Befriending Information Technology: IT for Non Specialists

by

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ABSTRAK

Program pengurusan rekod yang berkesan dapat meminimalkan kos dengan cara meningkatkan kecepatan penerbitan rekod. Program pengurusan rekod memastikan dokumen dapat diperolehi, diurus dan diterbitkan semula pada tahap kos yang paling minima dan pada masa yang singkat. Penglibatan teknologi maklumat (IT) dalam soal ini tidak dapat dikesampingkan kerana kini kita berada dalam era maklumat di mana syarikat dan agensi perniagaan turut menggunakan pelbagai jenis teknologi yang tinggi. Terdapat pelbagai jenis IT yang digunakan di pejabat dan di dalam aktiviti pengurusan maklumat. Objektif artikel ini ialah untuk memberikan pendedahan mengenai jenis-jenis IT yang terlibat dalam penerusannya, penyimpanan, penggunaan, pengedaran dan pemuliharaan. Beberapa jenis sistem rangkaian dan penyumbang maklumat juga dinyatakan untuk makluman pengurus-pengurus mengenai kewajubannya serta menggunakan IT untuk pengurusan yang berkesan dan juga dalam membuat keputusan.

Aplikasi IT di Malaysia telah mengubah persepsi pengguna dan kaedah pencarian maklumat yang seterusnya meningkatkan keperluan kepada penyimpanan, penggunaan dan pengedaran maklumat. Pengurus harus meningkatkan tahap literasi komputer di kalangan kakitangan dan memberi latihan supaya mereka boleh menyusun diri dengan sistem yang baru. Perkhidmatan penyelengaraan yang baik juga diperlukan bagi mengimbangi penggunaan teknologi yang terkini. Perkembangan IT serta peningkatan sistem rangkaian maklumat ditafsirkan sebagai satu revolusi baru terhadap pengurusan, perkhidmatan dan pemuliharaan maklumat.

INTRODUCTION

Managers are advocates of efficiency and economy. The closer the focus of organisation on systematic records management, the more time and money could be saved. Managers have to be committed to getting the information and services when they need it at a fast speed, and this involves the operational mainstreams - fine tuning file systems, analysing forms usage, designing systems, inventoring records, including electronic records and application of IT. This means drawing attention directly to the point of data-generation, involving records creation, maintenance and records retirement. The current technological age has revolutionised the world and has prompted many managements to forge ahead a full swing into automation and application of IT. How could we assess and make it happen within our functions? Records function is actually a supporter of automation and IT not the averse of these new trends. Table 1 shows brief data on the evolution of recorded base for information.

How Information is Recorded (Past and Present)

<table>
<thead>
<tr>
<th>Time</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousands of Years</td>
<td>On Paper</td>
</tr>
<tr>
<td>Past 60 years</td>
<td>Microfilm</td>
</tr>
<tr>
<td>Past 30 Years</td>
<td>Magnetic media (tape, disks, etc.)</td>
</tr>
</tbody>
</table>

Table 1


** Dean, School of Library and Information Science, MARA Institute of Technology.
BACK TO THE BASIC

Systematic records management is basic to avoiding chaotic records keeping. Records that should be preserved, or would be unreasonable to destroy must be preserved. To this effect a records management programme is needed because it will identify and track clearly records that must be preserved, the length of time for which their retention is given, and procedures that could ensure the implementation of the protocols. Those records that need not be preserved for either business or legal purposes should be destroyed but the records manager must follow steps that will allow this to be done in a systematic fashion.

IMPORTANT TO KNOW IT IN RELATION TO THE MANAGEMENT OF INFORMATION AND RECORD MEDIA

Information technology has been defined as “the group of technologies that deal specifically with the processing, communication and storage of information. Generally, computer-supported systems are implied. Included within the scope of information technology are computer and communication systems of all descriptions as well as reprographics methodologies.” Managers have to know IT because the use of IT is the in-thing and its development has ‘conquered’ most offices. Another characteristic of IT development is that it changes at a very fast rate. Machines can easily be obsolete when newer models keep providing superior capabilities. The IT revolution may come much too fast and people may not be able to make a huge shift from paper to screen. A paperless office may be possible but it may not be practical at present because people’s needs are different in different situations. Record managers have to take into consideration these two factors.

IT APPLICATION

The application of new technologies in our management is a reality. Our wonderful manual and highly organised system would have the suit with the world of automation and information technology. What is inherent is the provision of input to systems design, creation of work flow efficiencies, and using currently available hardware configuration with minimal adjustments, and ensuring that requested information could be retrieved when called for. Management of records has become more complex and of concern is selecting record storage media. Three main considerations for selecting the media are access, integrity and storage costs.

Types of IT: Common Examples
Used for Preservation

**Microform**

Storage media consisting images too small to be read without using the machines, and stores text and graphics. Microforms can be produced by:

1. using camera
2. computer output microfilm (COM). The different types of micro media are
   1. Microfilm rolls
   2. Jacket
   3. Microfiche
   4. Aperture card

The functions of microform technology has proven effective in records/archives preservation in that it facilitates users to retrieve and print the original information while it also helps save space and cost. Among the advantages of microforms are the following:

1. information can be accessed fast.
2. economise space at optimum level.
3. dissemination of information can be done quickly using duplicate microforms.
4. saves time and cost of delivery.
5. helps to preserve information.

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Microfilm

Microfilm has been used everywhere for more than a century in public and private sectors. Two main aspects are considered when using this technology. Firstly, microfilm technology itself, examining the different types of film, document filming, film resolution and density, processing, and film duplication. Another factor is the microfilm standards, which covers image longevity, and quality, system compatibility, and legal issues pertaining to using it as legal copy of records.

COMPUTER TECHNOLOGY

Computer technology is used for a variety of functions in offices and archives. Office automation has revolutionised the repetitive routines as well as the more sophisticated jobs. In archives for example, a number of software programmes have been used. Among them are POSPEC, INSPEC, and SPINDEX. SPINDEX, for example, provides a control field, general heading, index cross-reference, supplied subject entries, alternative personnel name entries, span dates, quality of materials, collection identification, inclusive box numbers, abstracts, subject title and personnel name title.

Another method used for cataloging archives and manuscripts is the Machine Readable Catalogue - Archival Manuscript Cataloguing (MARC AMC) has been used in many libraries and archives. Other types of Electronic Materials Magnetic Tapes, Diskette, optical disks.

IMAGING TECHNOLOGY

The evolution of electronic information processing has shown the processing of numbers to the imaging of documents as can be seen in table 2.

<table>
<thead>
<tr>
<th>Year</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>Numbers</td>
</tr>
<tr>
<td>1970s</td>
<td>Text</td>
</tr>
<tr>
<td>1980s</td>
<td>Graphics</td>
</tr>
<tr>
<td>1990s</td>
<td>Images, voices, graphics, text and numbers together</td>
</tr>
</tbody>
</table>

Table 2

The imaging technology is a method of converting and processing paper documents and/or their microfilm copies to digital electronic information. It is defined as an automated system that could store, retrieve, transmit, process and manage documents. Documents stored in this manner can be displayed or printed on paper in seconds. It preserves the visual and spatial characteristics and appearance of original documents, such as handwritten machine-produced text, graphics, photographs, and engineering drawings. Electronic imaging and optical disk systems are often used interchangeably. However, although most imaging systems use optical disks for storage, tape or other digital media could also be used. Imaging technology is regarded as new but the rapid development of technology from time to time has created a more interesting and advanced capability. Still-image technology is being improved with multimedia technology and desktop video. This technology is also becoming cheaper with higher density disks and storage devices readily available. The optical technology has become readily accepted technology. Technology brings the benefit of performing the task of massive information or document management. Data shows that the number of imaging technology applications is on the increase. The business community has always made it perfectly clear that they want their data very fast and they want results not excuses or delays.

SHELF LIFE

Table 3 compares the shelf life for data and images for different media - optical disks, magnetic media and microfilm. IT differs before recording and after recording. In the case of microfilm, the assumption is, the life expectancy is at least 100 years when processed according to standards.
This media actually provides additional methods of storing information and does not necessarily replace the earlier media, paper, microfilm and magnetic tape, all of which continue to benefit people managing information in organisations.

i. Fast Retrieval
Documents from hundreds of thousands of files can be retrieved in a few seconds: from a file of millions in 30 seconds

ii. Transmission Speed
Documents stored in digital rather than analog form. For 8-1/2 x 11 inch paper to be transmitted to users on LAN it takes 2 to 3 seconds as compared to 15-20 seconds with paper and fax systems.

iii. Workflow
Optical disk system helps to manage paperwork flow, control pacing and sequencing paperwork, individuals can automatically be prompted to the next procedure.

Other capabilities of this system are:
* indexing and cross referencing - by name, account number, key words, or any combination of descriptors.
* integrating with other systems - can interface with other electronic systems, i.e. data processing or facsimile.
* good image quality.
documents always available - same can be used by many people simultaneously and documents and files cannot be misfiled.
* elimination of head crashes - optical disk system relies on laser beam and no risk of head crash.
* security - access can be restricted.

VIRTUAL RECORDS AND VIRTUAL ARCHIVES

Application of automation and the rapid pace of IT, has created a confusion in defining the concept of records. No doubt record managers are involved with managing electronic records, they are confronting new concepts of a "compound documents", and information "entity", a data "view" or what John T. Phillips, describes as "virtual archive". This term has been coined amidst the growing creation and storage of data and information using IT.

VIRTUAL INFORMATION ACCESS

Information as a corporate resource prompts the concept of shared information and can be made freely accessible to meet organizational objectives. The use of LAN, WAN and INTERNET enables one to access almost any information when needed. From physical custodial deposition to access of information that is virtually everywhere.

VIRTUAL OFFICE

Virtual office is the new way of communicating away from the office buildings, through the laptop to generate documents, send faxes, check office electronic mail at the 'home' computer systems. Presentation using graphic software can also be made without having to create hard copy of the presentation. In short, IT help us manage our work or office even without having to be in the office location. This new challenge will be the tracking of the information created from branch offices, telecommuting employees and customers, with private networks, satellites, laptop computing, and fax machines.

VIRTUAL DOCUMENTS

There is a need to coin new concepts and terminology to define records in light of automation and IT applications. Use of electronic forms, imaging system, electronic "document management systems" still assure records managers of receiving record copies. The use of Computer Output to Laser Disk (COLD) technology also creates a virtual document which also retains the data in computer readable format.

VIRTUAL RECORD COPIES

What constitutes record copies? “Organizational ownership, creator responsibility, originating source, and official designation can all be considered aspects of declaring a document to be record or a record copy.” It encompasses multimedia documents, database views, electronic forms, electronic mail as well as hard copy documents. However, there are difficulties confronting us in applying the concepts within automatic systems as ownership, location, and status of the records may not be clear.

What is the danger ahead? That it may never progress through the normal records cycle management to the final retirement stage.

FUTURE

One thing that is clear is that, organisations would be able to become the dynamic provider of all types of information and with IT would enlarge the spectrum of services offered to users. Moving to new IT is never easy and without risks. The marketing pitch created by competing vendors has

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made the situation more confusing for many users and many chose to wait and see. As the number of users of IT, networks and superhighways increase there would be pressure for them to demand more performance from the systems.

Distributive Information Centre vs Paper Management centre:

i. New information centres run by a number of skilled personnel to operate integrated systems and respond to user needs on many different levels.

ii. Sharing of data across various levels of organisations and operations with the fibre and cable technology development.

iii. Managers have to learn as much technology as possible in order to remain in the information environment.

iv. Education of cost allows ready installation compared to before.

DECENTRALIZATION OF RECORDS FUNCTIONS

i. Programmes develop to write the downloaded data from mainframes, and index data.

ii. Inexpensive scanners will be used to scan documents into the electronic system and dispose of paper.

iii. COLD applications help minimise the need for large record staffs by moving data electronically. Used mainly in paper intensive operations such as, payroll, purchasing, and customer service.

TEAM-ORIENTED

The team oriented is the result of the Total Quality Management programmes and Quality Circles to ensure decisions are made at the most appropriate levels. Multi-skilled personnel would be sought who are excellent negotiators, knowledgeable of numerous softwares, good writers, skillful presenters, multi-lingual, and knowlegeable about customers, etc, well integrated within the organisation.

CONTINUOUS EDUCATION AND TRAINING

To enhance levels of skill people go back to school to be re-educated either full-time or part-time, we must make room for self-improvement, through workshops, night and weekend education and in the near future, distance learning which takes advantage of video conferencing. We are committed to reengineering ourselves as information professionals to prepare what lies ahead us.

Information and records are now managed together with computer-based information systems. Therefore, record managers are required to acquire computer skills to add value to the management of information. The staff have to attain sufficient technological education and training to add credibility in serving computing intensive organizations. It would be useful to:

- learn how to employ project management software for generating work plans
- learn how to PC fax boards for after hours fax transmissions
- learn to use graphic software for presentation in-house
- study computer networking prior to joining team members of corporate information strategic planning
- join the computer training vendor
- refer to software tutorials and support manuals and read literature related to IT (eg Computimes).

INFORMATION SECURITY, AMIDST IT APPLICATIONS

The increasing use of telefacsimile, since mid-1980s, is due to the great speed and ease of transmitting information and also the falling costs of the
technology. The first problem that may be created is the unrestricted access to the machine and very often documents, especially confidential in nature which are left unattended while awaiting pickup. The second problem is the utilization of telepnone lines, which can be easily tapped.

**COMPUTER SECURITY**

Like paper information, information stored in computers does run the risk of security of information which is of great concern to the protection of an organisation’s information assets. Organisations applying computer must emphasise on information security programmes for computer data and applications in order to achieve privacy, integrity, and availability to authorized staff of the stored information. Most organisations use passwords to access the system initially. Other measures are - using automated audit trails, to allow personnel involved with the security system to trace any additions or changes and trace the who, where and when it was carried out. Likewise terminals could also be place in locked rooms. On top of this people must be educated on their role to protect organisations’ information.

Care and use of disk is another often overlooked security measure:

i. Diskettes consisting sensitive information should not be left in the open. The risk of information being used or mistaken for discarded diskettes by staff. It should therefore be kept in locked containers and the keys kept away.

ii. Improper care of diskettes can result in lost of data.

iii. Computer virus is another major threat to data security. Users should not use unknown software. Do not download any unknown software to any organisations computer to halt the spread of most viruses. Computer users should refrain from using common system passwords because viruses can get into the system by trying the common passwords. The use of vaccine programmes helps prevent viruses from infecting the system and notify the user if it does occur thus damaging the data.

iv. Organisations must have a good backup system and maintain the backup copies of data. There should also be a good security measure for the backup of tapes or diskettes and keep them away from the originals.

v. Unauthorised access of individuals ("hackers") to organisations’ systems would risk the chance of theft, alteration, or destruction of data in the system. Reports show that crimes by hackers is in the increase with the result of theft, destruction of hardware and software and unauthorised use of computers.

Other problems with regards to placing information on public access computers, concerns the issues of authorship, copyright, privacy, confidentiality, and the propriety nature of some information. Electronic media also fall under the freedom of information, access and privacy legislation.

With present automation, local area networks, and IT environment, records managers have to ensure that the use of the electronic records system is enhanced. This requires working more with the clients at the desktop level. Services involved would include, demonstrating effective directory building strategies, meaningful file naming conventions, optimizing hard drives (e.g. compression defragmentation), following backup routines, and protecting against viruses or data theft. To enhance and protect organizational information at individual levels it is the crucial commitment of senior management downwards, with input from information specialist managers and should not be taken for granted. Records management principles apply to all types of records regardless of media type, publishers of electronic journals or data as they do with paper-based products.
Some systems do not have any records management capabilities and documents may be destroyed voluntarily or involuntarily by creators. Another issue pertinent to record managers and archivists is the problem of preservation and storage of computer generated media. For example, magnetic tape, which is made of Myler plastic and coated with metallic substance on the active side of the tape is very vulnerable to destruction if not properly taken care of.

**APPRaisal GUIDELINES AND ARCHIVAL PRINCIPLES**

Procedures have been developed to handle machine readable records with regards to appraisal, processing, conservation and servicing. Appraisal guidelines take into consideration both the similarities and the differences with other forms of archival material. It is also based upon the traditional concepts of evidential, informational, and legal values. Conservation of the machine readable records pose major problems.

The principle of respect des fonds or principle of provenance is accepted as a theoretical and practical basis. However, the coming of electronic records has resulted in a dilemma and the archival profession has to properly examine it. Problems ahead are how to deal with the changing nature of electronic records.

**OTHER INFORMATION-RELATED IT**

**INTERNET**

Internet is a major communication architecture that provides computer-to-computer links to databases and electronic mail for millions of users. It is the world’s largest interconnection of computer networks. Currently, many public and private agencies have started participating as members of the Internet and offer access and services to subscribers for a fee. Services that could be accessed are libraries, reference databases, news groups, and standard electronic mail.

**INTERNet Publishing**

Many organizations, including companies have begun to produce records and information for public access on Internet, computer bulletin boards, or commercial online information systems. The kinds of information and documents distributed electronically are organizational directories, customer service, product reference materials and marketing brochures. The option for publishing information could be compared in terms of the best technology and production method in relation to the kinds of documents for public consumption.

1. Small amounts of information (text) can be produced by many means, such as the direct electronic mail, placing information on Internet accessible Gopher or Web servers. (...a computer system that operates like computer bulletin board system — reading and downloading information is possible).

2. Graphical information can only be displayed by more complex software such as Windows and Mosaic.

The public may consume text from member directories, industry standards and professional guidelines (updated occasionally), or company operating procedures.

**IT APPLICATIONS IN OTHER INFORMATION AGENCIES**

It could be seen that these new IT products have, not only changed the way libraries operate but also opened new avenues for the future. Some of the applications that are already on-going are:

a. Library automation: Most established libraries and information centres have embarked on library automation or are in the process of implementing one. Their choice would either be the use of a turnkey system, local software package.
b. Networking Systems: Advancements in technology, coupled with the ever changing needs of users is pushing computer networking to new heights, both in terms of capabilities and importance to share resources efficiently. Numerous local specialised networking systems are established and could be accessed globally through Internet. Some of the examples, as shown in table 2 are Civil Service Link (CSL), SIRIMLINK, Knowledge Resource Centre (PSI), NSTP Library On-Litte Reference Service, PALMOILLIS South Investment Trade and Technology Data Exchange Centre (SITTDEC), Agriculture Information System (AIS), Price Information Centre (PIC), Malaysian Science and Technology Centre (MASTIC), and Medi*Link. Granted the situation where the ultimate goal is to be reached is a wider merge of networking and telecommunication systems, it is of utmost importance that the question of standards is addressed. Presently, there are variations in programming languages and electronic mail address formats. Just like IT, networks are experiencing rapid changes with the employment of high bandwidth for advanced applications. What is clear is, networking is generating a great deal of interest among organisations, both the public and private sectors despite the lack of clarity existing on the differences of technologies and the best applications for specific application. While implementation of networking systems, linking the branches to the head offices, providing online communications in business sectors, the same scenario is becoming a reality in the library sector.

c. Connecting Malaysia to Global Information Services through JARING: The development of the information superhighway shows the current explosion of international interconnectivity, indicating that Malaysia has yet to utilise its potential information wealth. The library networking communication system, named JARING, began in 1990 and has been a significant player in the access of information services from local and international information providers. This system is managed by the Malaysian Institute of Microelectronic Systems (MIMOS) to support educational and research activities, with the goal of providing a national data communication infra-structure. Its own satellite in orbit, known as Malaysia East Asia Satellite (Measat) would boost up the development of the communication system.

JARING provides access to global Internet at an affordable price, to nurture the use and exchange of information and to encourage the development of local databases. It provides a nation-wide information infrastructure network based on the open system, allows global communications, and serves as a medium for business, including libraries to exchange information or services through dedicated leased lines or dialup lines to the nearest JARING node.

The importance of information systems for the advancement of research and development has long been recognized. Libraries, like the National Library, the University of Malaya Library and the University of Agriculture Library are still subscribing to a variety of external database systems like DIALOG, ESA, ORBIT, MEDLINE through the Malaysian Package (MAYPAC) services.

d. Optical Technology: CD-ROMs are already playing a special role in Malaysia as these are generally easy to install and implement. Users may now search the network CD ROM station, using the search strategies and later copy the articles into their disks to be read later on. Libraries of considerable size viz a viz the national and academic libraries have
begun to apply the CD-ROM technology, leading towards the CD-Networking system. The application of CD-Net should be promoted so that CD-ROM databases could be networked to more users at an affordable access.

e. Electronic Library System: First proposed by the Ministry of Education in 1989, this billion-ringgit electronic library network is regarded as a breakthrough in the education process, in that it enables Malaysian schools to be connected via the networking system with information resources. It uses a wide variety of databases, encyclopedias, like New Encyclopedia and Bookshelf, or notes on key subjects and could be accessed, selected and printed. The terminals are placed in libraries or resource centres and they provide a great learning experience to students on one hand, and on the other hand a boost to the IT business because a substantial number of PC and software are needed to cover the schools or even individuals.

f. Interactive Multimedia: This media has already captured the popularity in that it could offer new potentials to librarians and library services. Multimedia has absorbed most network and hardware resources. With the availability of a number of hardware elements, many libraries could successfully run the multimedia. However, inexperienced users who dominate the scene would require multimedia user interfaces.

g. Video Conferencing: More opportunities in education have given the opportunity for the development of distance learning. The advent of networks has introduced a new way of learning, that is, “virtual campuses” concept. People can now pursue knowledge regardless of location. Such methodology is made possible by the use of video conferencing facilities. Although video conferencing is new, its importance is recognised and concerted efforts are underway to implement it in numerous institutions of higher learning in Malaysia. Moreover, there has been a dramatic rise in the popularity of personal computers and this is powerful evidence of the shift affecting how society works and learns.
## Examples of Networking Systems

<table>
<thead>
<tr>
<th>Name of Systems</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Service Link (CSL)</td>
<td>A computerised Government Information Centre which deals with a wide range of information pertaining to various aspects of public sector administration.</td>
</tr>
<tr>
<td>SIRIMLINK</td>
<td>A database of Malaysian standards and patents, providing information on technology, technology development and trade-related technical issues.</td>
</tr>
<tr>
<td>Knowledge Resource Centre (PSI)</td>
<td>Provides access to various databases (contains a wealth of information) which enables participating schools to be connected.</td>
</tr>
<tr>
<td>NSTP Library On-Line (Reference Service)</td>
<td>An electronic newspaper library service which provides information on public listed companies, personalities, countries and a comprehensive profile of all the Malaysian states.</td>
</tr>
<tr>
<td>PALMOILIS</td>
<td>An online database service which provides information resources on matters pertaining to palm oil. Currently offers three databases: PALMSEARCH, PALMCOOK and PALMCONSULT.</td>
</tr>
<tr>
<td>AIS</td>
<td>Provides access to information on the collections, storage and retrieval of data and information about soils, farmers, agriculture products, and offices serving the farmers.</td>
</tr>
<tr>
<td>RRIM</td>
<td>A computer-based information network linking Rubber Research Institute work stations, experimental stations, the Malaysian Rubber and Development Board (MRDB) and other agencies within RRIM.</td>
</tr>
<tr>
<td>Price Information Centre (PIC)</td>
<td>Disseminate information on prices of manufacturing products and assist consumers in making rational decisions in purchasing goods.</td>
</tr>
<tr>
<td>MASTIC</td>
<td>A centralised source of information on Science and Technology. It plays the role of facilitating efficient dissemination of management information on scientific activities, facilities, resources, research and development projects and their status.</td>
</tr>
<tr>
<td>Medi-Link</td>
<td>A new information system that aims to link all players of the Malaysian healthcare community together electronically.</td>
</tr>
</tbody>
</table>

Table 3
SOME MANAGEMENT ISSUES

Positive attitudes and actions of those involved in innovation towards IT is regarded as crucial in the successful implementation of the new system. Management could take great responsibility in creating an environment, necessary for change. Changing context of IT has given impetus towards the concept of information super-highways. However, a number of problems have to be addressed in the course of implementing the new systems which require strategic planning and research. Budget constraints normally force libraries to carry the IT deployment in stages.

PROBLEMS ASSOCIATED WITH THE PROJECT

1. Cabling and installing of both electricity and fibre connections.

2. Renovation - this includes physically breaking certain walls and the transferring of the work area to another building.

3. Changes the nature of job. The real gap seems to be between the old and the young staff who are fluent with digital tools like PCs and on-line communications.

4. Impact on job manual and on library procedures.

5. Different category of users needing different approach.

Tremendous technological development has taken place in a short space of time in Malaysia. This has led somewhat to “an imbalance in” the organizations and structures of staff and services. That is why the IT itself per se is not the main factor, but the primary topic is its impact on people, equipment, building, and training.

6. The ergonomic issues should be addressed by all organisations involved in IT. The question arises in psychological stress should also be considered.

7. Users should be imbued with awareness and appreciation of IT at all levels of staff and users through one-to-one, using the manual, lectures and demonstrations.

8. Appropriate measures should be accorded to IT digestion and adaptation, involving staff and users.

9. It is also pertinent to indicate here the importance of evaluating both the services as well as the staff.

10. The yielding of different disciplines under the impact of IT is an evidence of the need to exercise cross-consultation in order to gain more benefits from the development of IT.

11. Establish an intelligent and tolerant user education approach to users.

12. Fruitful cooperation between organisations and vendors for mutual benefit, by mobilizing commitment on both sides.

13. Planning for effective utilization of IT and information superhighways could be complex. This is due to the great expense involved in providing the services available through the superhighways. Cost also would be incurred for the services available through the highways. By 1995 the estimated figure shows that the Malaysian government needs about 265,000 IT personnel, including the need in libraries. Training of human resources, includes some aspects of IT applications.

14. Multimedia applications requires high bandwiths and this could only be made possible through reliable carriers such as fibre optics cables and asynchronous transfer mode (ATM) which Malaysia lacks. It is also noteworthy that multimedia applications comes at the time when networking is beginning to be recognised as the in-thing. While users could think of...
running multimedia on a network, they must also take into consideration the nature of multimedia data type. While increase the network bandwidth may ultimately be applied, some interim steps have to be taken so that it could avoid the multimedia from crippling the network.

CONCLUSION

"Records and information management is a field within the information profession responsible for managing the creation, use, maintenance, and disposition of records generated in the normal functioning of all types of organization." In the past, we try to convince management of the value of retention schedule which is a useful and worthwhile service to companies and agencies. But, it is time to move the schedule and our thinking to the current platform such as the importance of electronic imaging systems because our own interest and that of the companies should be taken into account. With automation and application of IT will the records management profession continue as a profession as it is known today? This is the challenge depending on the extent of record managers’ understanding of the effect of automation to records. There is a growing use of PC, electronic mail, and other information technology systems, causing many office records and other information being created and stored without producing papers. Democratization of the workplace, increase use of technology, and the information service-based economy has resulted in the reorientation for all organisations and personnel towards their job functions.

As far as records and information issues are concerned they are focussed around the electronic records. These issues include storing information on appropriate media, timely archiving of information based on retention schedules, and that those responsible for information creation follow the standard practices for information management and distribution. Other issues may include patents, copyrighted works, strategic information, or uncensored items.

As for government agencies, storage of information in the electronic format is an issue because of records retention requirements required by the National Archives.

BIBLIOGRAPHY


