OVERVIEW OF THE GENERIC OFFICE ENVIRONMENT (GOE) IN PUBLIC ADMINISTRATION

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Introduction

Most organizations are faced with a common and familiar problem of being flooded with mountains of paper and subsequently, be unable to retrieve certain documents fast when the need arises. This is especially so in public administration since the government is the database for all of its citizens. Public demands for quality services require that the government administration be efficient and effective. For example, the act of being able to retrieve a document fast leads to work competency and citizen satisfaction. Thus, the implementation of the generic office environment (GOE) in public administration helps the government to offer fast and accurate service electronically. On the contrary, incompetency in the paper-process leads to over-abundance of information which results in inaccessibility, lack of timeliness or relevance and would ultimately become a hindrance a smooth work flow.

Information overload is an issue in public administration which would require a good office management solution to resolve the situation. However, office management solutions are not easy nor are they obvious answers to the problem of information overload. The actual migration from paper-based documents to electronic ones, invokes a myriad of approaches by which documents can be presented, authored, stored, retrieved, communicated, managed and published. Thus, for the last ten years, Malaysian organizations have started to automate most of the work processes using ICT as the enabler, we have not developed a clear vision as to how to

constructively employ technology to enhance the agency's ability to access as well as to control access to vital data, information and knowledge sources that are required to complete certain tasks and objectives. Instead, vast amounts of unproductive time and effort are spent on tedious searches through corporate information management assets in attempting to find the needed material (Buang, 2008; Ahmad, 2007; Karim & Khalid, 2003; Seybold Report, 1992).

This paper explores the fundamental architectural principles that must be employed towards the design of an integrated, intelligent Generic Office Environment (GOE); capable of supporting knowledge workers by providing just-in-time and on-demand data, information and knowledge. This leveraging of technology will enable the enterprise to empower its workers, by decentralizing authority while centralizing control and standards (Mayer-Schonberger & Lazer, 2007; Garson, 2003). Furthermore, the paper will examine the emerging technology paradigms which will enable the enterprise to integrate data, information and knowledge processing into a coherent interconnected composition; alleviating these disparities between the *islands of information* (MAMPU, 2003; Karim and Khalid, 2003; Ahmad, 2007; Buang, 2008; Kaur & Rashid, 2008, Kaliannan et al, 2007).

The Concept of GOE (Generic Office Environment) in Public Administration

The Generic Office is an architecture for the management, organization, composition and retrieval of the data, information and knowledge embodied in paper and electronic documents. This architecture allows the adaptation and evolution of these documents and their components (Karim and Khalid, 2003).

This adaptation is supported by authoring, revision, distribution, storage, status, publishing tools and management processes. The vibrant of the Generic Office is characterized by its being able to support the ability to create, or recreate, a relevant and on-demand document

assembly system assisted by integrated management processes supported by a central enterprise-wide repository.

The biggest challenge of technology is harnessing it to support the management of the corporate document holdings, in a useful and evolving fashion. The Generic Office Environment provides a strategy towards this goal.

The move toward streamlining business processes, coupled with the objectives of reducing time to market, while improving overall quality, is driving companies to take a serious look at the Generic Office. People are beginning to understand the power of personal computing, and they want to get it under control.

Groups that are investigating the Generic Office are those that:

- Create and revise documents. These groups will benefit the most from fast, reliable access to a complete corporate knowledge base.
- Track documents. Groups that generate proposals, reports, or contracts, or those that manage regulatory procedures gain a great deal of value from re-using previous documents, precedents and templates and from the ability to track the review and approval cycle. In addition, the author is able to restrict and control access to the document.
- Use documents. As information is developed and released, everyone who needs to use documents, want to be certain that they are using the correct version of the document. The Generic Office provides this assurance.

The Generic Office is just one of these evolving environments, geared to take advantage of technology to support our daily needs to access information more efficiently and effectively. The evolving office environment is to provide the technological and managerial means to enable

us to work smarter, for today's modern office environment requires the establishment of a technology infrastructure that provides connectivity and the necessary tools to get the job done (Malik, 1994; Mohamed et al, 2006). Data requirements, having evolved into information requirements, have been further delineated into corporate knowledge requirements. Applying these to public administration, the proper inventory of data and information is crucial for fast and accurate data mining.

The Generic Office is designed to support knowledge workers and individuals for whom the manipulation of information and knowledge is their business. This is possible, because all knowledge workers - engineers, physicians, lawyers, software developers, business analysts, managers, administrative assistants, clerks, etc., require the same core functionality to do their jobs; "*to maintain timely access to information and knowledge in a form suited to the intended use"*. The architecture of the Generic Office is a step towards supporting the common and universal needs of any office and business environment. Yet, it maintains the flexibility to allow customization; capable of evolving to any specific need. Its purpose is to provide a generic toolkit, one that will enable us to bridge between the *silos of automation* that exist in most working environments (MAMPU, 2002; Karim & Khalid, 2003; Karim, 2003; MDC, 2002).

The Generic Office has evolved from the confines of document management; to further refine and advance its basic principles. It has brought document management to a new tier; the next evolutionary level. In many ways, it is synonymous with the coupling of intelligence within document management, text retrieval, conferencing, communications and office processes (Malik, 1994; Wood-Harper et al, 2004; Turban et al, 2008).

In Malaysia, the Generic Office Environment (GOE) project is one of the six EG pilot projects (MAMPU, 2002; Karim and Khalid, 2003). The project commenced in May 1999 and

went live in May 2001. The GOE system will foster a new paradigm of working in a collaborative environment. Agencies in the pilot project comprising the Prime Minister's Office, MAMPU, the Administration and Finance Division of the Prime Minister's Department and the Cabinet, and the Constitution and Inter-Governmental Relations Division will then be able to communicate, interact and share information using current technologies through a secured network (MAMPU, 2002).

This project is being implemented by the Sapura Consortium and consists of three modules, namely the Enterprise-wide Information System (EIMS); the Enterprise-wide Communication System (ECoMS); and the Enterprise-wide Collaboration Management System (ECollMS) (Karim and Khalid, 2003). EIMS provides for effective management of information and data that come in numerous forms such as paper, electronic, facsimile, e-mail, correspondence, bulletin, audio and video. ECoMS, on the other hand, facilitates communication while ECollMS provides for a collaborative work environment such as decision tracking, meeting management and electronic interaction through discussion forums (MAMPU, 2002).

The GOE implementation team has reengineered a total of 41 generic tasks that will assist pilot agencies in carrying out their daily core processes. These generic tasks will equip civil servants with the necessary tools to deliver quality services to customers and stakeholders such as other government agencies, external entities like the business community and citizens. These generic tasks have been divided into four categories, namely Document Management, Meeting Management, Administration Management and Events Management (MAMPU, 2002).

The GOE application was developed based on two documents, namely Systems Requirement Specification (SRS) and System Design Specification (SDS). Based on these

documents, 11 GOE components were developed, as follows (MAMPU, 2002; Karim & Khalid, 2003):

a) Executive Information Manager;

b) Electronic Document Management System;

c) Search and Retrieval;

d) Web Information Filter;

e) Messaging System;

f) Electronic Meeting;

g) Bulletin Board;

h) Decision Tracking;

i) Meeting Management;

j) Discussion Forum; and

k) Document Registration and Tracking.

Prior to the implementation of these components in the pilot agencies, the contractor was required to conduct several tests to ensure the proper functioning of the GOE systems before it goes live. The tests are as follows (Karim & Khalid, 2003):

a) Component Acceptance Test (CAT);

b) Application System Test (AST);

c) Installation Test;

d) Provisional Acceptance Test (PAT); and

e) Final Acceptance Test (FAT).

The CAT was conducted on each of the 11 components in the EG Laboratory, located at the MSC Central Incubator, Multimedia University. The test ensures that each component is capable of working independently. The Government project team and the contractor jointly developed the test scripts. The tests were conducted by the contractor and observed by the Government project team. All errors that do not meet the Systems Design Specification are recorded and corrective actions taken (MAMPU, 2002).

The GOE application is being implemented in two phases. Phase 1 which involves two pilot agencies, namely MAMPU and the Administration and Finance Division, Prime Minister's Department went live on 3 May 2001. Phase 2 involving the office of the Prime Minister's Office, Deputy Prime Minister's Office, Chief Secretary to the Government's Office and the Cabinet Division went live on 14 June 2001 (MAMPU, 2002).

Based on the initial feedback from users in the pilot agencies, it was necessary to further customize the GOE application so that agencies can use the application effectively. Efforts to customize the Electronic Document Management System (EDMS) was completed at the end of April 2002. Training to users were conducted. The expected date of implementation of the application is on the 17 of June 2002 in one of the pilot agency that is MAMPU.

Benefits and Advantages

The benefits achievable with the Generic Office are significant. With the evolution of the work environment into the Generic Office, knowledge workers and the business environment can achieve increased productivity through the (MAMPU, 2002):

- **Improvement** of functional connectivity of individuals and groups;
- **Promotion** of proactive behavior;
- **Contribution** to cost saving for maintenance of documents;

- **Contribution** to cost reduction for each phase of document life cycle;
- **Centralized** management of corporate resource holdings;
- **Reduction** of training costs;
- **Standardization** of the format of documents;
- **Improvement** of the quality of data, information and knowledge;
- **Reduction** of time spent looking for information and documents;
- **Increased** information accuracy—a way to ensure documents draw on the latest information available; and,
- **Shared** access to documents and data, eliminating re-keying and other redundant efforts.

Here are some examples of how the above advantages of integrated Generic Office can result in improvements of business processes:

- **Higher Quality and Faster Time to Market: More Product and Services: Flexibility:** By implementing the Generic Office, the overall revision and review process can be shortened. You can also gain the flexibility to provide customized information products on-demand, which can be offered at a premium price.
- **Ensure Safety Standards, Speed Distribution and Reduce Paper:** Some companies needed a way to ensure the accuracy of published safety standards and to distribute new standards electronically. Once new standards are reviewed and approved, they need to be available immediately throughout the plant site. The Generic Office controls the review and release cycle, and ensures the availability of the correct and most recent standards.

- **Cost Saving** can be accrued through assisting the organizations produce more in less time at a lower cost while improving quality, by eliminating non-value-added steps, enabling quicker decisions, increasing the velocity of transactions, dissolving organizational boundaries, and communicating information promptly and accurately.
- The **Return on Investment** from the Generic Office varies considerably but the return on investment will come from immediate cost savings in terms of paper, distribution, storage space and time. In addition, cost savings from having more information immediately at hand and from a reduction of errors. Furthermore, increased returns through more effective use of existing human and information resources. Longer term, managing your organization's critical documents wisely will enhance time to market—whether it's speeding the regulatory review process or getting product documentation through internal review cycles and ready to ship the moment your product is available.

Nevertheless, most of an organization's information is contained in document form. The Generic Office automates the document life cycle processes. It leverages the value of the information by providing tools which enable anyone within the organization, based upon appropriate access rights, to access the information, from any node of the enterprise, no matter what type of equipment they're using.

So, while it's true that the Generic Office is especially useful for authors while they're putting together complex documents, virtually every information consumer will benefit from the implementation of the Generic Office—it’s the key to making sure the correct information gets into the right hands at the right time.

Documents are a complex, highly **unstructured** type of sophisticated messaging, which provides a conduit for communication.

Unlike the data in, for instance, a local purchase order, document data can be:

- **Massive.** A document may be many volumes large and may contain many images or technical illustrations, each of which may occupy significant data storage.
- **Complex.** Documents have a structure, often difficult to extract. They also have rules and processes that continually change.
- **Multi-Author.** Most documents are the result of collaborations (author and contributors) and draw upon data and information stored throughout the enterprise.
- **Multi-Reader.** The information consumers within the organization are located throughout the enterprise and may have diverse needs and rights to access the same piece of information. Developing the correct or best structure for a document is critical to the degree of success an organization will achieve with regards to its information holdings. It also represents the single most important investment an organization will make and the investment that will provide the largest return from the entire document life cycle process.

The types of functional relationships between data and documents are:

Relationship	Description
Assembly	Business documents tend to be based on information and expertise distributed around the organization. A report may include data from financial databases, text from a variety of sources and graphics. Some documents may be empty templates that automatically extract data from databases or spreadsheets to fill in the informational content.
Referential	A document might reference, but not actually incorporate data from another source. For example, last year's financial results could be used when creating this year's budget forecast. This would be a based-on relationship.
Inclusion	Data and documents are brought together to manage projects and to design new products and services. Even at the onset of a new project, you can specify many of the data and

	documents that need to be included in a complete set of project information. The components will likely progress at different rates, but the product can't ship until the entire related set of documents is complete. This is a type of inclusion relationship where the project includes many pieces of information.
Procedural	This includes temporal (time) and proactive (versus reactive) relationships. This would take into account items such as automatic action items generation, workflow, workgroup and e-mail technologies. It also includes Artificial Intelligent (AI) technologies (e.g. experts system, neural networks, etc.) incorporating rules and heuristic concepts. Document components and their objects, can come from virtually anywhere within and outside of the organization. The objects could come from sources such as databases, spreadsheets and documents created with different software applications to produce a variety of data formats. The Generic Office assists in **intelligently connecting** these *islands of information* by providing the document creator fast access to a rich base of source material and processes.

Source: Doherty and Horne (2002)

The author builds a new document by adding updated or new information, structure and processes (procedures pertaining to administration, legal, accounting, strategic, purchasing rules, etc.). Often the actual information may undergo more frequent change cycles than the structure itself. So ideally, you want to **manage the structure independent of the data**, but you also want to be able to bring them together at the *push of a button*. We consider the structure as a template with place holders for relevant data, information and knowledge objects.

Documents typically go through some kind of revision and review process involving several people, and then may come back to the author with required or suggested changes. Ultimately the documents are published, either electronically or on paper. And often, just as one version is published, a new release cycle starts all over again. This is a typical linear life-cycle, but in many cases, various versions of documents may apply concurrently, depending on the circumstances. For example, if your car is five years old, your mechanic had better have access to the repair manuals for that year, instead of this year's model!

Benefits of the Generic Office

- Reduced costs

- Reduced delivery times
- Leveraged current enterprise-wide corporate information holdings.

As a result of the explosion of paper holdings, office workers are inundated with large volumes of documents, often in duplicates and triplicates. The timely management and distribution of these documents has a direct bearing on their relevancy and effectiveness on the projects they support.

More than ever before, technology must aid in providing the means for timely and effective usage of corporate documents. Technology has matured to the point, where the electronic means of document management, revision and distribution are able to significantly reduce the current paper glut.

The following is a list of common office management maladies corrected by the Generic Office:

	Problem
1.	Individuals are spending more time hunting for documents than using the information found in documents;
2.	Documents are critical to the business enterprise and are under-utilized;
3.	Individuals have expressed that they often cannot retrieve the right information at the right time, or have access to the latest information;
4.	Paperwork or documentation cause delays in bringing projects to completion and products to market;
5.	Individuals often start from scratch, because tracking down existing information is too difficult;
6.	Individuals wish they could better share and re-use information at different locations through the employment of a central repository of information holdings;
7.	Individuals wish they could communicate more effectively but find they do not have the time or capabilities to do so;
8.	Individuals would like better collaboration and coordination of the document creation and review cycles;
9.	Individuals are concerned that documents are not properly backed up, archived or access controlled.

Source: Malik (1994)

The Generic Office brings order to this dynamic, constantly changing world, by providing a structure that makes work processes easier and more effective. It provides knowledge workers with a quick-and-easy method to find the appropriate information and once found, they can be assured of knowing that what they've found is accurate, consistent and up-to-date. The Generic Office also assists the knowledge worker develop information by enabling re-use of the existing corporate knowledge base and by ensuring that **the right information gets to the right people, at the right time**.

Although organizations, such as the Gartner Group, estimate that the number of electronic documents will double over the next four years (as provided in an Interleaf publication on Document Management), very few enterprises are taking steps to manage the documents in their electronic format. In fact, the magnitude of the problem is huge and growing. The Gartner Group further estimates that USA businesses create over one billion documents a day and that office workers spend over 40% of their time preparing, handling, filing, copying and faxing documents. The investment in documents is enormous from the perspective of labor, equipment and time. A tremendous opportunity exists for improving turn-around time and reducing costs, if we can save even a fraction of the time that a company spends handling documents.

Yet in spite of the recognized value of document-based information, information management, as practiced by IT departments, rarely extends to documents. The problem is, document systems and information systems generally come from two different parts of an organization: document systems come from the end-user up, and information systems come from IT community down; the two often don't meet and sometimes they even collide.

The Generic Office can improve the overall life-cycle by ensuring that the right people see the right information at the right time, keeping track of the inter-dependencies of documents and knowledge, so that as changes are made, everyone who depends on or uses that material is kept informed, streamlining the overall cycle through ease of finding, access and use. This ensures that individuals can access any previous version of a document and view it exactly as it appeared at that time.

The Generic Office can be described in two words:

- **Ensure:** Your corporate assets proceed through the right processes and gets delivered correctly;
- **Aid:** In the creation, revision, distribution and protection of an organization's most precious assets: data, information and knowledge.

The Generic Office is an architecture of high level functionality's and processes designed to support a knowledge driven and continuously evolving organization. The transportation vehicle is the intelligent document and its associated objects.

Architectural Foundation of GOE

Today, most of the organizational documents are in filing cabinets, in piles on desks, on individual PCs and workstations in a wide range of software applications. Documents begin at the desktop and flow out to the workgroup, the department, the enterprise, other businesses, and customers. Businesses depend on documents as the currency of strategic information; for providing product information; for outlining work instructions, policies and procedures; and for carrying out the contractual obligations that drive the business.

Documents consist of a variety of data, information and knowledge objects. These are created, manipulated and finally assembled by a variety of authoring tools; mostly word

processors, spreadsheets, graphical and image tools. Documents are characterized by their structure and the type of objects used to create and assemble them.

The concept of architectural foundation has to address two main streams vital in the Generic Office:

- **Intelligent Management of Objects** (text, graphics, tables, bit-maps, images, sound, video, etc.) and the interrelationship between objects;
- **Intelligent Processing of Objects** such that the internal structure, the embedded intelligence, of the object is accessible and ready to use.

The synchronization of object management with object processing creates an environment where information and knowledge can be dynamically rendered and distributed while also being effectively managed.

CENTRAL PRINCIPLES

The central principles on which the Generic Office is built are:

- **Central management** and administration for sharing of resources, procedures in a distributed fashion e.g. form handling, document writing and publishing, purchasing, accounting, etc., that can be shared and reused;
- **Provision of mechanisms** for the continuing verification, normalization and optimization of the business processes. Unlike Business Process Engineering/Re-engineering (BPE/R), which identifies discreet business processes, their inefficiencies and redundancies, the Generic Office provides a continuity, a sort of Continuing Business Process Engineering (CBPE);
- **Integrity** of information must be maintained and is of the utmost concern. The replication of data must be avoided or seamlessly integrated so that the user is

unaware of potential differences that could have occurred. The corporate asset or holdings e.g. data, information, knowledge, must be normalized to facilitate access and maintain integrity. This can only be achieved from a single source corporate repository.

KEY ELEMENTS IN THE GENERIC OFFICE

There are many different ways to classify the technologies comprising the various functionalities of the Generic Office. Our classification is based on the main features and purposes of the technologies allowing certain overlap of secondary functionalities.

There are four key technologies that constitute the architecture of the Generic Office; they are:

- Authoring Technologies
- Publishing Technologies;
- Repository Technologies; and
- Electronic Distribution Technologies.

Authoring Technologies

These are the tools for the document creation and composition process. These technologies are broken into two categories: proprietary authoring and non-proprietary or ISO standard tools.

Management Technology Category	Description
Proprietary Authoring Tools	
Word processing	WordPerfect®, AmiPro®, Microsoft Word®
Spreadsheets	Lotus 123®, Microsoft Excel®
ISO based standard tools	

Document Type Definition (DTD) Design"	Near & Far®
Standard Generalized Markup Language (SGML) Editing	Incontext®, SoftQuad®
Knowledge Modeling	Wide range of CASE tools; InfoMap®, Rational Rose®, Erwin®

Source: MAMPU (2002)

Publishing Technologies

These are the tools used in the electronic publication of documents using different media such as CD-ROMs, magnetic tapes, diskettes, hard drives on servers, etc. The publishing process is associated with various means of electronic dissemination of the published material.

Management Technology Category	Description
Text Retrieval	MegaText®, CD-Author®, Open Text PAT®, Office Smith®, Topics®, DynaText®, Interleaf®, Folio Views®, Verity®
Presentation	Including multi-media tools: Lotus Freelance®, Power Point®, EBook®, Assymetrixs® (ISO FOSI [File Output Specifications Instance] compliant)
Support Tools	This includes electronic sticky notes (bodies of text attached to a document via hypertext links; these texts are used to annotate an electronic document, without altering the document's text), electronic news service (e.g.. Logicon).

(Source: Malik, 1994)

Repository Technologies

These are the tools that provide central management (including archiving etc.) of data, information and knowledge and their processes. These tools are moving towards SQL compliancy and client/server architecture, complete with the appropriate links and query

facilities. The documents can reside in a central repository or be stored in various locations but they must be centrally managed.

They include:

Management Technology Category	Description
Text	Processable ASCII codes
Document	Document management is a means of organizing documents and coordinating the processes for developing, revising, tracking and distributing these documents throughout a life-cycle, which might last for days, years, or even decades. This would include such packages as PC DOCS®, Mezzanine®, Keyfiler®, etc.")
Data	For both structured and unstructured information
Image	Image enabling technology providing management of pictures, drawings, faxes, text, etc. Tools include Watermark®, ByteQuest®, Filemagic Plus®, ImageFast®, Fileflo® for Windows, etc.")
Records	To manage and control documents from any data source, e.g. paper, images, or electronic text, using Management Government Information Holdings (MGIH) standards or any other scheme for defining records; Tools include RIMS®.
Knowledge	Tools that facilitate modeling of relationships amongst data, information and knowledge objects and their processes. Knowledge management tools deal with meta models, such as a template, and with an instance of such template. They offer a presentational formalism for knowledge modeling, manipulating, storing and deploying. It also encompasses the concepts of heuristics, fuzzy logic, inferencing etc. Tools include wide range of CASE software.
Library	Which allows users to organize their documents in a shared library. Once this library is in place, users can easily find documents and information based on intelligent search criteria. For example, users could retrieve the third draft of a RFP prepared for the department last year - and the spreadsheet that the RFP was based on.
Configuration	Which ensures that, as any key information changes, all of the documents and files dependent on that information are appropriately updated. For example, if a product manager updates a pricing spreadsheet, the system notifies anyone else who might be using an earlier version of the spreadsheet that new information has been released.
Workflow	Assists the information management process by automatically transporting documents through review, revision and approval processes. For example, if a writer completes a new draft, workflow management routes it to everyone who needs to see it, collect comments and sends those comments back to the author. Tools include: Workman®, Lotus Notes®, Delrina Form Flow®, Staffware®, etc.
Engineering	Engineering data management has its roots in managing CAD drawings. Recently, the concept of engineering data management has been extended to Product Data Management, which encompasses all of the information an organization uses to develop and manufacture products, including images, design drawings, specifications and other related documents. This approach is geared toward the product manufacturing environment. The

	Generic Office, on the other hand, applies to virtually any environment in any industry or organization and any image graphics format (raster or vector) or storage style, i.e. Tagged Image File Format (TIFF).
Media	With the evolution of the personal computer moving to a multi-media workstation, we must now work towards the management of the various media including audio and video. An ISO committee, Moving Pictures Experts Group (MPEG), has been established to promote standards in this area.

Source: MAMPU (2002)

Electronic Distribution Technologies

Think of electronic distribution technologies as a dissemination means, utilizing different platforms and technologies to deliver electronic documents across networks. It's an optimal way of distributing information to multiple people, as an alternative to paper. Electronic distribution plays an important role in the overall document life-cycle, and a good document management system will enable you to integrate your distribution processes with your creation and management processes. Electronic distribution technologies also include the tool-kits and network topologies used for communication of documents. This includes the following tool groupings (MAMPU, 2002):

Tool Grouping	Examples
Groupware	Software which automates a single task among multiple workers. An example of such a tool is Lotus Notes®.
Workflow	This would include such routing packages such as Workman®, Staffware®.
Mail	Which would include Email packages such as CCMail®, MS Mail ®, and Lotus Notes®.
Network & Network Tools	Which would include such topologies as LAN, WAN, BAN, MAN, EWN etc. and specific network configurations such as Banyan Vines, Novell, Windows NT etc.
Scheduling	Including various Personal Information Management Systems (PIMS) such as Lotus Organizer®, Microsoft Scheduler+®.

Source: MAMPU (2002)

Evaluating and Implementing a Generic Office Environment

Implementing the Generic Office is similar to designing a database application. This initially involves building a dataflow diagram and a data model of the working environment. First, look at current documents, data and processes: how drafts are handled, how they progress through the organization, how different kinds of work gets done and who plays what role in getting things done. During this self-survey, consider any changes or tuning an agency or organization may want to make to the current methods (through the activity of Business Process Re-Engineering). Bringing in the GOE often highlights an organization's inefficiencies or duplicated efforts in current processes. Correcting such problems ensures that automating manual steps are being enhanced. From here, building a model that describes the agency's data and documents, workflow processes, people in the organization and the relationships among people, processes, and documents would fall into place. After this, the next step is implementing it in one or several areas of the organization that can provide a good test environment. Based on such a pilot, feedback and glitches will emerge for troubleshooting purposes. It is essential that the pilot site be self contained. If the pilot group interacts frequently with others that are not included in the pilot, they will find the need to switch mindsets onerous.

Once, the design has been confirmed, the implementation strategy for paper documentation is next. This depends largely on how the organization wants to use them in the future, such as putting it on-line by scanning them into electronic format. Once this is done, the e-documents can be included in the generic office library like any other electronic file. This way, anyone searching in the GOE for information will be able to retrieve paper documents as well as electronic documents.

For those organizations that have significant investment in hardware and software, the approach should allow you to leverage your existing hardware, software and networks. The Generic Office is meant to couple individual workers into collaborative workgroups, so the total becomes more than the individual pieces, as everyone throughout the organization connects and shares processing, storage and information resources. The expertise you require to implement the Generic Office varies and depends on how much of a solution you want to implement. The Generic Office is scaleable. In a typical implementation, you may want to start small with a pilot project. But, of course, even pilot projects need to be well-designed with a view toward a future larger system.

Conclusions and Recommendations

In conclusion, the Generic Office Environment (GOE) offers significant return on investment and if approached correctly, will have a positive effect on public administration. While productive use of the Generic Office is relatively new for even early adopters of the technology, the private sectors are already recognizing significant cost-savings and other important benefits.

The GOE can be adopted any time by a government agency since it is a platform that encompasses contemporary architectures. It allows the agency, when appropriate, to move forward without any significant risk of failure. Some agencies may wish to proceed with a tentative plan, others may begin a pilot, while still others may choose to do nothing.

The important point is to recognize WHEN a public agency needs to move towards the GOE when the benefits for efficient and effective service delivery far outweighs the cons.

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