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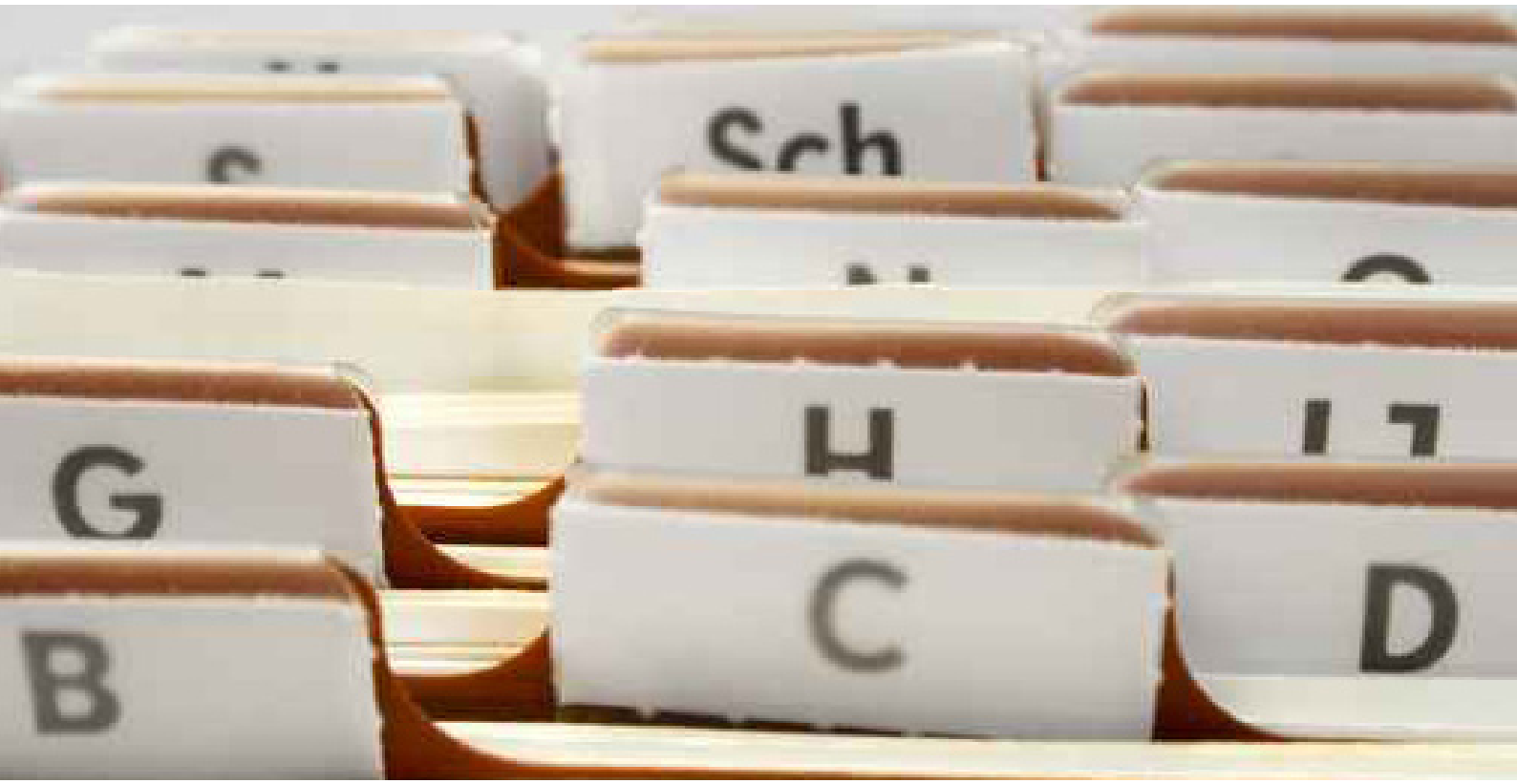

LOOKING AHEAD

The Development of Information Management in Asia's Public Sector

A survey of public sector IT executives in Asia

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TABLE OF CONTENTS

TABLE OF FIGURES

ABSTRACT

In this study, public sector IT executives in nine Asia-Pacific countries were surveyed regarding the development of information management in their organisations. Potential respondents were initially contacted by FutureGov Research through both email and traditional mail channels. Participants were invited to complete an online questionnaire that was hosted on the FutureGov website in August 2009. In early September, reminders were sent to those who had not responded to the initial contact. A total of 98 responses were received from Asian public sector (APS) IT executives before the survey was closed in mid September.

The survey sought to explore a number of areas linked to information management systems, including:

- How were the current information management systems developed in Asian government institutes? Was this on an ad hoc basis, or has there been a major structural change to include digital systems?
- What key areas (e.g. security, accessibility, efficient audit, document indexing and classification, etc.) need to be addressed to better manage information systems?
- How have requirements for information management changed in APS since the early part of this decade?
- What are the present credentials of APS for adopting electronic rather than paper-based information systems?
- Moving forward, what changes do government IT officials foresee in information management, and which factors are likely to influence these changes?
- To what extent do effective information systems boost APS interface with the public?

EXECUTIVE SUMMARY

Government agencies in Asia now better realise the importance of information, as there is much demand from the public. In the past, people would accept what was offered to them from their government. Now, people are generally well-versed with information-and-communication-technology tools and are more aware of what government is doing for them. So the public in Asian countries wants more information and they want it faster.

Evidence from the "Looking Ahead - The Development of Information Management in Asia's Public Sector" study suggests that officials in the region are keen to end paper-based systems in favor of electronic-based information systems. Yet, in countries like Indonesia and Thailand, public sector officials may need greater support from IT firms to ensure that there is sufficient appreciation of the benefits and greater knowledge of what tools are available. Moreover, when the responses were viewed in regard to the size of the annual IT budget, the results revealed that meaningful IT spending could better facilitate the shift towards electronic-based information systems. For example, 50% of respondents from organisations with annual IT budgets over US$10 million claimed that 76-100% of content is electronic in their information systems. Although caution does need to be attached to drawing definitive conclusions, the results hint at some underlying trends that are worth further investigation.

One of the most encouraging findings from the study was the remarkable clarity with which APS officials see the changing landscape of information management. A predominant majority of respondents from all surveyed countries agreed on one common point: that the amount of information has significantly increased since the early part of this decade, and this trend will most likely continue over the next 5-10 years. More than 80% of responses from all surveyed countries anticipated an increase in the amount of information. Moreover, nearly 70% of respondents acknowledged that their current information systems will require a significant overhaul to turn the rising information tide into a manageable operation. However, what is required is for APS executives to follow these trends and lead their divisions towards using more robust IT systems.

While these findings are evidence of a growing realisation that there are drastic increases in the amount of information, alarms were raised about how greater paper volume could overwhelm sectors if this increase is not quickly and decisively dealt with. As such, the study revealed a link of this issue to features like document indexing and classification, and information accessibility. Nearly half of respondents saw accessibility as the most critical factor of an efficient information system. Here, the study provides some key pointers on how modern information management systems could help organisations in Asia tackle these challenges. For instance, scanning and capture technologies, beyond their ability to convert paper documents into electronic format, could facilitate efficient workflows that are better aligned with the information needs of public sector organisations.

EXECUTIVE SUMMARY - *CONTINUED*

Another concern highlighted in the findings was that a vast majority of public sector organisations in countries with less developed IT systems choose a piecemeal approach to fulfilling their information needs. This is what distinguishes locations such as Indonesia, Malaysia and the Philippines from more advanced neighbors like Hong Kong and Singapore, which take a methodical approach in pursuing IT projects. The number of respondents that favoured ad hoc approaches was hardly insignificant, as Indonesia, Malaysia and the Philippines collectively resulted in a third of such approaches.

However, there is a growing recognition among IT executives that information management systems could help in tackling future challenges facing the APS. It is also encouraging to witness that these government officials are now more willing to try new ways to manage problems like large paper volume and information accessibility. Such forward-looking interest, as one respondent mentioned, could be an outcome of user-friendly information management systems.

For gaining optimum value from information systems, the study highlighted a few major areas that APS executives could find useful for future investigation. Firstly, for organisations growing in operational and staff size, it is far more better to adopt the electronic-based information systems sooner rather than later. Another area for Study would be around the tradition of five-year strategic plans that many Asian countries follow for executing their IT projects. Now, while IT product lifecycles are shrinking by the day and industry at large is becoming more competitive, five-year planning periods could prove too long.

RESEARCH DEMOGRAPHICS

The survey attracted a total of 98 public sector IT executives; respondents came from senior and middle management positions, senior-level executive positions, and professional staff such as consultants, IT coordinators, special advisors and system analysts.

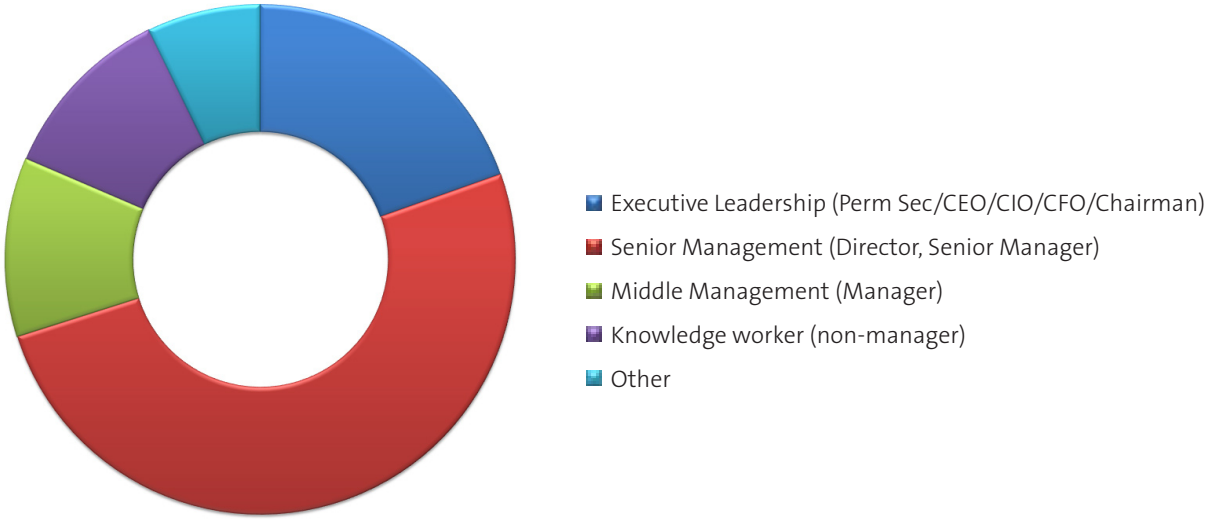

Figure 1: Job roles of survey respondents

The breakdown of respondents by geographical location and by size of their organisation is presented in the following sections.

Geographical Segmentation

The geographic location of APS IT executives who responded to the survey is shown in Figure 2. Respondents from nine Asia-Pacific countries participated in this online survey, which provided a good geographical spread. The other countries that contributed responses to this study include Australia, India and Pakistan.

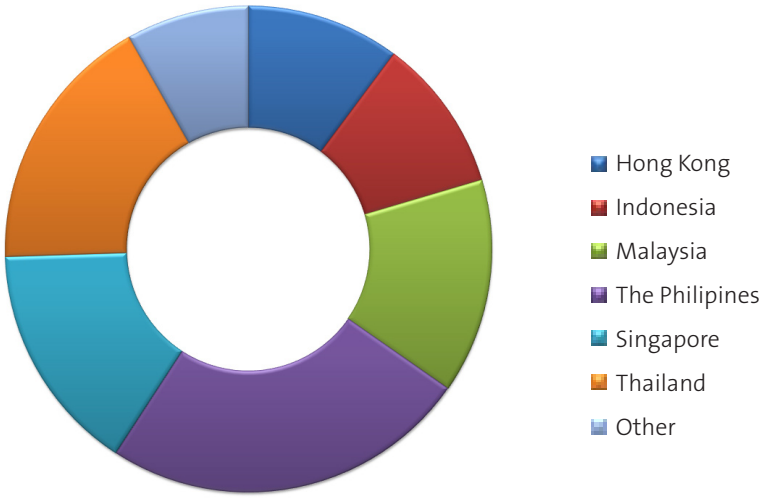

Figure 2: Survey respondents by location

Organisational size

Respondents were asked to nominate the size of their organisation from one-of-five categories. The breakdown of respondents by the size of their organisation is highlighted in Figure 3.

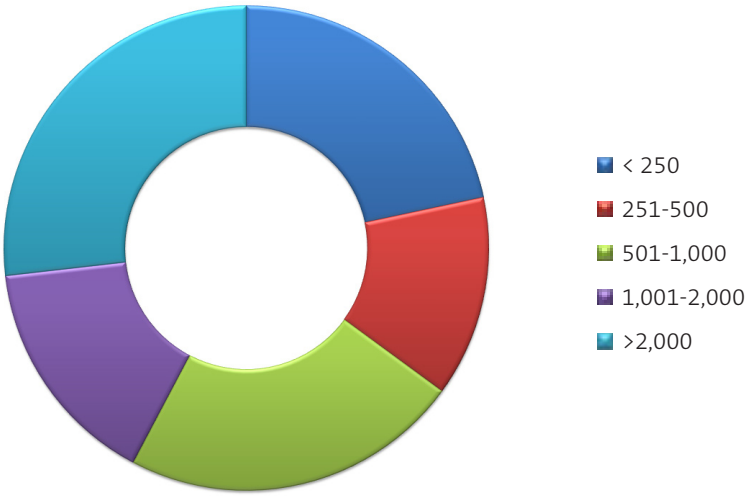

Figure 3: Respondents by size of government agency

Annual spending on IT gear

When asked how much they invest on IT infrastructure – including hardware, software, storage and communication – the most prominent response was for annual budgets between US$1-5 million. However, analyzing this data by location highlighted some interesting points. For instance, a significant response (28%) came from organisations in Thailand that spent over US$10 million annually on IT systems. Likewise, the number of respondents from government agencies spending between US$5.1-9.9 million per year on IT equipment amounted to 17% in Indonesia, 19% in the Philippines and 29% in Thailand, respectively.

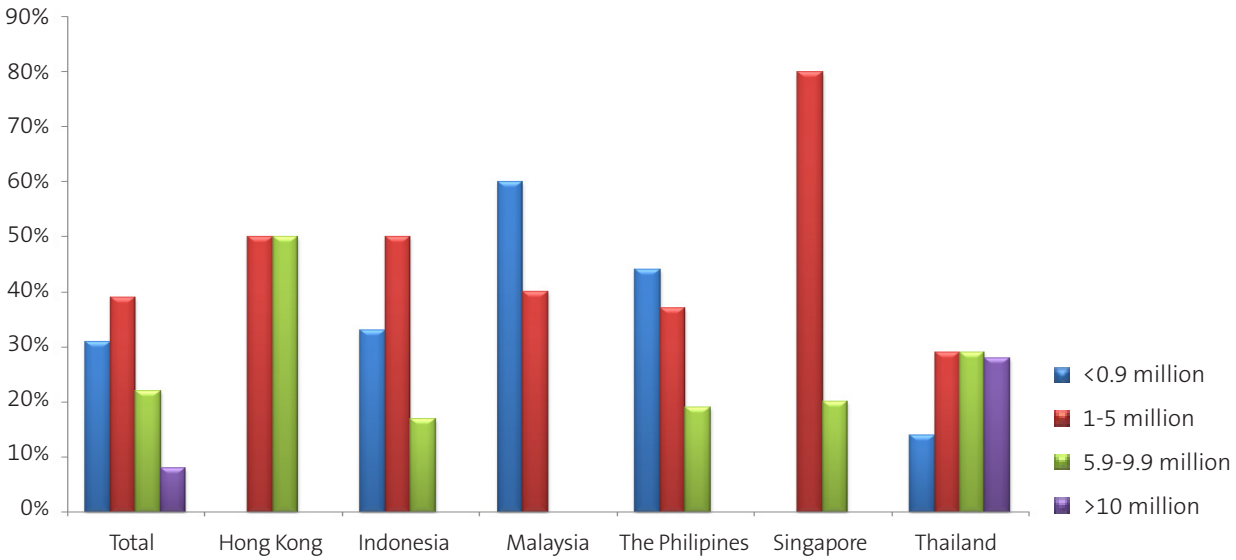

Figure 4: Yearly IT infrastructure spending (US$) by location

THE CULTURE OF THE IT INITIATIVE

Introduction

The study first examined the public sector's broad acceptance levels for electronic document systems, while assessing it from the perspective of location, size and budget. The data appears to suggest that there is much greater potential in Asia for digital systems. The study then reviewed the biggest hurdles that IT executives face in the shift to electronic-based information systems. In the survey, participants were presented with five options and were asked to nominate what they regarded as the biggest challenge in their organisation's current information management system.

The electronic proportion of information systems

The initial area that the survey explored was the extent to which government institutes had adopted electronic means, as opposed to paper-based manual systems in their information systems. Given the ubiquitous nature of email use in almost every aspect of work these days, and to effectively gauge the actual share of electronic-based systems, email was not considered. Figure 4 shows the results when participants were asked to choose from four levels of adoption of electronic-based systems in their organisation.

The data appears to highlight noticeable differences between IT-proficient countries like Hong Kong and Singapore, and countries such as Indonesia and Thailand currently in the midst of boosting their public sector infrastructure through effective use of IT tools. While no surprises came from Hong Kong and Singapore, a more progressive attitude was seen in locations like the Philippine and Thailand. Hong Kong and Singapore, with their market economies, service industries and efficient public sector infrastructure scored highest. Hong Kong boasted the highest number of responses (60%) for the 51-75% bracket; and public sector institutes in Singapore took the top slot with nearly half of respondents claiming that electronic-based system adoption was at the highest proportion of 76-100%.

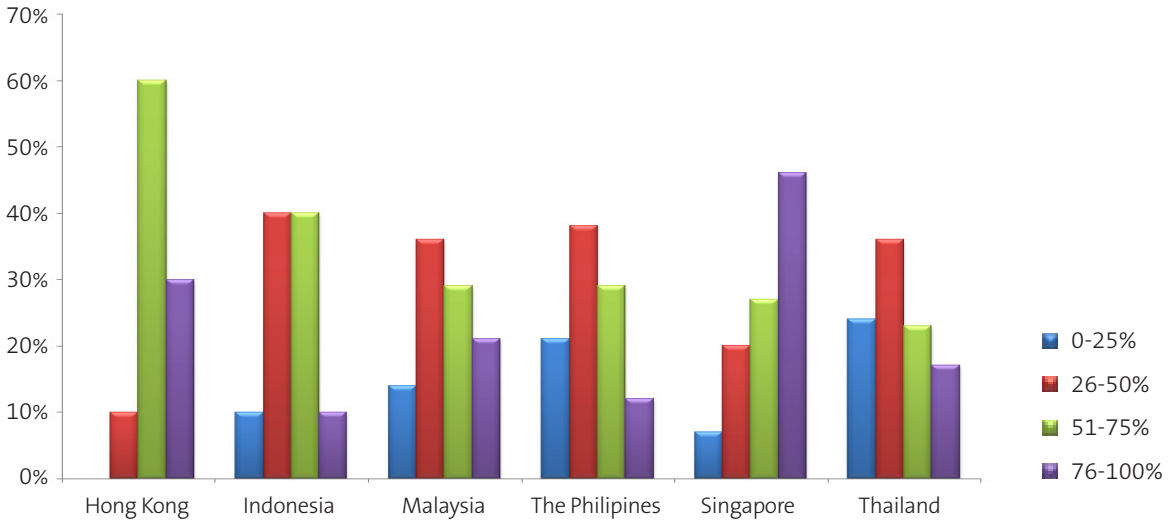

Figure 5: Proportion of electronic-based information systems by location

The above data shows that Asian countries with relatively less developed IT infrastructures are now getting serious in adopting digital tools to minimize their paper dependency. In Indonesia, for example, officials reported that half of the country's public sector now boasts electronic-based systems. For Thailand, this number accounted for up to 40%. The Philippines public sector is also showing growth, sharing similar levels of electronic adoption with Malaysia.

The pockets of modernisation in countries like Indonesia and the Philippines clearly underscore their desire to catch up with their more efficient neighbors. It could also be a testament to the fact that the initiative is there and they simply require greater support in terms of understanding, developing and implementing new IT solutions.

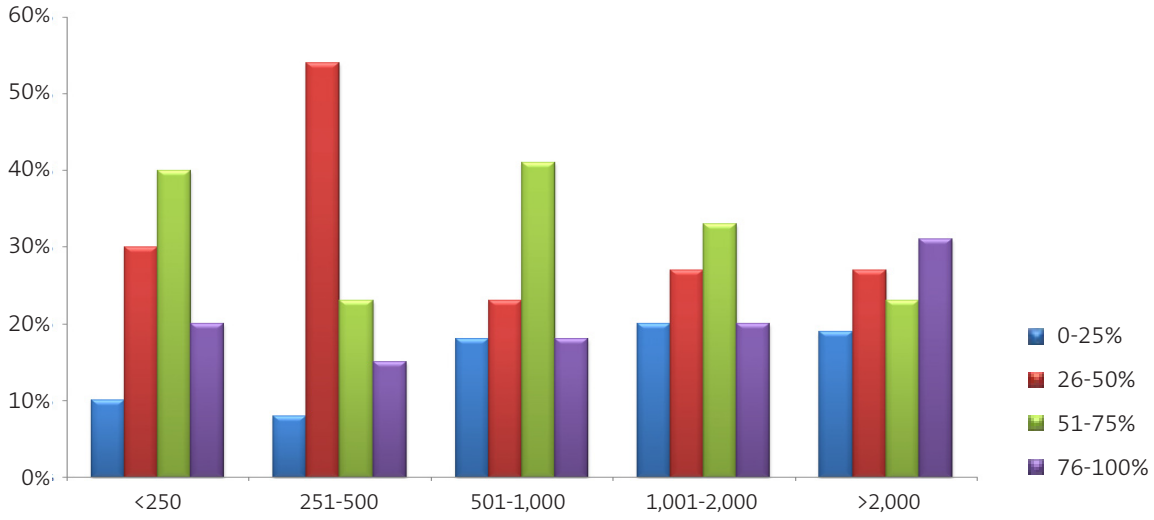

Figure 6: Proportion of electronic information systems by organisation size

Analysing the results from the perspective of organisational size highlights a few interesting points. Firstly, smaller agencies quickly overcome the initial barriers for adoption of electronic document tools, perhaps enabled by their smaller scale. As organizational size increases, the more challenging they find the adoption of electronic document culture. Larger organisations, for their part, have larger proportions of their operations stuck in the paper tradition, but they also showed greater initiative to adopt electronic means as paper-based systems increasingly become an impediment as operational size rises.

While less than 10% of respondents from organisations with staff below 500 acknowledged belonging to the 0-25% bracket, the number advances to around 20% in agencies with staff members with a headcount exceeding 500. Figure 6 illustrates that the number of responses from public sector institutes with 76-100%

adoption of electronic systems generally grows with size, reaching a third for agencies employing more than 2,000 staff members. This implies that for organisations that are quickly growing in size, it is imperative to move to digital systems before the growth causes greater challenges. Once an operation has grown, the shift toward digital systems becomes harder. Secondly, given the scale of operations, organisations would become even more hard-pressed to adopt electronic means and reduce paper dependence.

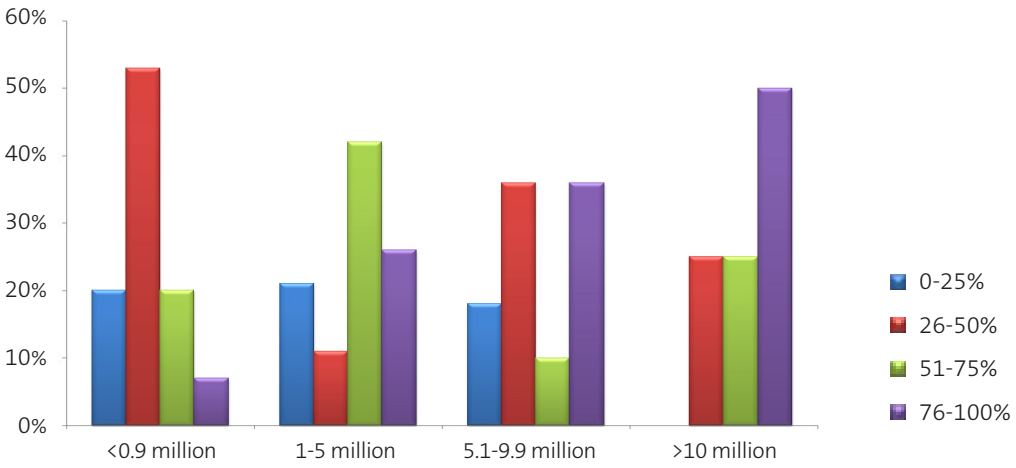

Figure 7: Proportion of electronic-based systems by IT spending (US$)

Some interesting patterns emerged when the data was examined from the prism of annual budget for IT infrastructure. Figure 7 demonstrates how meaningful IT spending could facilitate the shift towards electronic-based information systems. As such, the overall adoption of electronic document systems grows with the size of the IT budget. Public sector organisations with IT budgets below US$1 million seem to have the biggest fraction of paper-based systems, while government agencies spending above US$10 million annually on IT boast the highest proportion of electronic-based information systems. Although IT spending isn't the sole criteria, the correlation between IT investments and subsequent gains made in the adoption of electronic-based systems shouldn't be ignored.

Case Studies

Elections New Zealand managed to process 400,000 votes in one day using an automated vote counting process deployed during 13 local government council elections in 2004. The system allowed Elections New Zealand to produce full preliminary results before the end of the day. This is despite having to handle votes from two different voting systems as some councils used a first-past-the post system while other councils used a system that allowed voters to rank candidates. The first-past-the-post system resulted in forms that had ticks while the ranking system, known as the Single Transferable Vote system, had forms with handwritten numbers appended next to the names of candidates. The system used was able to handle both types of forms.

Over in Indonesia, the country's Bureau of Statistics was able to process census forms for 230 million people in just five months, and just ahead of the 2004 national elections, because it used an electronic information management system. Despite having to deal with dirty, crumpled paper and vast differences in handwriting and ink, through automated scanning and processing, the bureau managed to process 540,000 documents daily to complete the job within the five-month deadline.

Insights

The one-to-one interviews highlighted the fact that APS executives were keen to benefit from new innovations in IT. A respondent from Hong Kong's Housing Authority candidly elaborated on the critical challenges facing firms looking to efficiently manage information systems. He said that there were some 2.5 million people using public housing in Hong Kong. If it is assumed that there are four people per flat, this equals nearly 700,000 flats and subsequently 700,000 tenancy-agreement forms that must be handled on the part of the Housing Authority.

The issue clearly is the sheer volume of documents. According to this IT executive, paper files lie on the floor and it has become imperative for the organisation to free up floor space. The more pressing issue, however, is security, as anyone can get physical hold of these files and access information in these files.

Security is also a key concern for an IT director at the Department of Insolvency Malaysia. She said that security is important because preserving government data is critical. The IT official also affirmed that they seek methods for boosting operational efficiency that would help them integrate different government services and procedures. As an example, she cited the government circulars that communicate important official directives. Having them be part of the information management system could help streamline inter-departmental communication. Another critical value proposition would be to sort out user privileges, such that users could then access and retrieve information; key in data; and analyse information.

Key challenges in information management

When asked about the biggest challenge APS officials face in the way their organisation currently manages information, large paper volume stood out as the single-most pressing issue, except in Singapore, where they seem to have partially overcome this challenge through a sophisticated IT infrastructure. It is also interesting to note that more IT savvy locations like Hong Kong and Singapore put a greater onus on security, which in turn reflects their superior standing on the digital-learning curve. On the other hand, countries like Indonesia, Malaysia and Thailand see indexing and classification as the second most important challenge, after handling of larger paper volumes. This probably mirrors the fact that these countries are early in the electronic supply chain and are currently figuring things out in the digital new world of document management.

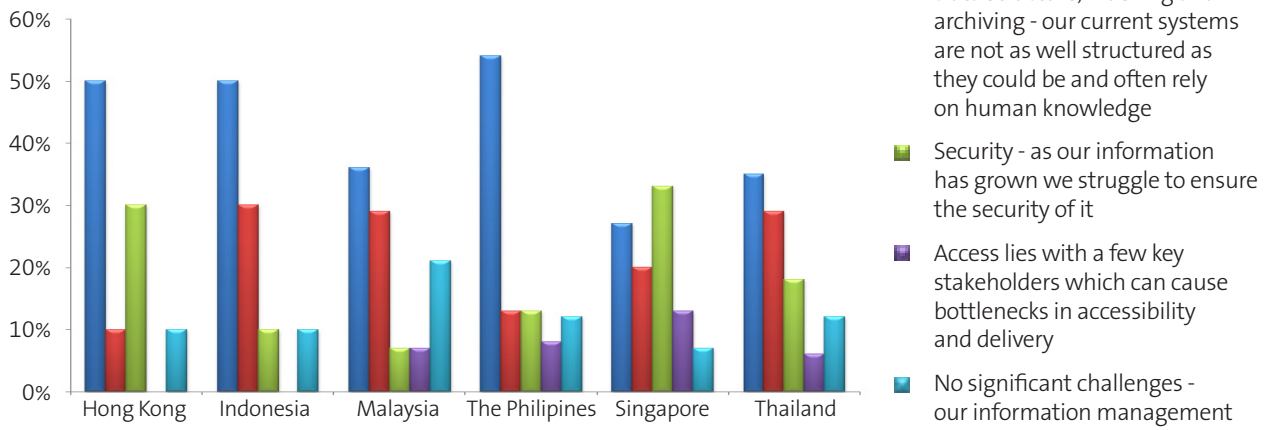

Figure 8: Key challenges in information management viewed by location

Figure 8 highlights small pockets of resistance in all countries, which could simply indicate the need for greater support in terms of better awareness campaigns on the part of IT companies. Public sector employees, sometimes stuck in their day-to-day routines, may not have strong tendency towards looking for ways to boost efficiency and productivity. In that case, it is worthwhile to demonstrate the tangible benefits that they themselves deem as critical. For instance, one-fifth of respondents in Malaysia reported that there was no significant challenge in their organisation's current information systems, while this number amounted to about half of that in the Philippines and Thailand, respectively. Such self-confidence could be justified in the case where an organisation recently installed new IT systems, or it could have been the result of a lack of knowledge of the deficiencies in the current system or a lack of awareness of what IT solutions are possible or on the market.

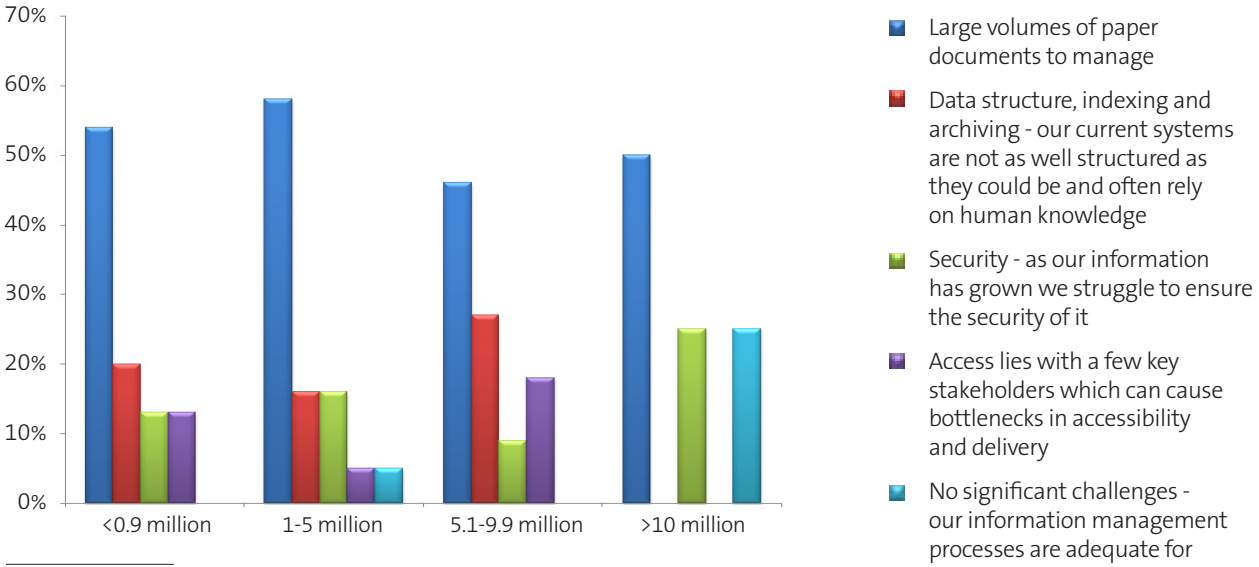

Figure 9: Key challenges in information management by IT spending

A similar breakdown was evident when the responses were viewed by size of the annual budget. While large paper volume remain the most critical issue, organisations with smaller budgets viewed document indexing and archiving as the second-most serious challenge. However, public sector institutes spending more than US$10 million annually on IT equipment seemed to have sorted out the issues related to indexing and archiving, and now they worry more about security. These organisations also seemed to have tackled the issues related to accessibility and delivery of information, which otherwise is a significant problem at the institutes with mid-size budgets. In organisations spending US$5.1 to US$9.9 million, for example, 18% of respondents acknowledged information accessibility as the key deficiency of information management systems.The insight that document indexing and classification is critical, as it determines how the end-users access, retrieve and effectively use information. Hence, document indexing and classification features could provide the key impetus in the pursuit of building a better information repository.

Insights

The culture of IT initiatives and subsequent challenges in Asia-Pacific are as varied and diverse as the region itself. At one end of the spectrum, for countries like Australia, where public sector infrastructure for information management is well established, each individual government agency has its own information management system that provides particular services to the public. For example, there are 18 different agencies in the Government of Victoria and there is no single knowledge base or information source that could bring a consistency of service to the public. Local IT officials there are now seeking a solution that could combine information channels available through the Internet, telephone and electronic media. Currently, the Government of Victoria is testing a service that would enable the public to conduct live chat with public sector officials. The challenge for the public sector, therefore, is to provide a universal service that could bring consistency in accessing all these different information services. A senior IT executive admitted that what the government has done so far is it has taken a piecemeal approach, one particular service at a time.

At the other end of spectrum, consider Pakistan, a country with a huge potential and a population of 160 million people. According to a senior IT executive, public sector employees didn't want to change and wanted to keep going with their old bookkeeping ways. In general, they have resisted the development of IT infrastructure. Most professionals didn't even know how to effectively use computers and IT systems. Even some large government-owned banks in Pakistan are without proper IT systems; simply using computers as data repositories.

In environments such as this, he said, it was more of a mindset issue; public sector officials didn't want greater transparency and there was a lack of good governance. Public sector officials didn't care about efficiency, so the argument about increasing efficiency wouldn't appeal to them. Instead, what could prove more compelling was to show how new IT systems could help reduce the cost of services; expand the coverage of services; and improve the quality of public sector operations. This was clearly difficult with the paper-based manual systems.

In these areas, there are budgets for the installation of personal computers (PCs) in the public sector, but that was not equivalent to IT systems, as PCs are mostly being used as typewriters and storage devices. When IT systems are not developed, government officials use PCs simply to store digital copies of documents. Likewise, they scan the documents just for keeping records but little else. Another problem in Pakistan is the huge turnover within the public sector's workforce; officials get transferred in shorter time spans, which make it very difficult for IT infrastructures to improve.

INFORMATION MANAGEMENT EVOLUTION

Introduction

This part of the study chronicled the evolution of information management systems in APS. First, it investigated the patterns of how requirements for information management changed since the early part of this decade. Then it examined the development path taken by the government institutes for managing their information streams. What was most encouraging was the amount of clarity that respondents demonstrated on the changing dimensions of information systems. Then there were the vantage points on key issues like large information volume, delivery mechanisms, information accessibility, and security.

The changing face of information systems

There is an unanimous call from all surveyed countries that the public sector is now dealing with far greater amounts of information. If there was any doubt, it showed in countries that are still in the process of developing their basic IT systems and infrastructure. In areas like Singapore and Hong Kong, which boast well-run bureaucracies, respondents demonstrated a strong clarity on the fact that large paper volume plays a critical role. All respondents in Hong Kong and Singapore shared the conviction that the public sector is handling more information than it did at the start of this decade. The number of respondents in this category surpassed 80% in Indonesia, Malaysia and the Philippines, while it ranked 94% in Thailand.

This could also be seen as a clear vote of confidence for scanning/capture technologies, which facilitate the conversion of paper documents into electronic format, and subsequently, through automated workflows, allow users to electronically access and retrieve those files. At a time when the public has started to demand individual pieces of data at the micro level, labor-intensive manual document operations are becoming an impediment in managing the massive amounts of paperwork processed on a daily basis and stored in filing cabinets. Automatic, upfront document scanning and capture solutions not only facilitate effective handling of large volumes of information, they also add value by automating document separation, classification and data extraction, and speeding up data entry procedures.

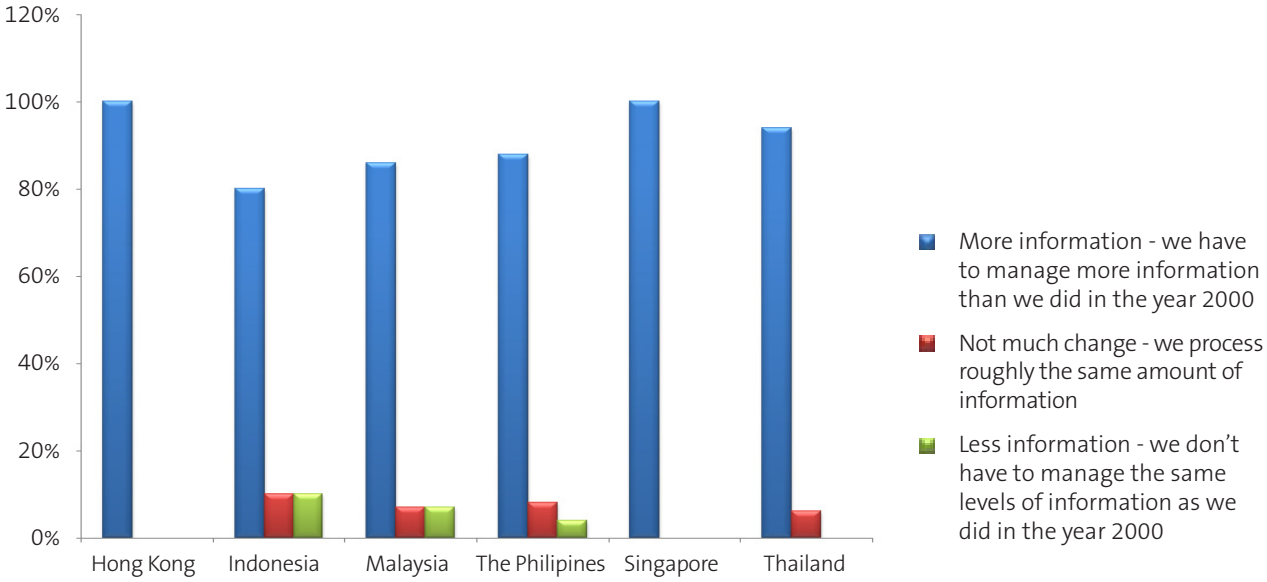

Figure 10: Information demand analysis since the year 2000

These findings are evidence of a growing recognition that APS hasn't fully learned to deal with the volume of data that the public sector creates and collects from the public. The advent of the Internet, the rise of ubiquitous mobile phones and the prevalence of electronic media have all contributed to the widespread use of information, and the public sector is clearly faced with growing challenges from this. The public is now far more aware of the issues and has started to demand better service and more credible information. People want integrated data in a coherent information repository, so the document management environment has to index the individual pieces of information and contextualize them, rather than keeping the data in a lock-and-hold system. The time has come for government IT establishments in Asia to review the document strategies to better deal with the coming waves of information.

Insights

Three IT executives interviewed for this report told markedly different accounts of how information systems were developed in their respective countries. In Singapore, for example, the public sector seems to have taken a more structured approach. In other advanced locations like Australia, although information management system build-up was not a result of a major structural change, their development was still strategic in terms of scope of services.

A senior official from Singapore's Central Narcotics Bureau said that her department follows a master IT plan that is developed every five years. However, she acknowledged that requirements for information management have changed a lot over the years. Her agency has to deal with a lot if information and the challenge is how to filter and use it. Also, there are different types of information, so the critical task is to conserve it in a huge data bank and effectively use it.

Hong Kong's Housing Authority uses a content management system that initially aimed to serve two basic purposes: store and retrieve information. However, over the years, its IT unit realised that they needed a more structural approach for distinguishing the type of document and classifying it in the appropriate information repository. With regard to security, it is a key feature, but the executive cautioned against creating tightened security that introduces inefficiencies in the system. He also noted that people used to support paper-based documentation, but once they started using electronic documents they readily accepted it; they could see the benefits of the digital environment. For instance, staff could see how easy it was to retrieve information. After readily using the captured information, they've been demanding and requiring more information in an electronic format.

Not that this fundamental change in information management landscape hasn't gone unnoticed in Australia. About 18 months ago, the Government of Victoria undertook the major task of changing its information platform, turning it into a more flexible setup. A senior IT executive said the Australian government has been moving away from proprietary IT systems and software at all levels. The Government of Victoria has also moved from a three-year IT contractual arrangements to 12-month contracts. She said that, before, the Australian government mostly had proprietary IT systems that were expensive to run and maintain. Now, they are being replaced with more flexible IT systems in which information can be stored in many layers. And they no longer needed to hire programmers to run the content management systems, as they are easy to use and are more user-friendly with a broader availability of useful applications.

Regarding the major factors that influenced the development of information management systems, the IT executive said it was not an issue of information security; in Australia it is more of information privacy. The government has a Privacy Commissioner, which acts like a watchdog on what information is released. Public sector agencies have to report on information accessibility and there is increasing criticism that information within the government should be more available and more accessible. In her view, what would enable this is better indexing. That way, the public sector could further enhance the accessibility of information to the public.

Information systems development patterns

The study then canvassed APS executives on the development path for their current information systems. Again, we witnessed similar positions taken by Hong Kong and Singapore, as they have generally avoided the piecemeal approach while striving to adequately plan their information system requirements. At the same time, however, IT executives in these locations haven't lost sight of growing IT needs, which points to further room for growth and sophistication in their information management systems. For instance, 60% of respondents from Hong Kong acknowledged that their organisations haven't adequately kept up with the IT growth requirements, while this number hit 53% in Singapore.

Conversely, locations with less sophisticated IT systems acknowledged their piecemeal ways of developing information systems. Nevertheless, these countries also showed rising tendencies towards better IT project planning. It is probable that they fell short in turning their IT blueprints into robust information management setups at the implementation phase. Respondents from Indonesia, the Philippines and Thailand that fell into this category surpassed 40%, while Malaysia fell just below them at 36%. This could mean that the Malaysian respondents recognised a political will and could get hold of necessary resources, but they needed professional help in terms of effective planning for IT requirements, and subsequently find the appropriate tools and technologies to better suit their information needs.

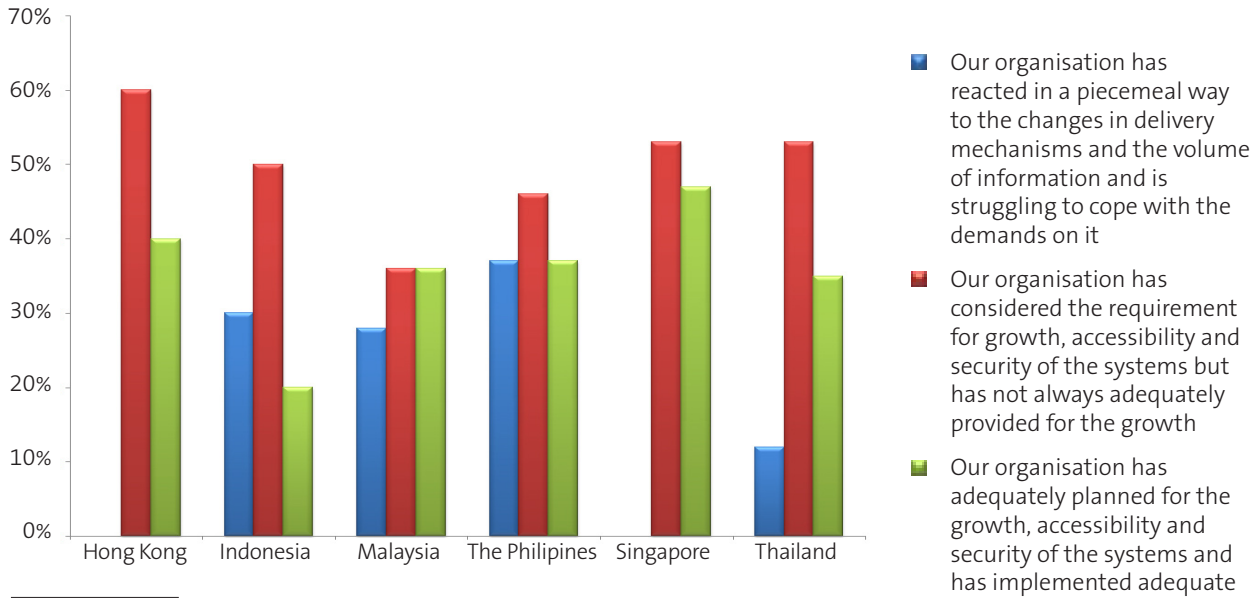

Figure 11: Information system development criteria by location

The study then considered organisational size and found that small organisations are generally more tempted to use a piecemeal approach, perhaps due to the scale of their operations. They were probably confident that they could get increased value from smaller IT investments, and decide later how to upgrade these systems to meet the growing information demand. That may be the right approach, but there is the risk that this strategy could eventually breed inertia, as some public sector employees would later resist the change that would come with the new operational requirements.

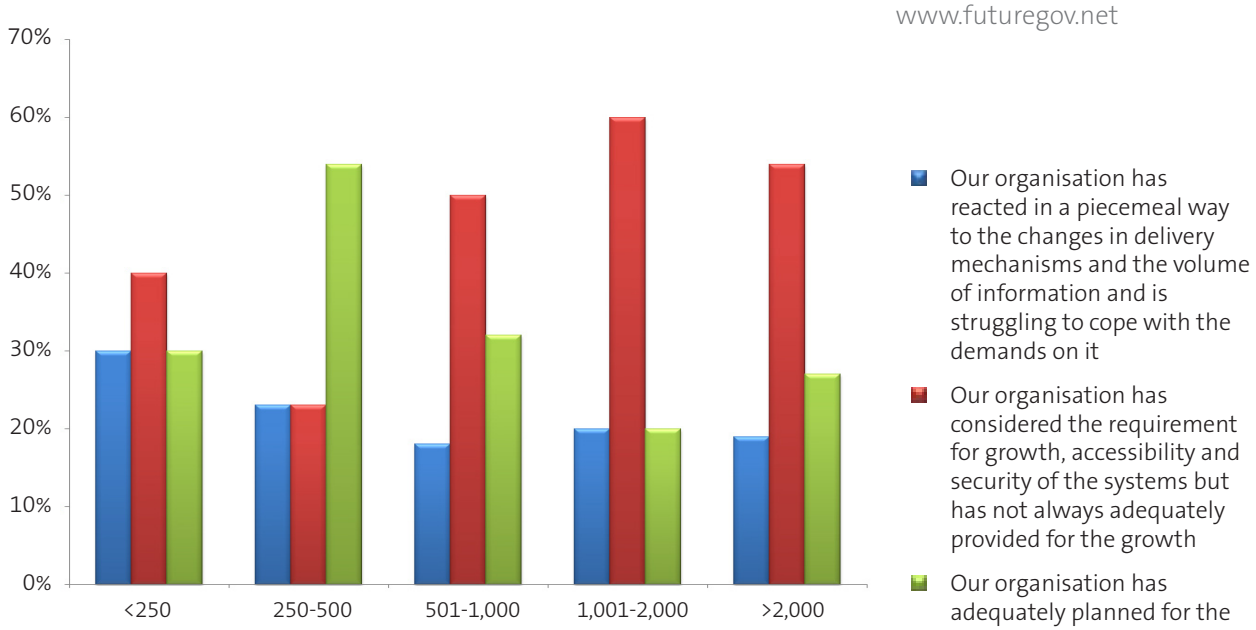

Figure 12: Information system development viewed by organisational size

Interestingly, more respondents from small to mid size government agencies considered their organisation to have adequately planned and implemented information systems. For instance, more than half of respondents from organisations employing 250-500 staff believed their information management systems well planned and implemented, while the number of respondents in organisations with 501-1,000 staff fell to 32%. Such a source of confidence, if well-placed, could partly come from the fact that the scale of operation is on their side – neither small enough that they are undertake the piecemeal approach, nor so large that they felt like they lost control. Hence, it is imperative for public sector organisations that are growing in size to effectively plan IT initiatives early on, as it will only get more challenging when they get bigger. For example, only 20% of responses from organisations with 1,000-2,000 staff believed their information management systems as well planned and implemented.

Case Studies

Public sector IT executives who have moved towards electronic information management systems say the move has resulted in faster processes and greater efficiency. New Zealand's Hastings District Council, for example, used to handle thousands of paper invoices manually each month. The process was time-consuming and prone to delay because invoices would get lost or misplaced. In 2004, the council moved to a new accounting solution and separately implemented a scanning solution that digitised paper invoices. Because of this new system, invoices are processed faster, there are built-in audit tools and all invoices are now easily retrievable because they exist digitally in the system. Thanks to the successful implementation of this system, accounting staff have been freed up to do other things.

The Companies Commission of Malaysia reported a similar efficiency gain after it decided to go digital. It digitised all its old paper files and implemented an information management solution that is able to retrieve some 60,000 documents each day. That system also allowed the commission to collaborate between the head office in the capital of Kuala Lumpur with 11 regional centres around the country. Thanks to the system, all documents can be viewed online within 24 hours of receipt and document retrieval takes a maximum of 15 minutes.

Insights

In looking at how information management systems evolved in Asia-Pacific region, we witness a very diverse landscape. In locations like Malaysia, with less developed IT infrastructures, the public sector mostly follows the text-book approach. Large IT projects mostly follow government's strategic planning initiatives that generally span across five-year project lifecycles. In today's competitive technology environment and shrinking IT product lifecycles, however, that could be a lifetime, and, consequently, could prove counter-productive.

When asked how information requirements have changed in Malaysia, a senior IT official said that until the year 2000, document management and filing systems were two distinct things. Now, they are merging into one system that lets public sector employees store and access information in a more effective manner. For example, having documents and images in scanned format reduces review time. In the past, when officials did it manually, every individual in the executive value chain would take his or her time. Now, with an information management system in place, government officials can effectively manage not only the documents but also the workflows.

In Pakistan, on the other hand, there is no concrete IT policy and there is only partial investment in information management systems in the public sector. So the development of IT systems has been ad hoc, except in private banking and the financial sectors. There are some privately-owned universities that have established new IT systems to increase their coverage; these IT installations have also yielded positive effects in university libraries. Moreover, some private hospitals in Pakistan have installed advanced IT systems which have led to reduced cost and less errors.

A senior IT official said that the development of electronic media in Pakistan since the early part of this decade has also put the public sector in the spotlight, and they are now under pressure to improve their services. People have observed developments in the government sector and are more aware of the issues. This could eventually help expand the coverage of basic services and their delivery to the public. He also noted that there is more awareness on information management now; until just three years ago, there was no course on IT health management systems in Pakistan. Now, there is demand for teaching IT management at the universities. The IT official recommended that the private sector associations be included in the awareness campaigns, so as to create greater impetus for effective information management systems in public sector in Pakistan.

APPROACHES TO FUTURE DEVELOPMENT

Introduction

Some of the earlier findings clearly illustrated that IT executives in APS showed a remarkable clarity on the changing needs of information management. In the final part of the study, the survey attempted to capture their vision of change. Next, the research investigated the level of preparation in dealing with potential information backlogs. Lastly, there was a focused look at the critical factors that could influence the public sector's readiness to deal with information needs over the next five to 10 years.

The truth about change

One of the most encouraging responses regarded responses over what changes APS executives foresaw in information management systems. The overwhelming verdict was that public sector organisations will be dealing with a lot more information in the coming years, and this reasserts the earlier finding that identifies substantial increase in volume of information since the early part of this decade. If there is any ambiguity on the premise that information demand will only increase, it appears in the data from countries like Indonesia that are still in the midst of developing an advanced IT infrastructure.

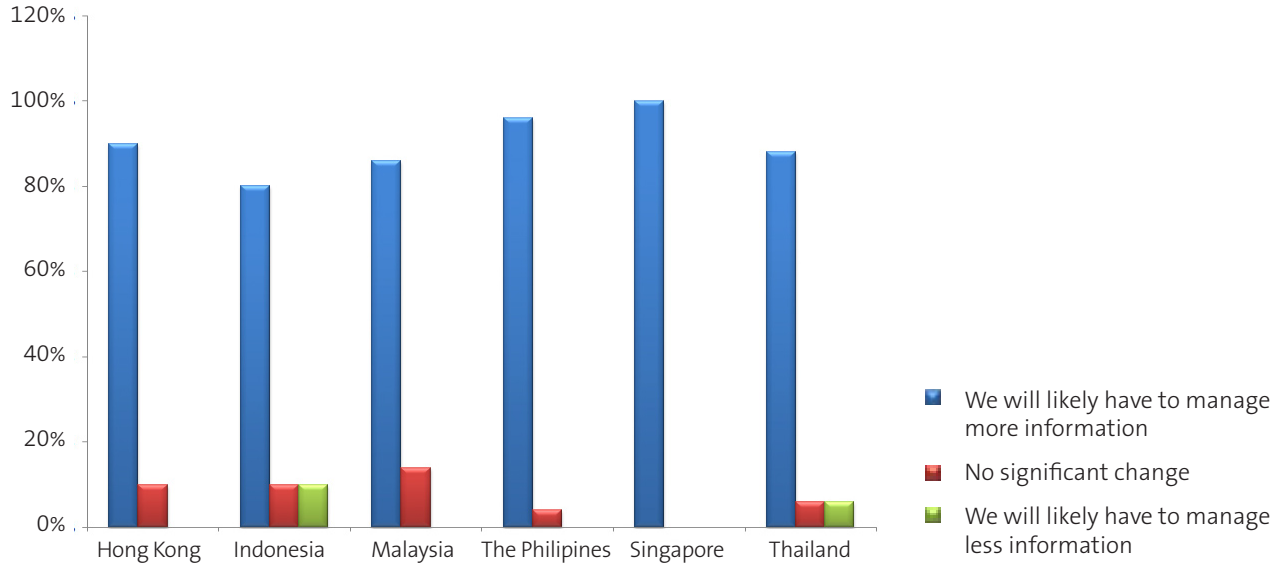

Figure 13: Information systems forecast for the next 5-10 years

Such ambiguity could possibly result from a number of factors. First, there could be an issue of detachment from the new IT developments and how they could create greater value to public sector infrastructure. Second, there may be a case of over-simplification, as a significant proportion of APS employees are not yet fully exposed to the information blitz. However, as the data in Figure 13 shows, these cases represent a small minority.

Only 6% of respondents think there won't be a significant change in the amount of information that their organisation will have to handle towards the latter part of the next decade, from 2015 to 2019. The number of responses fell even further to 2% for the possibility that less amount of information will be required during this period.

While many public sector organisations in areas like Hong Kong and Singapore are already dealing with scanned and captured information, the study's secondary research shows that their ultimate goal is to move to a paperless environment, where people could send forms and other types of structured information over the Internet. That way, government could push back the responsibility of creating electronic information to the public at a very early stage. Then, all that government employees would have to do is index and classify information so that it could be efficiently accessed and retrieved when required. However, integrity and authenticity of such documents would be critical, as government institutes will have to ensure that these electronic documents are actually sent by the genuine users and not by someone else. Security will be vital.

The evolving needs of information systems

After the public sector's strong confirmation that there has been a significant boost in the information demand since the year 2000 and combined with the above data, a very clear picture emerges. However, the question is how should the APS respond to this call. The next task of the survey was to gauge the degree of readiness for doing what is necessary to cope with the magnitude of new information. When asked how ready their current systems was for coping with the information needs of their organisation towards the latter part of next decade in 2015 to 2019, the predominant number of respondents recognized the need of significant changes in their existing IT systems to cope with demands in the next five to 10 years.

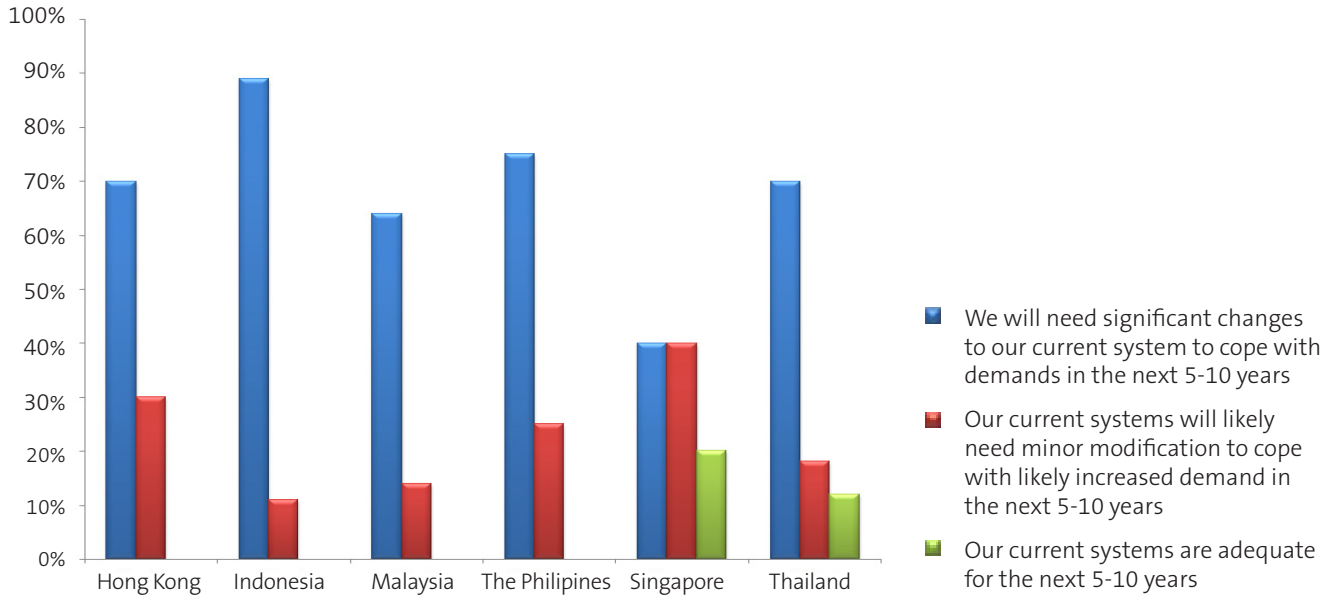

Figure 14: Approaches for managing change in information systems

At a more focused level, again there was the formation of two camps, with the line drawn by the amount of clarity on the future needs of public sector organisations. Although a predominant number of responses from the more IT savvy public sectors in Hong Kong and Singapore favoured a significant overhaul in the current information systems, a significant portion of officials in these city governments also claimed that some of their existing systems will only require minor modifications to cope with likely increased demand in the next five to 10 years. In Singapore, the number of responses favouring significant and minor changes, respectively, equaled at 40% each, while in Hong Kong 70% voted for a major overhaul as opposed to minor changes.

Except Singapore, where 20% of respondents were assertive on the strength of their current IT systems for meeting future needs, 12% of respondents from Thailand claimed that their IT systems were adequate for coping with the information needs in the next decade. Now, such source of confidence could also come from newly installed IT systems. Their public sector operators may have a greater faith from the future standpoint. For example, the newly built airport in Bangkok that features sophisticated information systems built around some of the latest IT gear may give operators the sense that their systems are now adequate.

The evidence gathered from APS shows that the ground is fertile and ready to take the call for enhancements in information management systems. What will likely be crucial is how IT equipment and solution providers approach the public sector, which is markedly distinct from private sector in its temperament, character and general approach towards technology solutions.

Insights

One of the most encouraging findings of the study was that many governments in Asia are gradually moving towards electronic filing system, and their eventual goal is a paperless setting where there is a single source of information and data available at all public sector institutes. This is still a challenge that has yet to be resolved, but there was a growing realisation among respondents that information management systems could help in tackling that challenge. A respondent from the Government of Victoria reported that many parts of the official data have now migrated to government's information management systems, although the public sector hasn't been able to fully unlock the volume of data.

Another respondent from Singapore echoed similar sentiments. She said public demand and expectations are likely to increase, and people may demand quick and faster services. Then there was increasing need of more intelligent analysis of information than mere raw data. The official also expected more integration of services, which will subsequently enable the public to go to a common source of information rather than approaching different government agencies.

Innovative new ideas are already on the horizon. An official from the Housing Authority in Hong Kong noted that if a tenant can fill the form, scan it and send it to the Housing Authority over the Internet, it will save a lot of time and effort both on part of the tenant and the staff of the Housing Authority. It would mean that staff will have to attend to less people at the service counters, and they could then have greater flexibility in their day-to-day work. However, if there is a security lapse somewhere, for example a hacker breaking into the system, then it would hurt the image of the IT system and of the public sector at large. Users will expect that there are appropriate security measures in place and that their information is safe.

Critical factors in effective information management

There is growing evidence that there is a significant rise in the amount information, and that information management systems in APS could require major shift to cope with that rise in information. Hence, the final question in the study was devoted to critical factors that will prepare the public sector in Asia for dealing with a potentially steep rise in the amount of information.

As illustrated in Figure 15, the most common reply was for information accessibility, except Hong Kong where security and freeing up of storage space attracted equal number of responses (30%). Security even surpassed information accessibility in Malaysia and Thailand as the most critical factor in effective management of information, with 35% of responses for each. It is also evident that awareness on how a robust information management system could facilitate an efficient audit is at an embryonic stage.

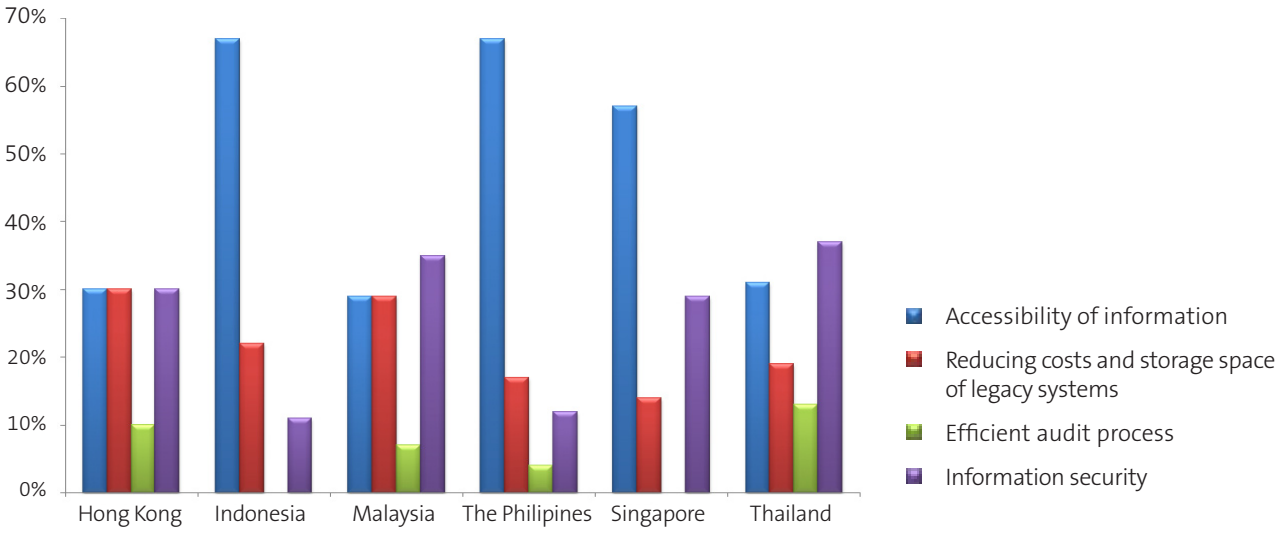

Figure 15: Critical factors for effective information systems

From the perspective of organisational size, security is a paramount concern at small government agencies. But as the organisation gets bigger, a more practical approach about security-related issues follows suit. That said, the preference for security begins to grow again after public sector organisations cross a certain size. The number of respondents calling security a top priority for future setups comes down from 50% in agencies staffing below 250 headcount to 10% in government organisation with staff between 501 and 1,000, and the number rises back to 30% for public sector institutes with staff exceeding 2,000 people.

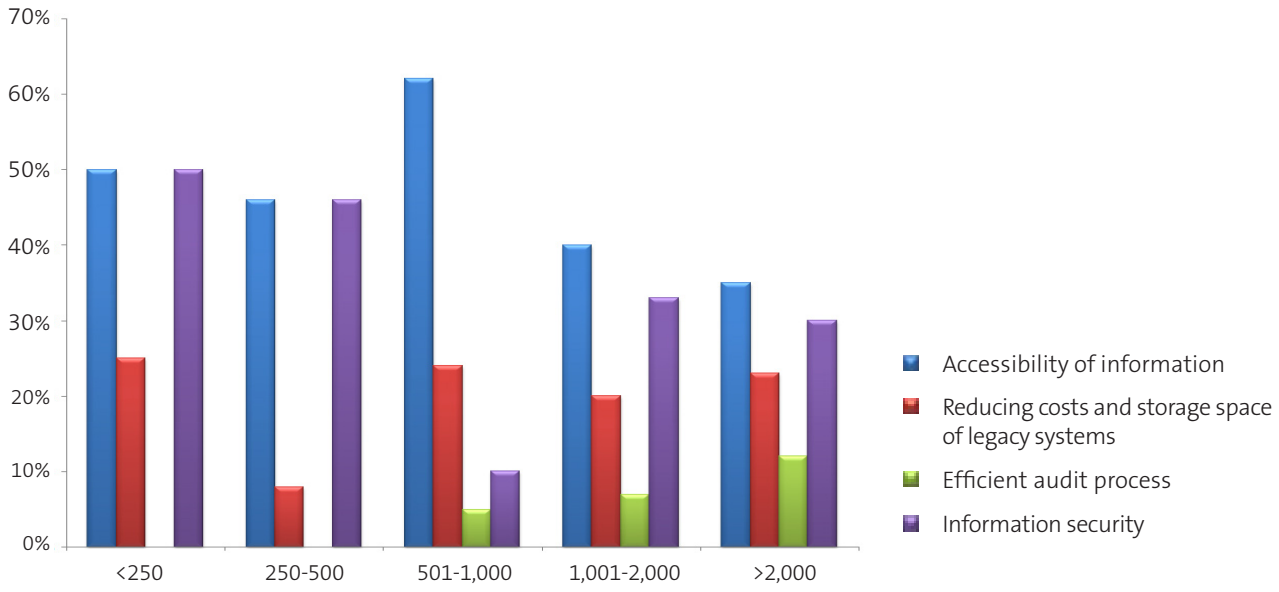

Figure 16: Critical factors viewed by size of government agency

As evident from Figure 16, APS agencies only realise the critical importance of an efficient audit in information management setups once they cross certain organisational size. For example, the need for audits only surfaces at agencies employing 501-1,000 staff, where a mere 5% of respondents called auditing a critical factor. The number rises to 7% for government institutes with 1,001-2,000 staff and increases further to a significant 12% for organisations employing more than 2,000 staff.

Insights

As established earlier, large volume of paper could prove a serious challenge. A Singaporean IT official who pointed to this critical factor also added that government institutes need to deliver more services online, as this would help integrate disparate parts of information and thus enable the public sector to manage them together. Another Malaysian executive reiterated the need for online services in facilitating effective communication among government agencies and with the public at large. Moreover, she said there are users of public sector services residing in other countries, so they can also conveniently access necessary information. What was more important was the need to make information services available online so that common people can conveniently access government services.

One respondent from Australia added that change has to come in how the public can access the government data. For example, if there is government data on crime in a particular area, it should be released to that community, overlaid with fine statistics. Hence, people should be able to access that data and mesh it up in ways that are useful. According to this executive, cost will always be an influencing factor. In the past, since the year 2000, the Australian government has heavily invested in content and document management technologies, but they were mostly proprietary systems. She said that the public sector doesn't need to spend that much now; governments could get a better deal with open-source software and applications. She added that the public sector in Australia was now building IT systems that are more agile, flexible and less costly.

In Pakistan, according a senior IT executive, what is needed is to enroll senior officials by showing the benefits. Leaders from the public sector need to learn the tangible benefits of IT systems, along with success stories from within Pakistan, and not only from the US and Europe. Senior officials will play a key role in the development of advanced information systems, so there is a need for helping them improve their own IT skills. For example, there could be awareness campaigns and pilot projects to realise the potential of IT systems in the country. For any meaningful progress in the build-up of a modern information management infrastructure in a country like Pakistan, the change has to come from the top, down. He also reported that the current IT policy in Pakistan is focused on commercial aspects like Internet and phone charges, import duties of PCs and accessories. Consequently, PC accessories have become very cheap. Although it could help minimize the cost of IT-related services, the fundamental goal should be aimed at improving services for common citizens; those with the means in Pakistan society are already using the latest IT tools and devices. In order to move forward, they will need a clear IT policy and focused investment on information management systems.

CONCLUSION

The survey sought to explore a number of areas linked to information management systems throughout Asia Pacific, and the results point to a strong general trend towards improved management systems. Although there still exists an ad hoc approach, these are mostly limited to a few locations and are generally being replaced through more systematic initiatives. More specifically, the report showed:

- The public sector in Indonesia, Malaysia, the Philippines and Thailand demonstrated strong initiatives for the adoption of digital tools to minimize paper reliance, catching up to systems currently used in Hong Kong and Singapore.

- Meaningful IT spending plans could better facilitate the shift toward electronic-based information systems.

- Large paper volume stands out as the most pressing issue facing the government institutes in Asia. Security and document indexing/ classification are the other critical challenges.

- There is unanimous consensus that the amount of information handled by public sector has significantly increased since the year 2000 , and this could entail a vote of confidence for scanning/ capture technologies that facilitate conversion of paper documents to electronic format, and then allow document access and retrieval in the digital environment.

- Countries can be classified into two broad groups: Hong Kong and Singapore take a methodical approach while being open to IT enhancements; and the remaining countries are lured to a more piecemeal approach while having inklings for better IT planning.

- An overwhelming number of Asian IT executives foresee the public sector dealing with a lot more information in the coming years, and they will increasingly look towards information management systems for tackling future challenges.

- A predominant number of government agencies in Asia also acknowledge the need for significant changes in their current information systems to cope with demands in the next 5-10 years.

- Information accessibility is high on Asian IT officials' agenda for future planning, followed by security, which is a top priority in Malaysia and Thailand.

- Public sector organisations in Asia seem to recognize the importance of efficient auditing, facilitated by information management systems only after they acquire larger operational size.

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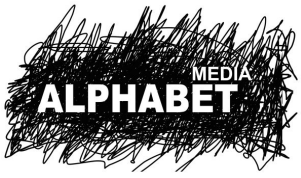

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