

Creating A Knowledge-Based Malaysian Public Service: A New Paradigm in Information Technology (IT) Learning

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SYNOPSIS

The immense task faced by the Government in implementing the Electronic Government (EG) necessitates the preparation of a workforce that is both information literate and knowledge-based, with intense use of information technology (IT). The public service requires the use of tools to support effective decision-making and planning at the strategic management level, one that integrates and aligns business and technologies. At the more operational levels, the use of technologies is for creating more productive and efficient workers. The goals of IT learning are therefore for value-added use of technologies, hence the creation of a learning public service operated by knowledge managers and workers. The creation of this new culture at all levels within a short duration as required by the Government requires new modes and approaches of IT learning, supported by relevant tools and techniques. INTAN, as the premier training institution of the public sector can cope with only a modest percentage of such demand, and therefore requires to strategize its training, with participation of other institutions from both the public and private sectors. This paper looks at existing scenarios with references to practical issues, the new requirement set by the implementation of EG, and strategies to implement such training.

1. OBJECTIVES

This paper discusses the information technology (IT) training for the Malaysian Public personnel with an emphasis placed on INTAN's (The National Institute of Public Administration) effort in undertaking such training in the wake of the Government's effort of establishing the Electronic Government.

2. BACKGROUND

Various organizations and institutions undertake IT training for the public service. Apart from INTAN, which trains public personnel on a big scale, others including Government Ministries and Departments as well as institutions of higher learning and private sector institutions and vendors train them on a smaller scale, and usually in very focussed areas. Since the seventies, INTAN, through the National Computer

Training Centre (NCTC), considered as the leading IT training centre in the Government, manages, coordinates and facilitates public sector IT training.

In line with the aspirations of the nation to reach the goals of Vision 2020, INTAN aims at creating learning public sector organizations. IT is seen as capable of bringing significant impact to such aims. It is no longer sufficient to use IT just for word processing. IT use has to integrate all facets of management and operational processes, which encompasses productivity, communication and information skills. Thus we find that while personnel communicate via e-mail, they exchange information accessed through Internet and Government databases, and do analysis and planning using computer packages. This value-adds in terms of reducing the use of paper, faster communication, better decisions and planning, and many more.

To date, INTAN has trained approximately 21,000 public personnel at all levels in various fields of IT. Between 1982 and 1990, INTAN conducted 217 IT courses involving 5,893 personnel. Between 1991 and 1997, a total of 14,910 have been trained by INTAN. The types of training and groups of personnel trained change over the years. Past training projects focussed on the technical personnel, with courses such as Diploma in Systems Analysis, programming, systems methodologies and databases being conducted. End-user training was later conducted emphasizing on PC productivity packages. Apart from these, courses for international participants at managerial level were conducted. Over the years, and with global technological changes and user perceptions, new training programmes were being offered. The last two years saw the introduction of the Diploma in Information Management, Certificate in Programming, Serial Seminar for Top Management on Internet, Government Information, awareness on Multimedia Super Corridor (MSC) and Electronic Government (EG). On top of these, the upgrading process for IT personnel started with the introduction of the newer programmes like JAVA and Object Oriented technologies, required under the more sophisticated cyber-environment in organizations, all with the more wide spread use of Internet. INTAN began to train more high and middle managers in the areas of IT management, MSC and EG awareness, and skills.

Such changes are also affected by and to proact to the announcement by the Government on the implementation of the MSC and EG. With EG, which is a multimedia networked paperless administration linking Government agencies within Putrajaya with government centres around the country to facilitate a collaborative government environment and efficient service to businesses and citizens, there is dire need for the Government to improve its services delivery to the public and businesses. This has to be well supported by integrated and efficient infrastructure and intra-Government information systems. This, from INTAN's perspective, means that there is a critical need to prepare Government manpower in IT usage, as reflected in the speech by the Chief Secretary to the Nation, during the launching of the Electronic Government IT training program at INTAN:

"Untuk kita memunafatkan sepenuhnya teknologi multimedia ini, semua pegawai Kerajaan dari berbagai lapisan perlulah menerapkan satu budaya baru yang dipanggil 'celik komputer' (computer literate). Penghayatan budaya ini bukan bermaksud pemahaman mengenai komputer semata-mata, tetapi pegawai kita perlulah menjadikan komputer sebagai sebahagian dari peralatan kerja mereka. Untuk itu di samping boleh menaip, pegawai-pegawai Kerajaan perlu memahiri penggunaan Internet, alat-alat produktiviti seperti pemprosesan perkataan, Powerpoint, spreadsheet, pakej-pakej statistik dan sebagainya. Bagi ramai kakitangan Kerajaan, keupayaan untuk menguasai kepakaran baru hendaklah dijadikan satu cabaran dalam kemajuan kerjaya mereka pada masa hadapan."

Training is also conducted at Government Ministries and Agencies, in the form of in-house training. However, except for a few organizations that have full training facilities, they are in focussed application areas, which are more suited to departmental needs. Some of these training are done by vendors or in-house IT personnel.

There are 9 institutions of higher learning that conduct IT training, but they are not for public personnel. These are mostly academic programs at certificate, diploma, degree and masters levels. Non-academic training programs are short courses dedicated to PC packages.

Private institutions are well distributed throughout the country. They include dedicated IT training institutions, IT vendors, private colleges and Associations. Again, they are for the masses, and training of public personnel is on ad-hoc basis and based on requests.

3. LEARNING NEEDS

EDUCATION AND TRAINING

Learning needs comprise both the processes of education and training. Education, on one hand, emphasizes the process of inculcating paradigms, in terms of beliefs, values, ethics, principles, attitude and aptitude. On the other hand, training places importance on skill development, based on factors like technology and more tool-based. So, the way IT fits in is more complex, as IT learning, involve both processes of education and training. More important, there is a need for developing expertise among practitioners. IT professionals therefore need to have all education, training and expertise bases. Government users need to have both education and training, while the public needs the education. Comparing the three, education is a long-term process, followed by expertise development. Skills through training are something one is capable of acquiring in a short-term. "Learning IT" therefore depends on the people - managers, end-users, advanced users and technical personnel, and the public. The

question is while INTAN's focus is on training, the elements of education is also relevant.

LEARNING REQUIREMENTS OF THE PUBLIC SERVICE

The turn of events over the last year or so in public sector IT training in Malaysia is subject to the MSC and EG factors. Based on a decision by the GIITS (Government Integrated IT Services) Task Force, in early 1996, as many as 133,500 public personnel (defined as the critical mass) need to be trained between 1997 and 2001, with an estimated 26,700 to be trained annually. The personnel mandated to undergo training each year are the top management (100), middle managers and professionals (3,000), senior support group (7,600) and the lower support group (16,000). This study does not take into consideration the recurring training needs of personnel, in which case, the figures are academic and not too realistic. This is especially so for advanced users and technical personnel whose training requirements are determined by other factors such as technology change and organizational change (new requirement).

As a whole, based on the EG concept, we follow the model based on the education, training and expert development factors described earlier. The process of education, that is for creating a new information culture in the EG era, are conducted by Universities, schools and organization conducting continuous education at workplace (e.g. the Training Division of the Public Services Department). This is a long-term process. The process of building expertise is normally initiated at the Universities and other higher learning institutions. This need arises from the requirement to create content and applications and systems in the Intranet system of the EG. Finally, the training process will develop necessary fundamental skills to enhance the IT-enabled Government organizations to operate smoothly in serving the clients, and this is preferably coordinated by INTAN with the aid of various institutions.

Three types of training are required: PC skills, applications use, and applications development and maintenance. As for PC Skills, they are required for the critical mass as proposed by the GIITS task force. Basically, these are basic skills required by all personnel to operate effectively in the Government. They cover the use of PC to: raise productivity; enhance communication; and enable information use. The use of productivity includes ability to write better reports and letters. The use of e-mail is a basic requirement in today's communication. Finally, the Internet also provides means to access required information faster. In essence, the user must be able to integrate the use of all these tools in a workplace. INTAN has developed a training package that undertakes training, the course of which is conducted for a period of 3 days.) covering PC skills as well as awareness of new technologies, and trends in Government IT initiatives. The method of learning is "Instructor-based Training" (IBT). For skills in application use, users must for example be able to access and use common applications such as SAGA, Micro Accounting System, etc will be used by all public

personnel, specifically management and desk officers. Such training are therefore needed. Finally, for skills and expertise in developing and managing applications, Skills and expertise of technical personnel are much determined by both long-term processes of education and on-going training. New skill requirements in the fields of programming such as "Object Oriented" based and JAVA, database management, workflow automation and developing Web pages. These skills are needed by technical personnel and advanced users who are already at ease with the PCs.

4. STRATEGIES AND APPROACHES

INTAN's strategies in IT training take into consideration, firstly, the requirement for training the trainers. The idea of such training is to create a "learning organization" in Ministries and Departments, where INTAN's role is to institute change in organizations by assisting the creation of proper infrastructure, training programs, human resources, methodologies, techniques and tools for training, all for a better managed training. Another consideration is to ensure all Government personnel undergo continuous or reinforced training during his working career, especially with rapidly advancing technologies and dynamism of systems. There must also be smart collaboration in many training programs. For successful implementation of bulk training, much of the training can be sourced out to other Government or private training institutions. They can also be done as a twinning venture, sharing, sponsorship and joint-activities. The use of better tools, techniques and methods is also instrumental in a successful training. There is a difference in training students and public personnel. For public personnel, who are at the lower end of a learning curve, it is necessary to inject creativity to make such training effective. There are a number of approaches and techniques outside in the market, created through intensive research, on training. Some of them are termed as Adult Training, Whole Brain Learning, Integrative Learning, Just In Time Training, Group Learning, Self Organized Learning (SOL), Kikubari, the Future Kid learning, and so on. There is also the effective integration and use of newer technologies in learning. A study by Gibbons indicates the use of traditional and new technologies in training IT, which includes books and self-study kit, videos, wizard embedded in applications, computer-based training (CBT), web-based training or Network Based Training (NBT), instructor-led training (on and off-sites) and distance learning. In terms of cost, it was concluded that in the order mentioned above, training can be as low as US \$40 for books and self-study kit, to as high as US \$5,000 to \$50,000 for distance learning. Apart from this study, there are other tools such as electronic books, computer-mediated communications and virtual environments (example of this is the Study Place Project at the Institute for Learning Technologies, Columbia University which builds a prototype environment that combines traditional elements of scholarly research with new digital communication and presentation possibilities). Finally, effective training needs all-round efficient training support. For effective implementation of training, it has to integrate the elements of quality procedures and practices, better work processes with MIS and support systems in place, showcase of

applications, complete state of the art training facilities. In this respect, INTAN has strategized itself with the proposed establishment of the Management Technology Centre.

CLIENT FOCUSED

INTAN's training objectives in recent years have always been geared towards quality and excellence. The focus has always been to ensure customer satisfaction. In view of this, different approaches and strategies are adopted for different types and classes of IT users.

THE "CRITICAL MASS"

The objective is to create a public service that is client oriented, with a minimum personnel having the fundamental skills and knowledge in IT in order to be more productive, to communicate effectively and makes use of information, thereby becomes a knowledge worker that operates comfortably in organizations. INTAN addresses this group in 2 ways: to build a learning base in organizations, and to build strong IT training environments outside the public sector. Building training capabilities in Government agencies requires agencies to set up infrastructure, facilities and having manpower to do training. In the second strategy, INTAN is setting up "Authorized Training Centres" (ATCs), comprising of institutions from the private sectors. This training is conducted in accordance with the curriculum set by INTAN. INTAN has control over the ATC operations, and supported by other user Government agencies, can manage the finance, plans, manages and evaluate training programs at the ATCs. The ATCs provide sites, implement the training, and administer assessment. With the ATCs doing the training, issues such as shortage of manpower and facilities can be addressed. Additionally, a better focus can be made in training "management end-users" and "advanced users" as well as "technical personnel".

MANAGEMENT "END-USER" TRAINING

Managers are change-agents in organizations and provides the organizational will to introduce new technologies. They are responsible to get organizations both mentally and physically prepared for change. INTAN has conducted most of the training with some support from the private sector. INTAN has conducted innovative programs through seminars and workshops, through an approach called "simulated learning environment (SLE)". Such seminars are run with the objectives of incorporating management skills with technical skills and awareness. As such, they are run in a more relaxed and conducive setting although the ratio of PC to participant is one-to-one, with a high level of interaction, lots of visualization effect, with the use of various technologies, and management games in a "process-based" learning approach. There is emphasis on models associated with cybernetics and systems dynamics. INTAN plans to create a "personalized training environment (PTE)" which can be

conducted as a "Facilitator-based Training" (FBT) through "personal tutoring", or "self-learning" using tools such as "hard-copy" documents, videos, "Computer-based Training" (CBT), "Network-based Training" (NBT) through Internet, using technologies and tools such as interactive multimedia and interactive distance learning. For the last two years, INTAN has experimented, with minimum effect, self-learning facilities for executives. These facilities are in a process of improvement with the introduction of innovative programs (such as management games) involving groups, apart from better facilities as mentioned above.

INTAN is coming up with a Management Technology Centre, with the aims of integrating learning and technology support. As such, there will be laboratories for training and research, IT support, and showcasing of technologies and applications. These are appropriate for managers who learn better with better hands-on and visual effects.

TECHNICAL PERSONNEL AND ADVANCED USERS

Information Systems (IS) personnel requires new skills and expertise in order to cope with changing technologies and adapting to changes in organizational processes and operations. Such training are conducted by INTAN with collaboration by institutions from both Government and private sectors, comprising of training Divisions in Ministries and Departments, Institutions of Higher Learning as well as ATCs. INTAN's role, in order to provide more impact to EG implementation, is to create "next-level expertise and skilled personnel". Training for this purpose will produce experts and skilled personnel among end users and IT personnel.

As far as the content is concerned, participants will be exposed to new technologies to integrate and coordinate existing systems including databases and application systems. Understanding and skills in developing and using the Intranet, Java, "workflow automation", "smart-card" applications, "object-oriented" tools, multimedia, and the integration of Internet with agencies applications and databases is critical in the EG implementation. As such, INTAN's training program this year is geared towards the creation of these new expertise and skill areas.

5. CONCLUSION

In the long term, learning process for public service has to integrate the educational and training strategies of the country, which then will relate to the programs of the smart school, and that of the local Universities and institute of higher learning. It shall also consider the availability of training and education delivered by the private sector institutions and colleges. What is critical insofar as INTAN is concerned is that it cannot cope with future voluminous and complex IT training requirement. There has to be an effort towards better smart partnership environment, where there will be a creation of a rich learning environment in future available in both Government and

private sectors. By and large, the success of training for EG depends on the effectiveness of the collaboration with competent private and Government training institutions. The use of technologies such as distance education using Video Conferencing, Self-Learning or CBT, and NBT may be able to increase the numbers trained. However, its effectiveness is still questionable, as it depends on the learning culture and specific requirements. The most critical factor, however, is the availability of skilled manpower and funds. As for the development of future training workforce, it is something the Government has to delve in with better plans and farsightedness. As such, it is critical now to identify the numbers of IT players, IT trainers and skillful IT users. The question of information literacy as opposed to IT literacy therefore becomes relevant now.

Source: <http://www.intanbk.intan.my/> 04/15/2002