hour per software installation. Configurations became more and more complex and problems were increasingly difficult to solve. Most support calls could not be handled over the phone because there was no way to know how the PC was configured. At large sites, help desk personnel often spent as much as 20 minutes per problem just walking to and from the user’s desk. Geographically distributed organisations had to increase their staff substantially in order to provide on-site support for their remote sites.

3. Information Sharing Problems
Meanwhile, users began to understand PC technology, and they wanted the maximum benefit. They wanted to improve their productivity and business processes through automation and information sharing. Office productivity tools such as spreadsheets, word processors and presentation graphics programs became very popular. New tools such as personal information managers, personal databases and project management tools started to catch on. One of the great benefits of the PC is the availability of a wide variety of software tools. Unfortunately, these tools were implemented in a very unmanaged way. Sometimes departments standardised on a set of tools, but more often each user picked a completely different set. Process automation and information sharing were nearly impossible because of the variety of software tools and versions.

4. Client/Server Platform Problems
Client/server technology promised a better way to develop software applications, and development groups embraced this exciting new technology. Meanwhile, an increasing number of applications were purchased from third parties and integrated into other computing environment. The PC was not ready to become a client for mission-critical, client/server applications, but the businesses needed the applications. Governments need a way to make sure the right versions of the operating system, networking software and Application Programming Interfaces (APIs) and utilities were installed on all PCs.

5. Cost of PC Ownership
The steady influx of PC technology is driving the cost of PC ownership to an unacceptable level. Because the PCs are unreliable, end-users lose hours of productivity and PCs are so difficult to support, industry has found that one help desk employee for every 50 users is needed. In most cases, IT cannot staff at this level, so effective support is impossible. Because electronic information is so difficult to share, most users cannot do it. With mission-critical
applications being deployed, critical business processes were disrupted. Thus the government needs to get its PCs under control.

4.3.4.3. The Common Operating Environment Strategy

The Common Operating Environment strategy has been developed to control the cost of technology ownership. Cost is a function of technology implementation. As new technology is introduced, costs increase. As technology matures, it becomes well managed, and costs decrease. PC COE manages PC technology implementation to minimise cost increases and to maximise technology utilisation. The result is a positive return on the PC investment. The proposed PMO PC COE strategy focuses on five objectives:

1. Connect all users to the network.
2. Standardise configurations.
3. Manage configurations via the network.
4. Distribute a common, core set of office productivity tools.
5. Develop a process for integrating applications into the environment.

1. Connect All Users to the Network
   All of the PMO’s PCs should be connected to the PMO-GITN network, i.e., change to "PC COE user" rather than "personal computers." This is an important distinction. It means the PCs become part of a networked computing system instead of independent machines. It could be a source of some resistance from the more individualistic PC users. Some users may feel they are giving up control of their computers. They may fear a return to the days when the "Electronic Data Processing" department was relied upon for every computing task. An internal public relations effort may be needed to help users understand the benefits of the network and to quell their fears.

2. Standardise Configurations
   The second step proposed is to standardise the PC configurations to the highest reasonable degree. This may be particularly challenging because of the variety of PC hardware available. The variety of printers, disk drives, sound adapters and other peripheral devices may also be somewhat daunting. Directory structures and network device standards should be established and Network software and Windows configurations should be standardised. A common set of utilities should be made available to each PC via the network. However, all this standardisation could be useless without the capability for ongoing configuration management.

3. Manage Configurations via the Network
   Standardised configurations is a first step, but because new hardware and software is being deployed all the time a process needs to be developed to manage the configurations via the network. Create tools to set up, track and change configurations. Once a PC is set up on PC COE, the PC COE process on an ongoing basis would manage it.
4. Deliver Common Office Productivity Tools
To motivate the users and to help solve the information-sharing problem, a common set of office productivity tools should be delivered to each PC. Include spreadsheet, word processing, presentation graphics, terminal emulation, e-mail and other tools. Evaluate tools based on their functionality, reliability, multi-platform support and cost. Conduct a migration from the vast variety of office productivity tools to a relatively small set of managed tools. To ease resistance, implement the common tool set without requiring the removal of competing tools. Instead, position the common set as the tools to use for data sharing. A combination of server software, client platform software and office productivity tools comprises the "PC COE Core". Keep the common tool set small and focus the PMO efforts on a process for integrating tools and applications.

The PC COE PMO Marketing Model
The focus on the application integration process should lead to the development of an internal marketing model for PC COE's services. The PC COE processes assemble the pieces of the computing environment and deliver them to the end-user.

Central Service Providers
Under IT-PMO three central, platform-oriented units are suggested. Technology unit would be the internal organisation responsible for managing the PMO Intra/Internet. Technology unit selects the network software and uses the PC COE process to integrate it into the core PC COE platform. Planning unit would define the operating system, office productivity and other client computing strategies. The PC COE team would manage the integration and delivery processes and engineer the platform configurations in conjunction with PMO program units.

Application Providers
A Systems Development unit could be the business, functional and geographic application providers. This unit would develop or purchase applications to solve specific business problems. They use the PC COE process to integrate the applications on top of the core PC COE platform. Application provider organisations could exist in each of the PMO's major business areas, e.g., EPU, ICU, MAMPU and Cabinet Division.

End-Users
The ultimate beneficiary of the process is the end-user. By the time the user sees the system, all of the components have been integrated into a robust, reliable system. The various hardware, software and networking components of the computing environment are hidden, and the user can concentrate on the job at hand.

PC COE Services
PC COE provides different value propositions for application providers, technology unit and end-users. To application providers, PC COE is a predictable target platform and an application integration process. To the technology unit, it is a way to deliver a complete, integrated, fully supported set of
computing services to the end-user. To the end-user, PC COE provides a robust set of services while hiding the complexity of the technology. PC COE satisfies these three audiences by providing three services:

i. Core platform subscription.

ii. Application integration.

iii. Application subscription.

Core Platform Subscription
The PC COE team integrates, tests, and delivers the operating system, networking software, Windows and common office productivity tools as a "core platform subscription" service. Users subscribe to the core platform when they first come up on PC COE. From then on, the platform is automatically managed for the user.

Application Integration
Application providers use the application integration process to build on the PC COE core platform. Application integration ensures that the PC COE core platform contains the tools, utilities, APIs and other platform software necessary to run the application. It also facilitates testing to ensure that each application works well both with the core platform itself and with other applications. After integration, each application is distributed to the appropriate server and delivered right to the users.

Application Subscription
Application subscription services provide end-users with applications built on the PC COE core platform. Once a user has subscribed to the PC COE core platform, a range of application subscriptions can be made available. Examples of applications subscribing to the PC COE are personnel management, strategic planning, finance, and Information Systems management.

5. PC COE Processes
Two key processes are used to manage PC COE’s services. The core platform engineering process keeps the platform software up-to-date and manages platform configurations. The application integration process makes application subscriptions available to the end-users.

Core Platform Engineering
Core platform engineering begins with a semi-annual planning meeting. Representatives from each application provider and site IT organisation are invited. Platform strategy is reviewed, needs are discussed, and deliverables are prioritised. A high-level specification for the next platform release is documented in an updated Blueprint. The high-level specification is then reviewed by two steering committees. One committee focuses on architecture and technology for the PMO’s computing environment. The other focuses on IT infrastructure management practices. The two committees make their adjustments and approve the specification.
Next an engineering meeting is held to develop the internal specifications for the platform release. The specifications are divided into components. Each component is assigned an owner and one or more implementers. The owner is responsible for the accuracy of the specifications, the completion of the deliverables and the effectiveness of the component test. The implementers develop code, determine configurations and otherwise integrate the component into the release.

Once the release's basic functionality has been engineered, it moves to its alpha test phase. The alpha test is really a series of prototypes delivered to a group of testers. Additional functionality is added during alpha, and changes are made based on input from the alpha testers. The alpha phase usually lasts from one to two months. When the release is stable and functionally complete, it moves to the beta phase.

The Beta process automatically delivers the platform release to beta test users worldwide. The testers subscribe to the beta just as other users subscribe to the core platform. Every application provider must participate in the core platform beta test to allow application integration testing. The beta phase lasts from two to three months. When the number of beta problem reports drops below a predefined level, the beta code is "frozen." No changes are made for two weeks prior to the next phase:

Application Integration and Subscription
Application subscriptions are independent of platform releases. Once an application provider has integrated the application, tested it and distributed it via the PMO Intra/Internet, the subscription can be made available to the end-users. End-users can subscribe to the application and receive its upgrades at any time.

To integrate an application, the provider first registers in the "PC COE Application Provider Program". The registration process requires the application provider to review the process documentation and to agree to follow its rules. Contacts are identified, and names are added to the distribution lists for platform release information. Beta testers are identified and configured.

Once the application has been registered, integration testing begins. Each application must be tested with the current platform release and re-tested with each new platform release. Integration testing ensures that the application and the platform work well together, but it does not ensure that applications will coexist well with each other. Integration testing of every different combination of applications would be very complex, so the process is simplified through a set of guidelines.

Application providers follow a set of integration guidelines published by the PC COE team and agreed upon by each registered provider. The guidelines identify best practices for managing configurations, define directory structures, and specify common APIs. For example, application providers could be encouraged to use the Windows Sockets and WIN32 APIs. They
are discouraged from modifying LAN Manager and MS DOS configurations directly, and they are discouraged from adding entries to the DOS Path statement. The guidelines need to be updated frequently since the technology is constantly changing.

Once the application has been successfully integrated, it is distributed to the appropriate servers. Application distribution uses the same process as core platform distribution service, but the timing of distribution is independent. An application provider can distribute an application at any time. Once the application is available on the servers, delivery begins.

Delivery is the process of installing and configuring software for the appropriate client PCs. Each PC has an installer interface allowing the user to subscribe to applications. If the user is not comfortable with the interface, Technology unit can also deliver applications from a central interface. Once the user has subscribed, updates can be made available at any time. The application provider distributes a new version of the software to the server, the site IT server administrator enables the update, and the user is prompted. The user always has the option of accepting the new application update or delaying it until later. The upgrade prompt is repeated each time the user restarts the PC.

4.3.4.4. Results
This process of integrating, distributing and delivering the core platform and applications should be very well received. To the users they do not have to hassle with their configurations. To application providers, it dramatically simplifies the distribution process and their applications have a much greater chance of working correctly on a predictable client platform. To the Technology unit, it allows them to offer higher service levels and new technology without increasing costs.

From the endusers' perspective, the software subscription process saves a lot of time and effort. Now the software is delivered automatically via the network. All the user needs to know is a single, simple interface.

Additional benefits are described below. The participants in the internal PC COE marketing model will enjoy the following:

Benefits to Application Providers
Application providers use IT to solve business problems. PC COE benefits application providers by minimising the variations of PC platform configurations against which each application must be tested. PC COE also provides hooks and tools to simplify distribution, delivery, installation and update for the applications. Because PC COE provides integration testing processes, the resulting support requirements for the applications are reduced.

Benefits to IT Infrastructure Management
Implementing PC COE enables automated core software component installations and upgrades to take place regularly reducing costs. This reduction in software management cost
dramatically increases the Technology unit's ability to deploy and manage software to its PC end-user community.

Benefits to PMO Information Systems
Without an effective process for managing the PC platform, many PMO Information Systems strategies, products and services would be difficult to implement. The cost of distribution, maintenance and support for client software could become prohibitive. PC COE provides the means to quickly deploy PC client software in a supportable configuration to the right users at the right time.

Benefits to End-Users
The end-user is the ultimate winner in the PC COE program. The PC COE software management process delivers the right business, functional and geographic set of application software so the end-user can apply technology to solve specific business problems. The PC COE system reliability, hardware/software inventory and license management processes will help the Technology unit to provide endusers with a reliable, cost-effective platform upon which the applications depend.
LAMPIRAN D

SPESIFIKASI TEKNIKAL SISTEM ELEKTRONIK
MAHKAMAH SYARIAH
SPESIFIKASI TEKNIKAL
SISTEM ELEKTRONIK MAHKAMAH SYARIAH (e-SYARIAH)

1. Pengenalan


2. Objektif

2.1 Objektif pelaksanaan e-Syar'iah ke seluruh negara adalah seperti berikut:
   a) Mempertingkatkan mutu perkhidmatan Mahkamah Syariah;
   b) Mempertingkatkan keberkesanan JKSM di dalam menyelaras dan memantau agensi-agensi di bawahnya;
   c) Meningkatkan produktiviti dan efisiensi pengurusan mahkamah syariah diseluruh negara; dan
   d) Memastikan syiar Islam melalui penggunaan Information and Communication Technology (ICT).

3. Skop

3.1 Skop pelaksanaan e-Syar'iah melibatkan perkara-perkara seperti berikut:
   a) Melaksanakan sistem-sistem yang dikenalpasti sebagai keperluan e-Syar'iah, iaitu:
      i. Sistem Pengurusan Kes Mahkamah Syariah;
      ii. Sistem Pendaftaran Peguam-Peguam Syariah;
      iii. Sistem Perputusanan JKSM;
      iv. Portal e-Syar'iah;
      v. Sistem automatik pejabat; dan
   b) Sistem yang diintegrasikan dengan sistem-sistem yang sedia ada di agensi-agensi yang berkaitan.
   b) Mengkaji keperluan infrastruktur rangkaian, perkakasan dan peralatan di JKSM dan Mahkamah-Mahkamah Syariah di seluruh negara bagi menghubungkan keti dalam dan di antara agensi-agensi berkenaan;
   d) Membangunkan/meningkatkan rangkaian setempat dan rangkaian jarak jauh di JKSM dan Mahkamah-Mahkamah Syariah di seluruh negara bagi merangkaikan semua Mahkamah-Mahkamah Syariah di seluruh negara dengan Jabatan Kehakiman Syariah Malaysia (JKSM) dan juga agensi-agensi yang berkaitan;
   e) Mengenalkan mekanisme pelaksanaan dan penyelenggaraan yang bersesuaian dengan keperluan e-Syar'iah;
   f) Memastikan ciri-ciri keselamatan e-Syar'iah diambilkira;
   g) Mengenalkan dan melaksanakan program latihan yang sesuai bagi menyokong pelaksanaan e-Syar'iah; dan
   h) Menjalankan data conversion bagi mewujudkan pengkalan data e-Syar'iah.

SPESIFIKASI KEPERLUAN TEKNIKAL

4. Aplikasi e-Syar'iah

4.1 Sistem Pengurusan Kes Mahkamah Syariah.

4.1.1 Pengurusan kes-kes Mahkamah Syariah melibatkan pengurusan kes-kes berikut:
   a) MAL
      Kes MAL meliputi tuntutan yang terdapat dalam Undang-undang Keturanga Islam seperti permohonan nihak wakil hakim dan kebenaran nikan gadis bawah umur, tuntutan
perceraian, naikah, muta’ah, jagaan anak, harta sepencar, pengesahan pembahagian faraidh, dan ahli-ahli waris dan sebagainya. Pihak yang menutup disamakan "Plaintiff" dan pihak kena tuntut dinamakan "Defender".

b) Kes Jenayah

c) Kes Faraidh
Kes faraidh meliputi permohonan waris bagi mendapatkan Sijil Faraidh untuk pesaka si mati, lanya merangkumi pengesahan ahli-ahli waris, hak sa mati dan pengiriman pembahagian kepada ahli-ahli waris yang layak menerima pesaka.

4.1.2 Proses pengendalian kes-kes ini melibatkan pra-pendaftaran (Kes Jenayah dan MAL), pendaftaran, sahasan (Kes Faraidh), Pengiran (Kes Faraidh), sebutan (Kes Jenayah), perbicaraan, keputusan dan rayuan. Gambaran proses-proses yang terlibat adalah seperti di Rajah 1 (Lampiran 1).

4.1.3 Sistem Pengurusan Kes Mahkamah Syar’iah yang komprensif perlu menyediakan fungsi-fungsi untuk mengendalian kes-kes syar’iah seperti berikut:-

a) Pendaftaran kes MAL, Jenayah dan Faraidh;
b) Pertanyaan/Carian online;
c) Kedudukan kes;
d) Pengukuran reall;
e) Kuitan bayaran ii dan hasil lain;
f) Laporan kewangan;
g) Penjadualan dan penganjuran kes;
h) Pendaftaran peguam syar’ie;
i) Pengukuran notis/warnam;
j) Pemantapan kes;
k) Maklumat pengurusan;
l) Menjanaan laporan-laporan;
m) Rujukan sumber maklumat;
n) Perekodan keputusan kes dan cetakan keputusan;
o) Penyelenggaraan sistem dan peralatan; dan

p) Rujukan kepada Sistem Maklumat Perkhidmatan Islam (JAKIM), Sistem Rekod Negara (JPN), sistem-sistem berkaitan di Jabatan Imigresen dan Polis Diraja Malaysia.

4.1.4 Sistem ini hendaklah dibungkung secara bermodul dan sekurang-kurangnya mengandungi modul-modul berikut:-

a) Modul Kes MAL bagi mengendalikan urusan yang terlibat dalam pengendalian Kes MAL.

b) Modul Kes Jenayah bagi mengendalikan urusan yang terlibat dalam pengendalian Kes Jenayah.

c) Modul Kes Faraidh bagi mengendalikan urusan yang terlibat dalam pengendalian Kes Faraidh. Sistem perlu mengambil kira peraturan dengan sistem sediada, iaitu Sistem Pengiraan Faraidh yang dibungkung oleh Universiti Sains Malaysia (USM) bagi membuat kira untuk waris yang berbagai lapis.

d) Modul Penjadualan melibatkan pengendalian adfad bagi kes (MAL, Jenayah/Faraidh), termasuk berdisang dan hakim yang terlibat dalam kes perbicaraan berkala. Maklumat tarih dimaklumkan kepada hakim/peguam berawam yang terlibat melalui e-mail.

e) Modul Pengesahan Peguam Syar’ie membolehkan penyemakan sama ada peguam yang mengendalikan kes telah ditutup.

f) Modul Statistik dan Laporan yang dapat menghasilkan laporan-laporan harian, mingguan, bulanan dan tahunan bagi melihat status terkini kes-kes yang dikendalikan oleh hakim, mahkamah dan lain-lain untuk keperluan mahkamah dan JKS. JKS juga telah mengambil langkah untuk beberapa laporan yang perlu diselesaikan oleh sistem ini iaitu laporan mengikut jenis klasifikasi kod kes dan laporan mengikut pelengkapan mahkamah.

Setiap laporan perlu menyenaraikan bilangan baki dibawa ke hadapan, jumlah daftar, jumlah selesai dan jumlah tangguhan. Selain dari itu, pecahan laporan perlu dibuat mengikut:

1. harian/mingguan/bulanan,
2. negeri/daerah dan hirau mahkamah,
iii. jantina;
iv. pekerjaan; dan
v. hakim perbicaraan.

(g) Modul Kutipan dan Pengeluaran Resit melibatkan pengeluaran bil, kutipan bayaran bil untuk pendaftaran kes, bayaran denda dan kos mahkamah yang dikenakan ke atas seseorang. Sistem mencetak resit bagi setiap bayaran dan maklumat disimpan untuk pengeluaran Buku Tunai dan Penyata-Penyata Kewangan.

(h) Modul Sumber Maklumat adalah modul yang membolehkan Hakim-Hakim dan Pendaftar-Pendaftar membuat rujukan melalui proses carian kepada rujukan-rujukan berikut:

i. Laporan kes dalam Jurnal Hukum/Kanun, (sama seperti konsep Malaysian Law Journal (MLJ))
ii. Enakmen Pentadbiran Keluarga Islam dan Enakmen Pentadbiran Hal Ehwal Agama Islam;
iii. Ayat Quran;
iv. Hadith;
v. Nas-Nas Fuqahah; dan
vi. Fatwa.

Modul ini juga menyimpan direktori Mahkamah (seperti maklumat Hakim, Pendaftaran Mahkamah dan Kakitangan Mahkamah Syariah) untuk tujuan rujukan.

(i) Modul Carian Maklumat Kes melibatkan proses pencarian kes mengikut kategori-kategori tertentu yang dapat membantu, misalnya, mendapat keputusan-keputusan kes bagi kes-kes yang ada persamaan.


4.1.5 Entiti yang terlibat dalam sistem ini dan maklumat yang penting dibekalkidiguna dalam pangkalan data e-Syariah perlu meliputi maklumat kes serta penjadualannya, hakim syar'ie, mahkamah, orang awam, peguam syar'ie, pendakwa, penguatkuasa, lahanan reman, defenden, pendaftar, penjamin, wans dan penguna lain yang berkaitan. Sistem yang dibangunkan hendaklah securang-kurangnya mengandungi entity-entity berikut (sila lihat Lampiran 2):-

a) Maklumat Kes, merangkumi kes Mal, kes Jenayah dan kes Faraidh yang mempunyai fungsi asas yang sama seperti diterangkan di para 4.1.1.

b) Maklumat Hakim mengandungi maklumat mengenai Hakim-Hakim (Ketua dan Penolong Hakim) yang terdapat di setiap negeri dan juga Hakim-Hakim Rayuan yang ditetapkan untuk setiap negeri. Maklumat mengenai hakim, kes yang dibicarakan, mahkamah dan jadual boleh diperoleh daripada sistem.

(c) Maklumat Orang Awam mengandungi maklumat mengenai 'plaintiff', 'defender', 'orang kena langkap' (OKT), orang yang membuat tuntutan faraidh dan wasi-wasiannya. Maklumat orang awam direkodkan dan disimpan untuk tujuan pemantauan sehingga kes mereka selesai, ianya juga boleh dirujuk semula, jika terdapat kes yang berulang ulang orang yang sama.

d) Maklumat Mahkamah mengandungi maklumat mengenai Mahkamah-Mahkamah Syariah yang terdapat di seluruh negera. Maklumat ini akan dibungkakan dengan kes-kes yang akan dikendalikan di mahkamah yang dilipatkan dan jadual kes di negeri yang terlibat.

e) Maklumat Penjadualan mengandungi maklumat penjadualan kes di mahkamah yang ditetapkan dengan hakim yang akan mengendalikan kes berkenaan serta mahkamah di mana perbicaraan/pendengaran kes dibuat.

(f) Maklumat Peguam Syar'ie, Pendakwa dan Penguatkuasa yang dikanalikan dengan perkara-perkara berikut:

i. Kes-kes yang telah didaftarkan di lapor oleh Penguatkuasa yang diberi kuasa menangkep dan mendaftarkan kes ke Mahkamah Syariah; dan
ii. Kes-kes dimana peguam syar'ie menjadi pendakwa atau penguatkuasa.

g) Maklumat Tahanan Raman mengandungi rekod lahanan reman yang belum lagi dibawa ke mahkamah.
h) Maklumat Sumber Rujukan mengandungi rekod seperti nas Al-Quran, Al-Hadis, Fatwa, pendapat-pendapat Uqaha' dan sebagainya. Ini adalah perlu untuk tujuan rujukan buku-buku atau maklumat yang diperlukan bagi kes-kes tersebut.

i) Maklumat Keputusan Kes mengandungi maklumat mengenai judgement ke atas semua kes.

4.1.6 Kontraktor dikehendaki mencadangkan pelan migrasi dan menjalankan aktiviti data conversion/capture bagi memasukkan data ke dalam sistem. Data yang dimaksudkan ini adalah dalam bentuk berikut:

a) Data Digital.

b) Data Dalam Bentuk Hardcopy.
   Bagi Mahkamah Syariah yang tidak mempunyai Sistem Pengurusan Kes Mahkamah dan semua rekod disimpan dalam fail-fail manual, berikut adalah tanggungjawab kontraktor:


   ii. Data yang akan dimasukkan ke dalam sistem ini adalah bagi kes-kes baru dan kes-kes yang tertinggal.

4.2 Sistem Pendaftaran Peguam Syarie.

4.2.1 Sistem Pendaftaran Peguam Syarie merupakan satu sistem yang membolehkan peguam-peguam syarie didaftarkan dan mengelolakan sijil pendaftaran, ianya meringankan profil peguam syarie dan mengandungi tempoh sahliu pendaftaran berkenaan. Proses-proses mentauliah peguam-peguam syarie ini perlu diambilkira dalam pembangunan sistem ini.

4.2.2 Sistem ini perlu bagi memastikan mereka yang mendapat tauliah daripada Jawatankuasa Perlantikan Peguam Syarie sahaja.

   a) Layak menjadi peguam bela kepada Orang Awam, Pendakwa dan Pengelak; dan

   b) Layak menjadi Pendakwa bagi sesuatu kes.

4.2.3 Peguam Syarie yang melalui proses pelantikan ini, juga akan disenaraikan dengan senarai blacklist.

4.2.4 Perlantikan Peguam Syarie dari swasta ataupun Biro Bantuan Guaman diuruskan oleh JKSM.

4.3 Sistem Perpustakaan JKSM.

4.3.1 Satu Sistem Perpustakaan Mahkamah diperlukan bagi menguruskan bahan rujukan yang disimpan di Perpustakaan JKSM.

4.3.2 Sistem ini adalah untuk tujuan mengkataloogkan bahan-bahan rujukan dalam bentuk buku, majalah, kitab-kitab syariah yang dikeluarkan diperingkat kebagusan dan antarabangsa. Jurnal Hukum/Kitab dan lain-lain rujukan yang disimpan di JKSM.

4.3.3 Sistem ini membantu pustakawan mendaftar pinjaman dan penghantaran bahan baku serta membuat pembaruan pengguna membuat carian mengikut tajuk/penulis.

4.3.4 Salah satu ciri penting sistem ini adalah ianya berkonsepkan Web, supaya dapat dirujuk oleh khalifah dan mana-mana Mahkamah Syariah dan sebolehnya mampu menyimpan maklumat dalam tulisan Arab dan Rumi.

4.4 Portal e-Syariah.

4.4.1 Portal e-Syariah perlu menyediakan kemudahan melalui Internet untuk menyebarkan maklumat kepada orang awam dan agensi-agensi Kerajaan mengenai perkhidmatan yang disediakan. Maklumat mengenai undang-undang, prosedur permalikan kes dan borang-borang disediakan secara atas talian.
4.4.2 Portal ini hendaklah dihubungkan secara hyperlink antara JIKJSM dan taman Web sitap Mahkamah Syariah dan agensi-agensi dalam dan luar negara yang berkaitan.

4.4.3 Portal ini akan melengkapi sistem e-Syarah dengan satu sistem yang interaktif bagi membolehkan transaksi dengan Sistem Pengurusan Mahkamah oleh pengguna-pengguna dalam peladuran Mahkamah Syariah dan juga orang awam.

4.4.4 Melalui portal ini juga orang awam boleh memperoleh kemudahan seperti berikut:

a) Menyemak jenis kes yang dikendalikan oleh Mahkamah Syariah;

b) Menyemak status kes individu dengan menggunakan nombor kad pengenalan dan nomber rujukan kes kunci untuk mengakses maklumat;

c) Mendaftar kes melalui Internet sebelum menghadiri diri di pejabat Mahkamah Syariah bagi mendapatkan tarikh temujang dengan pendaftar;

d) Mencari dan menyemak senarai peguam-peguam syarie yang ditawarkan oleh Kerajaan;

e) Mengemukakan soalan/permasalahan yang membolehkan mereka mendapat jawapan melalui e-mail. Dengan adanya kemudahan ini, ialah merupakan satu bentuk kaunseling oleh JIKJSM kepada individu;

f) Mencari dan melihat kes-kes yang diwartakan keputusannya; dan

g) Sebagai sumber rujukan bagi orang awam yang ingin memahami hukum syariah yang diamalkan di Malaysia.

4.5 Sistem Automasi Pejabat

4.5.1 Sistem automasi pejabat meliputi selain kemudahan Internet, ianya memberi kemudahan e-mail kepada kakitangan JIKJSM dan juga Mahkamah-Mahkamah Syariah untuk berhubung antara satu dengan yang lain.

4.5.2 Sistem ini juga diniatrisikan supaya penjadualan kes dimaklumkan kepada ketua-ketua hakim atau hakim-hakim. Ini merangkumi penjadualan yang memerlukan keputusan dari segi hakim yang dipertanggungjawabkan kes atau pun bagi memaklumkan tarikh kes.

4.5.3 Kontraktor perlu membeberkan pengguna dengan kemudahan perisian Word Processing, Spreadsheet dan Presentation bagi semua pengguna yang dibekalkan dengan PC dan juga bagi pengguna-pengguna yang mempunyai PC tanpa perisian berkenaan.

5. Konsep e-Syarah

Konsep e-Syarah perlu mengambilkira keperluan maklumat yang dibekalkan dan digunakan oleh pengguna dan pembekal maklumat projek ini. Pengguna dan pembekal berkenaan terdiri daripada Hakim Syarie, orang awam, peguam syarie, defeneden, pendaftar, penjamin, warts, pendaftaran, pengurusan, tahanan reman, JIKJSM, Jabatan Kemajuan Islam Malaysia (JAKIM), Bahagian Hat Hisjol Undang-Undang, Jabatan Perdana Menteri (BHEU), Jabatan Imigresen (JIM) dan Polis Diraja Malaysia (PDRM). Lampiran 3 dan 4 menunjukkan secara ringkas konsep e-Syarah.

6. Rangkaian e-Syarah

6.1 Rangkaian e-Syarah terbahagi kepada rangkaian setempat (Local Area Network (LAN)) dan rangkaian jarak jauh (Wide Area Network (WAN)).

6.1.1 Kontraktor perlu menjalankan kajian bagi mengenapaplay tahuh kesedaran infrastruktur di JIKJSM dan di Mahkamah-Mahkamah Syariah Negeri dan mengemukakan cadangan tentang rancangan untuk menggunakan LAN/WAN yang sedia ada, mencadang peningkatan di mana perlu dan memasang rangkaian baru.

6.1.2 Kontraktor bertanggungjawab bekerjasama dengan agensi terlibat dalam penyelenggaraan rangkaian bagi mengkonfigurasi LAN dan juga WAN yang akan menyokong aplikasi e-Syarah kelak.

6.1.3 Sistem rangkaian LAN adalah bagi menghubungkan semua PC kakitangan di JIKJSM dan di Mahkamah-Mahkamah Syariah Negeri kepada aplikasi e-Syarah. Sementara sistem rangkaian
WAN pula adalah bagi menghubungkan JKSM dan kesemua Mahkamah-Mahkamah Syariah negeri.

6.2 Rangkaian Setempat (LAN) e-Syariah

6.2.1 JKSM

a) Pada bulan Julai 2001 JKSM telah berpindah ke Putrajaya, di mana rangkaian LANnya telah slaj disediakan dengan switches dan network port bagi setiap lokasi tempat kerja pegawai dan staff. Penyelenggaraan rangkaian ini dikendalikan seperti berikut:

i. Pendawaialan pada setiap tingkat (floor cabling right to the port) oleh Pengurus Banguan;
ii. Pendawaialan antara tingkat dan switches oleh MAMPU; dan

b) Memandangkan rangkaian LAN di JKSM telah sedia ada, kontraktor bertanggungjawab memastikan semua PC kaitangan JKSM dirangkalkan dan disambungkan kepada aplikasi e-Syariah serta mendapat akses kepada e-mail dan Internet.

6.2.2 Mahkamah-Mahkamah Syariah

a) Kontraktor perlu mengenalpasti Mahkamah-Mahkamah Syariah negeri yang TIDAK mempunyai dan yang ADA sistem rangkaian LAN.


c) Bagi Mahkamah-Mahkamah Syariah yang ADA mempunyai sistem rangkaian LAN yang tersendiri, kontraktor perlu mengenalpasti keperluan tambahan rangkaian supaya PC kaitangan terlibat disambungkan ke rangkaian ini.

d) Rangkaian LAN yang diwujudkan perlu juga mengambikira rangkaian bagi kaunter-kaunter yang memberi khidmat kepada orang awam.

e) Kesemua PC di Mahkamah-Mahkamah Syariah perlu disambungkan kepada aplikasi e-Syariah.

6.2.3 Semua rangkaian LAN di Mahkamah-Mahkamah Syariah perlu dilintasisi dengan rangkaian sedia ada di negeri-negeri terlibat.

6.3 Rangkaian Jarak Jauh (WAN) e-Syariah

6.3.1 Sistem e-Syariah akan menggunakan sistem rangkaian EG*Net, iaitu sistem rangkaian yang digunakan oleh semua projek dibawah Aplikasi Perdana Kerajaan Elektronik.

6.3.2 Bagi negeri-negeri yang telah mempunyai sistem rangkaian WAN tersendiri, kontraktor perlu memastikan beberapa perkara:

a) Mahkamah-Mahkamah Syariah di negeri-negeri terlibat disambungkan kepada rangkaian WAN sedia ada, dan
b) Bagi Mahkamah-Mahkamah Syariah yang tidak disambungkan kepada rangkaian WAN, kontraktor perlu memastikan Mahkamah-Mahkamah lelub dirangkakan kepada rangkaian sedia ada di negeri terlibat.

6.3.3 Bagi negeri-negeri yang tidak mempunyai sistem rangkaian WAN tersendiri, maka kontraktor hendaklah membeakati semua peralatan dan tahan komunikasi untuk kegunaan e-Syariah. Kontraktor hendaklah menyelaras dengan Kerajaan negeri supaya tiada perlindahan rangkaian.

6.3.4 Semua rangkaian WAN di negeri perlu dienterasikan dengan rangkaian EG*Net.

6.4 Kontraktor juga bertanggungjawab mengenalpasti Mahkamah-Mahkamah Syariah yang perlu menggunakan tahan suva atau dar-up mengikut keadaan keja yang ada. Ini termasuk mengambikira keperluan kalausan dengan indahnubun yang tidak melebihi lima (5) saat dengan kos penyelenggaraan yang kos efektif.

6.5 Cadangan rangkaian bagi pelaksanaan e-Syariah adalah seperti di Lampiran 5.
6.6 Penggunaan rangkaian akan dipusulkan di JKS di mana perisian Network Management System dibekalkan dan digunakan untuk troubleshooting masalah rangkaian LAN dan WAN dari jarak jauh dengan serta merta.

7. Perkakasan dan Perisian Bagi Pelaksanaan e-Syariah

7.1 Sistem yang dicadangkan mestilah berkemampuan untuk mengwujudkan pengkalan data berpusat di JKS yang dikemaskini secara real-time daripada data yang dikemaskini di pengkalan data Mahkamah-Mahkamah Syariah di seluruh negara.

7.2 Kontraktor perlu mencadangkan perkakasan, perisian dan rangkaian yang diperlukan bagi membangunkan infrastruktur e-Syariah. Ini termasuk perkakasan dan perisian untuk:

7.2.1 Membangunkan sistem-sistem yang diperlukan termasuk sistem rangkaian;

7.2.2 Melengkapi kalkulangan di JKS dan di Mahkamah-Mahkamah Syariah dengan peralatan bagi melaksanakan sistem-sistem di bawah e-Syariah; dan

7.2.3 Memastikan sistem-sistem yang dibangunkan dan rangkaian yang menyokong e-Syariah adalah selamat.

7.3 Perkakasan yang dicadangkan perlu dari model yang terkini dan disertakan dengan spesifikasi teknikal yang lengkap berdasarkan dengan sistem pengoperasianannya dan perfelia lain yang diperlukan bagi melaksanakan sistem-sistem yang akan dibangunkan.

7.4 Kontraktor dikehendaki menyenaraikan perkakasan dan perisian yang dicadangkan bagi melaksanakan e-Syariah bersama dengan spesifikasi yang terperinci mengikut lokasi. Keterangan barang yang ditawarkan hendaklah dinyatakan dengan jelas seperti model, kuantiti dan konfigurasi. Selalanya barang yang ditawarkan mestilah dipertahankan dengan katak atau isilah asal.

8. Khidmat Sokongan e-Syariah

8.1 e-Syariah akan beroperasi 7 hari seminggu mengikut waktu pejabat kecuali bagi portal yang beroperasi 24 jam X 7 hari seminggu. Ini adalah bagi memastikan sistem-sistem di bawah e-Syariah beroperasi sepanjang masa dan boleh diakses pada bila-bila masa, terutama oleh negeri-negeri yang berkeja pada hari Sabtu dan Ahad.

8.2 Satu pasukan bagi memberi perkhidmatan meja bantuan (helpdesk) adalah perlu dikena pasti sama ada dari pihak JKS ataupun kontraktor e-Syariah.

8.3 Kontraktor perlu melengkapi JKS dengan satu sistem bagi memantau laporan permasalahan yang datang dari JKS atau Mahkamah-Mahkamah Syariah. Sistem ini perlu memperlu kerja-perkara seperti berikut:

a) Pelapor masalah;
b) Tarikh dan masa pelaporan;
c) Penerima laporan masalah;
d) Jenis masalah dan penerangan;
e) Tindakan peringkat pertama;
f) Tindakan peringkat kedua;
g) Tindakan peringkat keempat; dan
h) Tarikh ditolong.

8.4 Sistem ini perlu membantu pemantauan dan memerikan laporan status permasalahan yang dilaporkan dan menyenaraikan jenis masalah yang telah diterima pada bulanan/tahun berkenaan.

8.5 Untuk tujuan memudahkan khidmat sokongan ini, satu senarai inventori yang kemana perlu diberi oleh kontraktor e-Syariah. Senarai ini memahului lokasi peralatan/perisian dan nomor babit peralatan/perisian serta tempoh jamian yang diberi. Meklumat ini dimasukkan kedalam sistem meja bantuan yang disebut di para 8.3.

9. Operasi e-Syariah

9.1 Pusat operasi hendaklah diletabkan di JKS. Sistem komputer mestilah mempunyai high availability dan kemampuan 99.5% up time.

9.2 e-Syariah perlu juga mengandung satu sistem backup harian yang mudah dikendalikan, tebolehnya ianya disiasumakan di semua lokasi yang mempunyai pelayan bagi memboleh perkara-perkara berikut di buffet backup:-
b) Pangkalan Data;
c) Sistem Operasi; dan
d) Sistem-Sistem aplikasi yang dibangun.
Kontraktor perlu memberi cadangan mengenai mekanisma membuat backup.

9.3 Satu prosidur perlu dicadang oleh kontraktor bagi JKSM dan Mahkamah-Mahkamah Syariah melaksanakan tindakan berikut:
   a) backup bagi perkara 7.1; dan
   b) kontigensi apabila menghadapi bencana termasuk membuat recovery bagi memulihkan sistem.

9.4 Sistem aplikasi yang dibangun hendaklah diuji dan disahkan terlebih dahulu oleh Kerajaan sebelum dipasang di lokasi secara live.

10. Penyelenggaraan e-Syarlah

10.1 Kontraktor perlu menyatakan tempoh jaminan perkakasan dan perisian yang dibekalkan dan mekanisma khidmat sokongan dan penyelenggaraan yang diberi dalam masa jaminan ini.

10.2 Kontraktor juga perlu mencadangkan perancangan bagi memberi khidmat sokongan seterusnya selepas tamat tempoh jaminan. Ini disertakan dengan jenis-jenis perkhidmatan sokongan, lokasi pejabat-pejabat kontraktor yang tentap diseluruh negara, bilangan personel yang bertanggungjawab bagi khidmat sokongan ini dan waktu kerja pejabat-pejabat sokongan ini.

10.3 Kos yang akan terlibat bagi perkhidmatan sokongan yang akan diberi selepas tamat tempoh jaminan perlu juga disertakan.

10.4 Kontraktor perlu menjelaskan bagaimana langkah akan memberi khidmat ini terutama di peringkat negeri dan JKSM.

10.5 Satu sistem pelaporan bagi mereka yang laporan-laporan keranaan perlu ada di lokasi kontraktor yang menjadi pusat pengumpulan laporan berkenaan.

11. Keselamatan e-Syarlah

11.1 Bagi melaksanakan e-Syarlah, kontraktor perlu merancang bagi memastikan keselamatan fizikal dan juga keselamatan sistem-sistem e-Syarlah tidak tergugat.

11.2 Ciri-ciri keselamatan dalam sistem-sistem e-Syarlah perlu mengambil kira perkara-perkara berikut:
   a) Penggunaan katalalan dan password; dan
   b) Kewangan akses kepada data dan modul-modul terletak melalui skrin-skrin terhad atas dasar keperluan.

11.3 Sistem perlu menyimpan Audit trail setiap aktifiti dan membolehkan kakitangan terletak, yang diberi kuasa sebagai pentadbir sistem pengkalan data, menyemak penyalahgunaan sistem dari masa ke masa.

11.4 Penggunaan firewall yang terkini bagi memastikan sistem aplikasi dan sistem rangkaian e-Syarlah tidak dicorboh.

12. Plawalan Kerajaan

12.1 Kerajaan telah mengetukkan garis panduan dan pekeliling bagi membangun agensi Kerajaan melaksanakan program ICT di agensi-agensi masing-masing. Garis panduan dan pekeliling yang dimaksudkan adalah seperti berikut:
   a) Towards A Vision For A New Electronic Government In Malaysia;
   b) Electronic Government Information Technology Policy and Standards (EGIT);
   c) Electronic Government Blueprint for Implementation;
   d) Pekeliling Am Bil 3 Tahun 2000 - Rangka Dasar Keselamatan Teknologi Maklumat dan Komunikasi Kerajaan;
   e) Data Dictionary Sektor Awam; dan
   f) Malaysian Public Sector Management Of Information & Communications Technology Security Handbook (MyMIS)

12.2 Kontraktor dikehendaki memulai plawalan yang telah ditetapkan oleh Kerajaan melalui garis panduan dan pekeliling berkenaan.
13. Penyediaan Tapak

13.1 Penyediaan tapak melibatkan perkara-perkara seperti berikut:
   a) Penyediaan kuantum; dan
   b) Bilik/Ruang pelayan (Server room).

13.2 Perkhidmatan Mahkamah-Mahkamah Syariah dan juga JKSM (bagi pentadbiran Mahkamah Rayuan) kepada orang ramai perlu diberi perhatian dari segi perkhidmatan mengendal dan memantau kes serta pengeluaran dan pembayaran bil. Maklumat kontrak didekahkan kepada cadangan rekabentuk kuantum pejabat pentadbiran Mahkamah Syariah yang bersesuaian bagi memberi perkhidmatan kepada orang ramai. Ini termasuk cadangan membangunkan kuantum-kuanter serta keperluan ICTnya.

13.3 Perkhidmatan kuantum ini perlulah berkonsepkan sebagai barisan hadapan Mahkamah-mahkamah Syariah dan memberi keselesaan kepada pengunjung/orang awam. Kontrakor bertanggungjawab melengkapkan seluruh maklumat dengan kuantum perkhidmatan termasuk perabot yang diperlukan.

13.4 Penyediaan Bilik/Ruang pelayan adalah termasuk pemasangan penghawa dingin, kabel lekik dan kabel rangkaian termasuk port masing-masing.

14. Struktur Organisasi Projek

Kontrakor perlu mengenalpasti dan mencadangkan struktur organisasi projek yang bersesuaian dan tenaga kerja yang diperlukan dari pihak JKSM dan semua Mahkamah Syariah bagi menyokong pelaksanaan e-Syariah.

15. Lokasi

15.1 Pelaksanaan sistem ini adalah di JKSM, semua Mahkamah Syariah di semua negeri dan agensi-agensi yang berkaitan.

15.2 Bilangan lokasi pelaksanaan e-Syariah bagi Mahkamah Syariah adalah mengikut bilangan lokasi pentadbiran mahkamah tanpa mengambilkira bilangan kamar mahkamah yang terdapat di lokasi berkenaan.

15.3 Pelayan e-Syariah akan ditempatkan selain di JKSM, lantak juga ditempatkan di Pejabat Setiausaha Kerajaan Negeri atau di ibu pejabat Mahkamah Syariah negeri masing-masing.

16. Bebankerja

Satu kajian bebankerja setiap pentadbiran mahkamah perlu dijalankan oleh kontrakor bagi pihak Kerajaan bagi mengenalpasti sistem bersesuaian yang mampu menampung bebankerja dan rangkaian yang diperlukan.

17. Latihan (spesifik & teknikal)

17.1 Satu rangka pelan latihan perlu dikenalpasti bagi memberi latihan seperti berikut:
   a) Latihan spesifik yang memerlukan keutamaan kepada cara penggunaan Sistem e-Syariah kepada semua pengguna sistem ini;
   b) Latihan teknikal bagi kakitangan teknikal JKSM dan kakitangan sokongan di Mahkamah-Mahkamah bagi memberi sokongan peringkat pertama dan membuat trouble-shooting; dan
   c) Latihan generic bagi memberi kesedaran dan pendedahan kepada pengurusan dan kakitangan Mahkamah Syariah untuk menggalakkan buy-in.

17.2 Konsep training for trainers juga diambilkira oleh kontrakor supaya dapat dipastikan kakitangan yang dikenalpasti sebagai pelatih dapat menjalankan tanggungjawab memberi latihan kepada bakal pelatih yang baru. Ini adalah bagi memastikan terdapat continuity dalam memberi latihan dikalangan kakitangan Kerajaan.

17.3 Sehubungan dengan ini, kontrakor hendaklah membebankan perkakasan dan perisian serta kabel untuk maklumat latihan di JKSM bagi menampung 20 persenta dan seorang pesyaraw. Ini adalah bagi membolehkan JKSM memberi latihan kepada maklumatannya dan kakitangan Mahkamah dari masa ke semasa mengenal sistem e-Syariah.

18. Pelan Perpindahan Teknologi

18.1 Bagi memastikan perpindahan teknologi berlaku dari kontrakor kepada Kerajaan, kontrakor perlu mencadangkan satu pelan perpindahan teknologi yang merangkumi perkara-perkara seperti berikut:
a) Pengetahuan teknikal dari segi pembangunan sistem, penyelenggaraan sistem, pengendalian meja bantuan dan lain-lain yang berkaitan;

b) Mekanisme dan metodologi yang digunakan dalam melaksanakan e-Syariah;

c) Mengadakan Seminar bagi semua kakitangan JKS dan Mahkamah Syariah, ini termasuk memberi sesi teknologi update dan juga memberi awareness mengenai sistem e-Syariah.

18.2 Program-program yang memberi pengenalan kepada change management juga perlu dirancang dan dikendalikan oleh kontraktor untuk memastikan kejayaan pelaksanaan e-Syariah.

19. Integrasi sistem-sistem e-Syariah

19.1 Kesemua sistem yang dicadangkan perlu dilintasgraskan seumpama ianya adalah satu sistem dan akses pengguna kepada sistem-sistem bertenaan adalah melalui satu katalaluan dan password.

19.2 Maklumat perkhidmatan perlu diperolehi daripada SIMPI yang dilaksanakan oleh JAKIM dan data pencercalan dari sistem pengurusan ke perlu dikemaslaki kepada sistem SIMPI, Maka antaranya antara e-Syariah dengan SIMPI perlu wujud.

19.3 Bagi pengiraan Faraidh, kontraktor perlu mengujiadkan antaranya antara modul Faraidh dengan sistem pengiraan Faraidh yang dikenaliapati oleh Kerajaan.

19.4 Selain daripada aplikasi e-Syariah, kontraktor perlu juga mengambilikirkan integrasi antara rangkaian JKS dan rangkaian-rangkaian di negeri-negeri jika perlu.

19.5 Sistem Pengurusan Kes Mahkamah Syariah perlu dilintasgraskan dengan sistem-sistem berikut:

a) Sistem Pendaftaran Peguam Syarle;

b) Sistem e-mail.

20. Strategi Pelaksanaan e-Syariah

20.1 Menyediakan hakikat bahawa perkhidmatan e-Syariah perlu dipercepatkan, maka pelaksanaan e-Syariah perlu menggunakan satu kaedah yang membolehkkan projek ini dilaksanakan dengan cepat dan visible. Kerah perancangan yang dicadangkan adalah secara berperingkat seperti berikut:-

20.1.1 Pemasangan versi e-Syariah yang sediah ada oleh kontraktor dengan mengambilkira kaedah perlahan data dari negeri-negeri ke pangkalan data pusat di JKS;

20.1.2 Pembangunan versi baru bagi mengambilkira keperluan tambahan JKS dan Mahkamah-Mahkamah Syariah, iaitu bagi modulfungsi yang tidak terdapat dalam versi asal e-Syariah oleh kontraktor. Seterusnya versi larbaru yang dihasilkan hendaklah dipasang di semua lokasi;

20.1.3 Membangunkan infrastruktur rangkaian yang diperlukan bagi pelaksanaan e-Syariah ke seluruh negera;

20.1.4 Pemasangan sistem-sistem lain dan perintegraslan dengan e-Syariah, seperti portal, sistem perpustakaan dan sebagainya; dan

20.1.5 Pelaksanaan e-Syariah ke negeri-negeri hendaklah dilaksanakan dalam dua (2) fasa, iaitu:-

a) Fasa 1 untuk 6 negeri gunaama JKS yang terdiri daripada negeri Perlis, Pulau Pinang, Selangor, Wilayah Persekutuan, Negeri Sembilan dan Melaka;

b) Fasa 2 untuk 8 negeri bukan gunaama JKS, iaitu negeri Kedah, Perak, Pahang, Kelantan, Terengganu, Johor, Sabah dan Sarawak.

20.2 Kontraktor perlu memastikan cadangan pelan pelaksanaan dan mengambilkira perkara-perkara yang dinyatakan di Par 10.1.

20.3 Rancangan pelaksanaan Kerajaan adalah seperti di Lampiran 6.

21.1 Sistem yang dibangunkan oleh kontraktor dengan mengambilkira proses-proses kerja yang terdapat di JKSM dan Mahkamah-mahkamah Syariah yang tidak terdapat pada sistem asal kontraktor adalah hak milik Kerajaan.


22. Peralatan ICT Masakini

22.1 Buat masa kini peralatan ICT yang terdapat di JKSM merupakan dua (2) unit pelayan yang baru diperolehi dan setiap kaktangan JKSM telah dilengkapi dengan PC yang belum dirangkaikan.

22.2 Kontraktor perlu mengenalpasti samaada PC yang telah sedia ada perlu dipertingkatkan bagi melaksanakan sistem e-Syarah.

22.3 Pelayan yang terdapat di JKSM perlu dilengkapi dengan peralatan yang akan dibekalkan kelak oleh kontraktor.

22.4 Kajian yang dijalankan oleh kontraktor perlu juga mengenalpasti peralatan serta sistem yang sedia ada di Mahkamah-Mahkamah Syariah negeri. Hasil kajian ini, akan membantu kontraktor mengenalpasti bilangan peralatan yang perlu dibekalkan di setiap Mahkamah Syariah.

23. Dokumen Kontrak

23.1 Satu derajat dokumen kontrak perlu disediakan oleh kontraktor. Kontrak berkensan perlu mengandungi cadangan yang dipersetujui bersama antara kontraktor dan Kerajaan bagi pelaksanaan e-Syarah.

23.2 Dokumen kontrak akan ditandatangani antara Kerajaan dan kontraktor selepas terma-terma dan kandungannya dipersetujui oleh kedua-dua pihak.

24. Jadual Kadar Harga

Kontraktor adalah dikenakan mengumumkan Jadual Kadar Harga yang menyenaraikan secara terperinci harga setiap bulan yang akan dibekalkan dalam Ringgit Malaysia (RM).

25. Consumable

Kos consumables yang diperlukan dalam ujian dan pentaulahan alat-alat serta kos bermula dengan ujian, kalibrasi semua peralatan adalah diluang oleh kontraktor.

26. Jaminan (Warrante)

Tempoh jaminan bagi semua peralatan dan persian yang dibekalkan hendaklah sekurang-kurangnya satu (1) tahun dari tarikh pentaulahan (commissioning).

27. Jaminan Penyelenggaraan

Dalam tempoh jaminan, kontraktor hendaklah menyelenggara semua kelengkapan termasuk sistem-sistem e-Syarah dan memasukkan ianya berada dalam keadaan yang paling baik.

28. Iktian

Tiada maklumat mengenai kontrak ini boleh disahkan di dalam soalan akhbar, majalah atau alat pengiklanan melainkan jika pengiklanan itu telah mendapat kelulusan oleh Kerajaan terlebih dahulu.

Disediakan oleh
Jabatan Perdana Menteri
12 September 2002
Lampiran 1

PROSES KES-KES MAHKAMAH SYARIAH

- Faraidh
  - Pendataran
  - Siasatan
  - Pengrajan

- Jentah
  - Prapendataran
  - Mediation
  - Sebulan

- Mal
  - Surat soman disewaahkan

Semasa pra pendataran dalam kes JENATAR
- Fisk leaflet: Fisk pengumuman, ... (cari simpanan simpanan)
- Pengajuan berang jaminan
- Mengaturkan wawanc
- Kecepatan peradilan disediakan oleh Pendaftar

Semasa pra pendataran dalam kes MAL
- Fisk leaflet: Fisk Mahkamah, Pendaftar
- Pengajuan berang
- Bayaran fi & Pengeluaran real

MAL:
- Proses pembedahan
- Fisk leaflet: Hakim, Pen, Pendaftar, Pendaftar
- Penyampaian soman

JENATAR:
- Proses pembedahan
- Fisk leaflet: Hakim, Pen, Pendaftar, Pendaftar
- Penyampaian soman

Lampiran 2

MAKIMAT YANG TERUBAT DALAM e-SYARIAH

e-Syarlah

Kes
Sumber Rujukan
Mahkamah
Penjadualan
Defenden
Keputusan
Peguam Syarie
Peguam Syarie
Pendakwa
Tahanan Remas
Orang Awam
Hakim
LAMPIRAN E

SOALAN SOAL SELIDIK
KAJI SELIDIK

PERSEPSI KAKITANGAN KERAJAAN TERHADAP
DASAR DAN APLIKASI
KORIDOR RAYA MULTIMEDIA

2004

Jabatan Pengajian Media
Fakulti Sastera dan Sains Sosial
Universiti Malaya
Kuala Lumpur
Arahan: Sila tanda ✓ bulatkan atau isi tempat kosong

BAHAGIAN A: MSC DAN ANDA

1. Pernahkah anda melihat logo ini?

☐ Ya ☐ Tidak (Sila ke soalan 2)

Jika Ya, logo apakah ini?

☐ Koridor Raya Multimedia
☐ Universiti Multimedia
☐ Multimedia Cyber
☐ Tidak Pasti

Di manakah anda memperolehi maklumat mengenai logo ini?

☐ Media Elektronik (e.g: iklan televisyen, radio, dsb)
☐ Media Cetak (e.g: suratkhabar, majalah, risalah, poster)
☐ Internet
☐ Lisan (e.g: rakan, rakan sekerja, guru, pensyarah, ahli keluarga)
☐ Lain-lain, (nyatakan)/

2. Objektif MSC ialah:

☐ Untuk mengubah Malaysia kepada k-ekonomi
☐ Menjual komputer
☐ Membuka sebanyak mungkin kedai komputer di negara ini
☐ Tidak Pasti
3. MSC ditubuhkan pada tahun
   - 2000
   - 1996
   - 2003
   - Tidak Pasti

4. MSC ialahMSC is:
   - Agensi
   - Perbadanan
   - Projek Nasional
   - Organisasi

5. Di manakah anda memperolehi maklumat tentang MSC?
   - Media Elektronik (e.g:iklan televisyen, radio, dsb)
   - Media Cetak(e.g: suratkhabar, majalah, risalah, poster)
   - Internet
   - Lisan (e.g: rakan, rakan sekerja, guru, pensyarah, ahli keluarga)
   - Lain-lain, (nyatakan) ______________________

6. Siapakah yang menguruskan MSC?
   - Institut Sistem Mikroelektronik Malaysia (MIMOS)
   - Perbadanan Pembangunan Multimedia (MDC)
   - Suruhanjaya Multimedia Malaysia
   - Tidak Pasti

7. Yang manakah di bawah ini tidak berada di dalam kawasan MSC?
   - Menara Berkembar Petronas
   - Lapangan Terbang Antarabangsa Kuala Lumpur
   - Litar F1 Sepang
   - Tidak Pasti
8. Undang-undang yang digubal untuk menggalakkan pembangunan industri IT dan multimedia tempatan dikenali sebagai:
   - Undang-undang Siber
   - Peraturan MSC
   - Undang-undang ICT
   - Tidak Pasti

9. Fungsi-fungsi MyKad merangkumi semua di bawah, kecuali:
   - Kad Pengenalan
   - Sijil Perkahwinan
   - Touch N Go
   - Tidak Pasti

10. Agensi kerajaan yang bertanggungjawab ke atas aplikasi MyKad MSC ialah:
    - MAMPU
    - Jabatan Pendaftaran Negara
    - Jabatan Imigresen
    - Tidak Pasti

11. Untuk meningkatkan kualiti perkhidmatan kerajaan inisiatif MSC berikut telah dilancarkan:
    - E-Kerajaan
    - Televisyen Kebangsaan
    - Tele-Nasihat
    - Tidak Pasti

12. Yang manakah aplikasi 'online' yang membantu masyarakat berinteraksi dan membuat transaksi dengan sektor kerajaan (i.e. Polis, Jabatan Pengangkutan Jalan)?
    - E-Khidmat
    - E-Nasihat
    - Tele-Khidmat
    - Tidak Pasti
13. Untuk meningkatkan perkhidmatan kesihatan Kebangsaan Malaysia, MSC telah melancarkan:

☐ Telehealth
☐ Tele-Clinics
☐ Hospital Siber
☐ Tidak Pasti

14. Untuk meningkatkan sistem pendidikan kebangsaan, MSC telah melancarkan:

☐ Sekolah Internet
☐ Sekolah Bestari
☐ Sekolah ICT
☐ Tidak Pasti

15. Aplikasi Sekolah Bestari telah dibangunkan oleh:

☐ Kementerian Pendidikan dan Perbadanan Pembangunan Multimedia
☐ Kementerian Pendidikan dan Sekolah Bestari Telekom
☐ Perbadanan Pembangunan Multimedia dan Sekolah Bestari Telekom
☐ Tidak Pasti

16. Yang manakah di antara berikut BUKAN Bandar Siber MSC?

☐ Cyberjaya
☐ KLCC
☐ Subang Jaya
☐ Tidak Pasti

17. Yang manakah di antara universiti-universiti ini berada di Cyberjaya?

☐ Universiti Multimedia
☐ Universiti Petronas
☐ Universiti Tenaga Nasional
☐ Tidak Pasti
18. Apakah laman web rasmi MSC?

☐ www.msc.gov.my
☐ www.msc.net.my
☐ www.msc.com.my
☐ Tidak Pasti

19. Pada skala 1-10 pada kedudukan manakah anda letakkan MSC sebagai pusat ICT?
Sila bulatkan nombor 1 = tempat pertama; 2 = tempat kedua; ... dan seterusnya

1 2 3 4 5 6 7 8 9 10

20. Jika anda merumuskan tanggapan anda mengenai MSC dalam beberapa patah perkataan
Apakah tanggapan tersebut? (Anda boleh menanda lebih dari satu)

☐ Ia adalah permulaan yang baik
☐ Ia sedang bergerak sepenuhnya ke arah merealisasikan
☐ Meletakkan Malaysia terkehadapan dalam teknologi ICT
☐ Meletakkan Malaysia dalam peta dunia ICT
☐ Laluan cemerlang masa depan dalam dunia siber

21. Melalui saluran apakah anda kerap mendengar mengenai MDC?

☐ Internet
☐ Televisyen
☐ Radio
☐ Akhbar
☐ Majalah
☐ Kawan
☐ Guru/Pensyarah
22. Tahukah anda?:

Tentang Projek Koridor Raya Multimedia (MSC)?
Di mana terletaknya MSC?
Kenapa Kerajaan Persekutuan mewujudkan MSC?
Jenis-jenis syarikat yang bertapak di MSC?

23. Sila tandakan projek-projek MSC di bawah yang anda ketahui:

- Sekolah Bestari
- e-Kerajaan
- e-Bisnes
- MyKad
- "Outsourcing"
- Telekesihatan
- Penyelidikan & Pembangunan (R&D)
- Multimedia Kreatif
- Pembangunan Usahawan Teknologi
BAHAGIAN B: IMPLEMENTASI KERAJAAN

1. Adakah kerajaan telah melancarkan sebarang inisiatif untuk mempromosikan penggunaan maklumat dan telematik (e.g. kad Touch N Go) di dalam kerajaan dan perkhidmatan awam?

☐ Ya ☐ Tidak (Sila ke soalan 2)

Jika Ya, sila senaraikan tiga daripada inisiatif tersebut:

i) _______________________
ii) _______________________
iii) _______________________

Siapakah yang terlibat di dalam inisiatif tersebut?

☐ Kerajaan
☐ Industri Swasta
☐ Universiti
☐ Lain-lain (sila nyatakan)

2. Adakah kerajaan mempunyai satu atau lebih Laman Web rasmi (e.g. kerajaan pusat, kementerian/jabatan berlainan)?

☐ Ya ☐ Tidak (Sila ke soalan 3)

Adakah terdapat polisi untuk menyediakan kepelbagaian pendapat dan sumber maklumat di Laman Web tersebut?

☐ Ya ☐ Tidak
3. Adakah kerajaan mempunyai polisi untuk memperlihatkan komitmen mereka di dalam usaha celik IT?

- Tiada polisi langsung
- Ada tetapi masih di dalam perbincangan
- Ada dan baru hendak dilaksanakan
- Ada tetapi cuma sebahagian yang dilaksanakan
- Ada dan telah dilaksanakan sepenuhnya

4. Apakah usaha-usaha yang telah dibuat untuk memastikan lebih ramai penduduk mendapatkan maklumat tentang k-ekonomi?

- Pemasangan Kiosk Awam
- Kerajaan mensubsidi perkhidmatan asas Internet
- Kerajaan mensubsidi pembelian komputer (termasuk pengecualian cukai)
- Lain-lain (sila nyatakan)

5. Adakah Malaysia menggunakan teknologi kad pintar?

- Ya/Yes
- Tidak (Sila ke soalan 6)

Sila nyatakan di manakah kad itu digunakan dalam perkhidmatan awam (e.g. perkhidmatan pentadbiran, pendidikan, kesihatan, dll.)

6. Pada anggapan anda apakah yang menjadi penghalang kepada perkembangan penguasaan 'on-line' di Malaysia?

- Kekurangan infrastruktur
- Kekurangan sumber
- Tahap celik IT yang rendah
- Tahap kesedaran yang rendah pada peringkat polisi
- Kurangnya insentif awam (faedah yang tidak jelas atau minima)
- Kurangnya penggunaan internet
- Lain-lain/Others
BAHAGIAN C: MANFAAT EKONOMI DAN SOSIAL

1. Soalan-soalan seterusnya berbentuk skala Likert Lima Mata. Sila Bulaikan nombor di sebelah setiap kenyataan berdasarkan:

1 = Sangat Tidak Setuju  
2 = Tidak Setuju  
3 = Kurang Setuju  
4 = Setuju  
5 = Sangat Setuju

1. MSC telah menyumbang terhadap peningkatan prestasi kerja.

2. MSC telah menyenangkan usaha mengadakan penjaringan di kalangan rakan sekerja serta kontak dalam dan luar negara.

3. MSC telah memudahkan usaha mencari maklumat umum dan khusus untuk keperluan kerja.

4. MSC telah memudahkan pencarian maklumat di peringkat lokal dan global untuk keperluan kerja.

5. MSC telah meninggikan status saya dan meletakkan saya dalam kategori orang berpengetahuan.

6. MSC telah membuka dunia baru kepada saya.

7. MSC membuat diri saya terasa bebas.

8. MSC telah membuat manusia kurang bergaul.
9. Secara umum MSC merupakan suatu perkara yang baik untuk masyarakat.

**BAHAGIAN D : MAKLUMAT UMUM**

1. Bahan bacaan yang selalu dibaca:
   - Suratkhabar
   - Buku (akademik dan umum)
   - Majalah
   - Komik
   - Novel
   - Lain-lain, Nyatakan: ____________________________

2. Kekerapan anda membaca suratkhabar?
   - Tiap-tiap hari
   - 2 atau 3 kali seminggu
   - Sekali seminggu
   - Jarang-jarang
   - Tidak langsung

3. Kekerapan anda menonton berita di televisyen?
   - Tiap-tiap hari
   - 2 atau 3 kali seminggu
   - Sekali seminggu
   - Jarang-jarang
   - Tidak langsung

4. Adakah anda mempunyai komputer peribadi (personal computer)?
   - [ ] Ya
   - [ ] Tidak
5. Pernahkah anda menggunakan komputer?

☐ Ya    ☐ Tidak (Terus ke Soalan 7/)

Jika Ya, di mana anda menggunakan komputer?

☐ Rumah
☐ Pejabat
☐ Kafe Siber
☐ Makmal Komputer
☐ Lain-lain, Nyatakan: ________________________________

6. Tujuan anda menggunakan komputer:

☐ Membuat tugas/kerja pejabat
☐ Melayari internet
☐ E-mel
☐ Perniagaan (urusniaga pembelian, penempahan, pembayaran secara on-line)
☐ Lain-lain, Nyatakan: ________________________________

7. Apakah cadangan anda untuk mempertingkatkan pengetahuan masyarakat mengenai MSC?

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

12
D. BIODATA

1. Kementerian / Organisasi: _________________________________

2. Jabatan: _________________________________

3. Jawatan: _________________________________

4. Gender: [ ] Lelaki  [ ] Perempuan

5. Umur: _________________________________ (pada hari lahir yang terakhir)

6. Etnik: [ ] Melayu  [ ] Sabah, Nyatakan

       [ ] Cina  [ ] Sarawak, Nyatakan

       [ ] India  [ ] Lain-lain, Nyatakan

7. Tempat Bermastautin: _________________________________

8. Tahap Pendidikan

   □ Sekolah Menengah
   □ Kolej/Politeknik
   □ Universiti
   □ Lain-lain (nyatakan) _________________________________

9. Status Perkahwinan/Marital Status:

   [ ] Berkahwin  [ ] Bujang

   [ ] Bercera/Berpisah  [ ] Duda/Balu
10. Pendapatan (sebulan):

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