INFORMATION RESOURCES MANAGEMENT COLLEGE

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Info Tech Talk

A Newsletter on Enabling Information Technologies by the IRMC Information Operations and Technology Department

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Creating a "learning portfolio" involves choosing a course of study, selecting learning facilitators and outcome-based learning modules that support a problem-focused course of study.

Education in 2004

At the Information Resources Management College

By Dwight Toavs and Michael Miller

Jill Falling Water, a rather typical learner, is in an atypical environment. This afternoon she logged on to Blackboard, registered online and began creating her Learning Portfolio. As a senior "Band-4" employee (formerly a GS-15) in a Defense agency, her performance contract calls for spending 10% of this fiscal quarter in continuing education -- to investigate a key problem facing the agency and to prepare for a Senior Executive Service position. Creating a "learning portfolio" involves choosing a course of study, selecting learning facilitators and outcome-based learning modules that support her problem-focused course of study. Her learning facilitators already use Blackboard to collaborate in building learning modules, facilitate learning, monitor progress, and communicate with learners and their organizational supervisors.

Jill's chosen problem, "modeling the stateside critical infrastructure supporting various National Defense Strategy options," provides an interesting opportunity; she is working with a team of learning facilitators from several NDU Colleges. Getting her favorite professor from the IRM College was difficult, given their 150% student increase over the past two years. Wide availability of on-line learning opportunities and a change in attitudes has caused an explosion in on-line learning. Besides, using Blackboard over the Internet2 is much like being at Fort McNair – especially when using the multimedia simulations and process animations.

While appreciating the notion of experiential learning, Jill knows that crafting a problem-based learning program is more complex than attending a "one-size-fits-all" program. She proposed, and her team of learning facilitators agreed, to a course containing six modules: 1) an ***overview module*** to survey information assurance, critical infrastructures and national defense strategy; 2) a ***theory module*** to examine theoretical frameworks and critical assumptions; 3) a ***policy and issues module*** to examine relevant issues, extant policies, and the range of opinions on issues; 4) a ***pragmatics module*** stressing managerial perspectives, programmatic and performance goals, resources, and tools; 5) an ***outcomes module*** emphasizing client expectations, service delivery, performance, cost, and citizen satisfaction; and 6) an ***applications module*** composed of a relevant, problem-oriented capstone project and report. Each module helps her focus on aspects of her critical infrastructure problem.

Most of the modules Jill selected are resident in Blackboard, the structural capital repository for NDU's knowledge management effort. Created by faculty teams collabo-

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Computer Supported Collaborative Work at the IRM College

By Professor Paul Flanagan

A Short History of Groupware Activities at the IRM College

In the early 1990's John Saunders and a band of professors from the IRM College rolled up their sleeves, broke out their hand tools, and assembled some computer desks in a "U" shape in room 101 of Marshall Hall. When this was accomplished the first step toward the use of groupware had been taken.

Once the physical concerns were addressed, the necessary software was loaded. The software that was loaded was a product called GroupSystems. It was new and not a part of the standard National Defense University supported software, but it soon became a staple of technology offerings at the IRM College. Hundreds, possibly thousands, of sessions were run over the next decade. Groupware or computer supported collaborative work had arrived at the National Defense University.

The Decision Room (Room 101) equipped with GroupSystems had a long and valuable run at the IRM College. There were many noticeable successes including facilitating University meetings and providing valuable sessions to external customers such as the Department of the Treasury, the Department of the Interior, and the Chief Administrative Officer of the House of Representatives. There were a few isolated cases when the network did not work, but overall the IRM College enjoyed a long history of success and accomplishment using Groupware.

Change is Axiomatic

A valuable lesson to learn in today's environment is how to cope with a changing environment. Although there is a tendency to stick with tools and techniques that have served you well, it is important to stay current and to scan the horizon for valuable new tools. This is one of the seminal points covered in the Information Operations and Technology Department courses. We challenge our students. We ask them to become "change agents" when they feel technology holds the promise of success.

Fiscal Year 2002 presented the IRM College with an opportunity to live up to the challenge we pose to our students. The license fees for GroupSystems had grown to an unacceptable level for the IRM College. At the same time, the ability to use the GroupSystems tool in a distributed fashion had become outmoded. It required a separate application called Citrix Winframe, instead of a standard Internet browser. Therefore a decision was made to migrate to a different tool.

Earlier, the Industrial College of the Armed Forces (ICAF) had decided to use a different tool called MeetingWorks. Since they had the foresight to obtain a University License, it was logical that the IRM College adopt this standard also.

Learning to use Chopsticks with your Left Hand

Learning a new piece of software is a difficult task. It is made even more difficult when you are comfortable using a competing product. David Bouvin and I attended training on the MeetingWorks software. David's past research interests had not been directed at collaborative software, so he had the challenge of integrating new techniques with his decision support strategies. I had a different task; I had to learn to think in a new product, rather than try to apply the methods employed by the older software. I liken this task to learning to use chopsticks rather than a knife, fork and/or spoon. As a result of the transition from GroupSystems to MeetingWorks, I fully understand the reluctance of end users to switch from one software product to another one. This type of transition is truly like learning to use chopsticks with your left hand.

Never Give Up

The training gave us the needed knowledge, the next step was making it work. We set a standard. This standard was MeetingWorks. We had a large number of courses to teach and a variety of networks both wired and wireless to run on. It was time to make it work. Over the years as a result of the IRM College domestic field studies, we have learned some worthwhile lessons from successful organizations. One of these lessons is "to eat your own dog food." If you are going to tell students about a technology, it is best to use that same technology. Despite our past successes with GroupSystems we had to become just as effective using the new standard. The flagship course of the IRM College, the Advanced Management Program was approaching and it was going to feature MeetingWorks and feature it well.

It took a lot of practice sessions. The IRM College benefited from helpful sessions with colleagues from ICAF, particularly Roger Channing and Mark McGuire, whose patience had to be strained by our clumsy efforts. But now, the transition has been successfully made. We have numerous courses using the new software and

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Tapscott on e-Government

By Les Pang, Professor of Systems Management

Don Tapscott, author of *Paradigm Shift* and *Digital Economy*, spoke at the Second Annual SAP E-Government Symposium on March 28. He is considered by many as a futurist guru who specializes in the area of information technology. He discussed the transformation of governance in the public sector.

Tapscott mentioned how the industrial age corporations have evolved to an extended enterprise (via outsourcing) which in turn evolved to "business web." The business web is characterized by virtual alliances. Examples he cited include eBay, Compaq, the MP3 revolution and the Open Source school book.

He said the citizen is no longer just a consumer of government services. The citizen is now a stakeholder who should make decisions like an owner of a corporation.

To support this concept, Tapscott describes "governance webs" which are analogous to "business webs." He defines a governance web as "digitally enable network of public, private and/or civil society participants that delivers government services or enables stakeholder participation in government processes." Examples included:

nkla (network knowledge of los angeles) – community of property owners, UCLA, and the stakeholders brought together for the exchange of knowledge, dollars, energy and to address problems

Compranet – run by the Mexican government to serve as an interface to over 3,000 vendors

Town of Abington, Virginia – established a portal that provides significant value to the citizens

Imagine PA – State portal which provides services from an aggregation of organizations

> *"... A citizen is no longer just a consumer of government services. The citizen is now a stakeholder who should make decisions like an owner of a corporation." - Don Tapscott*

e-NASA – an integrated financial management system

ICANN – self-organizing alliance of public and private entities managing Internet domain names

Scorecard – environmental portal which provides local environmental information

US Postal Service – provides internet-based value-added services

eSingapore – portal for diverse communities

Recent efforts in eGovernment have involved automating existing processes. Tapscott sees a movement of government to serve at a higher level where the citizen becomes a stakeholder and actively participates in government processes virtually and globally. He cited the following approaches which support this concept:

- Digital brainstorming
- Citizen juries
- Virtual question periods
- Scenario planning
- Deliberative polling
- Learning communities
- Policy portals
- Targeted communities

Tapscott discussed the issue of balancing privacy and security. He suggested the use of biometrics to accomplish authentication while still maintaining confidentiality. He explained that the biometric measurement is first encrypted as a bioscript which is then compared against a secure database.

Under the new paradigm, corporations are changing which is good news for government. Corporations (and government) must operate in a very transparent environment (e.g., a highly visible bidding process). As a result, collusion and other corruption can be readily exposed. Therefore, corporations must play fair.

Paradigm shifts involve dislocations, conflict, confrontations and uncertainty. New paradigms are often greeted with coolness, mockery and hostility. It demands a different perspective of things. Unfortunately, established leaders are often the last to be won over if ever.

To ensure a better future, one needs to get involved in communities to bring aspirations to the table. Paraphrasing Victor Hugo, eGovernment is an idea whose time has come. He also added that we need to listen to the children because they will bring new models of engagement, democracy, working, and so on.

The future will not be boring.

The Profession of Enterprise Architect (1 of 2 parts)

By Carolyn Strano, Professor of Systems Management

This article explores the need for establishing the profession of enterprise architect as a discipline to add consistency and rigor to the act of developing, maintaining, and implementing enterprise architectures.

Although the task of managing an enterprise architecture is extremely challenging and complex, there is no clearly defined or certified profession to perform this vital function nor is there a concentration of study in higher education that prepares one for entrance into such a profession.

During architecture and technology summit meetings last year there was evidence that many were performing work considered to be enterprise architecture, but that the discipline lacked a clear definition. Thus it was difficult to assess how representative their work and experiences were in the broader field.

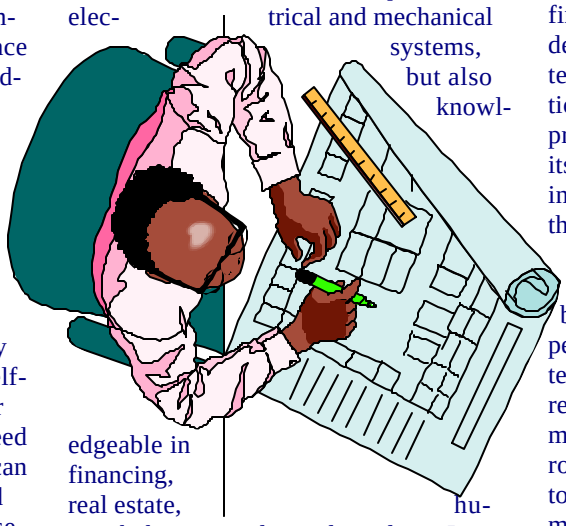
In the absence of expert agreement on what methods and processes should be mastered by practicing architects, many of the summit attendees articulated a self-perceived need for an extension of their training and skills. They identified a need for clarification on substance, which "can only come through continued work and continued engagement with those whose practices share the information technologies around us."

Since traditional architecture is much better established than enterprise architecture, I sought to learn from studying the evolution of the profession to its current status in an effort to apply the lessons to the profession of enterprise architecture. The research is organized into the following categories: role of the architect, qualifications, licensing, complexity, social impact, and existence of professional organizations.

Role of the Architect

In my review of the literature, there appears to be quite a difference of opinion about the role that the architect actually plays in the building of complex structures. Are they artists, generalists, planners, modelers, draftsmen, or a combination of all or some of these? What has been the role of the architect in the past and is it the same today? What is to be expected regarding the role of the architect tomorrow? Following are some of the many different views and opinions expressed in the literature.

In a discussion about the difference between an architect and an engineer, Salvadori states, "A good architect today must be a generalist, well versed in space distribution, construction techniques, and electrical and mechanical systems, but also knowledgeable in financing, real estate, human behavior, and social conduct. In addition he is an artist, entitled to the expression of his aesthetic tenets. He must know about so many specialties that he is sometimes said to know nothing about everything." In contrast an engineer is a specialist who is said to know everything about nothing.



Manley and Parnaby explore the issue of mutual intolerance between the professions of architect and planner in the United Kingdom. They express the opinion that although planners and architects share many common concerns, planners often view architects as egocentric individuals who pursue inappropriate aesthetic visions without consideration of the implications of their ideas for the community or context. Architects on the other hand view planners as petty-minded bureaucrats without aesthetic sensitivity who interfere in creative thinking and provide little benefit. They argue for the need to establish better education for both planners and architects to improve the quality of the environment, suggesting that these should be complementary and supporting rather than conflicting roles.

Monaghan's interview with Thomas H. Fisher, author of the book "In the Scheme of Things: Alternative Thinking on the Practice of Architecture," presents a point of view that the profession of architecture is in crisis and that people find architects unnecessary. The book describes the commodification of architecture through an emphasis on construction efficiency. Fischer suggests that the profession of architect must reexamine its purpose and reassert its goals, which include acting to counter the forces of the marketplace.

The role of the facility's architect is being heavily challenged in the European domain. One opinion is that architects should respond to this challenge by redefining and reinventing their role in modern society. Duffy perceives this role as one of "using design imagination to house their clients' activities in the most effective, beautiful, and sustainable way."

The state of this changing profession was examined by the American Institute of Architects (AIA) through a survey of 50 architects, clients, and educators. The survey concludes that economic prosperity was shared by the architect profession. However the profession has not matured due to the frenetic pace of development and the practice of young inexperienced architects who are learning through trial and error rather than years of experience. "More relevant sources of content, improved solutions for sustainable construction, and alternatives to the past conventions are some of the challenges faced by today's professional architect." Matching the business needs of the client to the architectural

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design is the key to successful architecting. This requires balancing the clients' financial profiles with their business needs to determine the most appropriate architecture.

It appears that this debate has existed throughout the history of architecture. "In ancient Greece the term *architekton* originally meant "master carpenter"; building artisans, shipwrights, and temple designers, all of whom worked in word, were architects. Roman architects combined firmness and utility with beauty. In the middle ages the term architect was rarely used. It was revived again in fifteenth century Italy when the idea of artist-architect spread throughout Europe. In colonial America, master artisans who created drawings and supervised construction were called architects. In the eighteenth century the architecture became associated with the word profession because it required expertise in a professed body of knowledge involving intellectual rather than manual work.

As I reviewed these differences of opinion regarding the role of the traditional architect, I could not help but notice the similarity to discussions I've heard regarding the role of the enterprise architect. For example the role of the information architect (part of the role of the enterprise architect) is debated in the discussion regarding the questionable design of the voting ballot that was used in many jurisdictions throughout the United States in the last presidential election. Understanding design impacts at the task, context, and social level is much more than mere common sense. It requires theory and method that is a contribution made by the information architect. Given this variation in the role of the architect, it is not surprising that there are wide differences in qualifications.

Qualifications

The debate of whether architecture is a trade or a profession carries over into the controversy regarding qualifications to practice as an architect. In a discussion regarding National Vocational Qualifications, Smith raises the concern that the use of vocational qualifications assessments may determine that an individual has achieved a specific level of competence without having mastered the knowledge of the theories, principles, or methods that require a higher level of education. This poses issues regarding codes of ethics and responsibilities that are defined by professional bodies and transcended into law. A determination of what constitutes a useful education has always sparked differences of opinion between practitioners and academicians. There is a need for a formal knowledge base but this is in itself useless unless it can be transformed into practice. Cuff notes "the goal of architecture education should be to provoke confrontation among typically separated orientations. In such a program, studio, theory, and practice learning would be connected, not isolated in unrelated courses."

Following the Civil War, university programs were invented for American architects but they didn't grow in influence and stature until the twentieth century as middle-class Americans came to regard university degrees as prerequisites for social status and economic success. By 1912 there were numerous programs and enrollments had tripled that of the 1890's. The National Accrediting Board (NAAB) was created in 1940 to examine and accredit the schools. By 1995 NAAB had accredited 103 programs enrolling 35, 527 students. Today there are 123 schools offering professional architecture degree programs in the United States and Canada that are accredited either through the National Architectural Accrediting Board (NAAB) in the United States or the Canadian Architectural Certification Board (CAC B) in Canada. They are relatively stable institutions with their own agendas, values, and culture.

A current controversy of modern architects regarding who is properly qualified to discuss and criticize architecture takes social considerations into account. Glazier discusses the commercial builder versus the architect-designer and the failure to explore what people prefer. He raises a paradox of "how a socially concerned architecture has over the past fifty years become one that is condemned as soulless, bureaucratic, and inhuman." In a study focusing on the political aspects of urban design in Great Britain, it was recognized that urban design involves making political choices through the representation and mediation of values and interests. However this role appears to contradict actual practice. Although many people are skilled in the design process, there are few who can translate the values, qualities and objectives into a drawing or model. The charrette method of design planning requires the involvement and commitment of all stakeholders. The urban designer or architect needs to be aware of the political, social, and economic forces impacting on the situation and engage in the debate so that he or she can lead a team and produce as many design outcomes as necessary to achieve consensus.

Another factor expected to revolutionize architectural practice is computer-aided design. U.S. News and World Report discusses the growing use of virtual reality by architects to explore their designs. Although the capability provides obvious benefits there is still reluctance by many architecture firms to make the investment for virtual reality systems. The virtual architect requires training to use the modeling software. Even in light of this reluctance to embrace new technology, there is some question of whether software applications may put professional architects completely out of business. The questions really becomes, "What added value does the architect bring if software applications can assist consumers in describing their requirements in an unambiguous manner so that the builders and designers clearly understand what is expected?" From my personal experience, the answer is obvious. The architect not only describes and verifies the requirements but also pro-

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The Profession of Enterprise Architect (cont.)

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vides a set of options for envisioning a target environment that satisfies the requirements in the optimal manner. The software application is simply a very powerful tool that complements the years of experience, skill and artistic flare that the architect brings in order to accomplish this challenging task.

Once again as I reviewed these opinions regarding qualifications of the traditional architect, it reminded me of the concerns being discussed for those practicing enterprise architecture. Dr. Spewak notes that one obstacle that must be overcome in order to succeed in enterprise architecture planning is inexperience and lack of training of personnel that are expected to perform the work. Since there is little agreement on what those qualifications should be or even exactly what role the enterprise architecture should play, it is not surprising that there is a deficiency in the skills required. This serious void must be addressed expeditiously. It occurs to me that a good starting point might be to begin with many of the qualifications required of a traditional architect and replace competencies such as structural dynamics with technology capabilities forecasting or business process reengineering. Most of the basic theory is the same for both professions. Elective choices could address the differences in the qualifications' skill set needed to support actual practice. The result would be one basic set of qualifications enriched with elected specialties required to prepare one to practice within a specific domain of architecture.

Licensing

Another factor that is used to differentiate the amateur from the professional is that of licensing and certification. This is used in many high impact occupations such as the practice of medicine or law in which the consequence of poor judgment or incorrect action may be quite significant. Certainly in traditional architecture there are serious safety implications involved with designing an architecture that is structurally unsound. Similarly in enterprise architecture, there could be serious impacts resulting from an unsound architecture. For example prior to the September 11th, 2001 terrorist attacks on the world, a wealth of isolated pieces of information was available but ineffectively shared across enterprises. Collectively the information may have flagged some advance warning that could possibly have spared many lives. Would an architecture that clearly described the relationships in such a manner that indicated the need to share such information have made a difference? One can only wonder and speculate.

In discussing the issue of what and how architects charge for their services, Kubany and Linn discuss the history of the professional architect. They note that it was a trial settlement in 1861, resolving a dispute over fees, that actually set the precedent for the recognition of architects as professionals and not merely building designers engaged in construction trades who were entitled to a fee for design. Throughout the 19th century, the growing complexity of building technology vastly increased the knowledge requirements for the architects but the fees did not reflect this evolution. In a landmark New York case in 1888, the courts ruled that technical knowledge is a reasonable requirement of an architect. In that case, the architect had improperly sized a boiler chimney but insisted that the error should have been caught and corrected by the plumber. The judge wrote: "No one would contend that at this day an architect could shelter himself behind the plumber and excuse his ignorance of the ordinary appliances of sanitary ventilation by saying that he is not an expert in the trade of plumbing….why should not the architect be expected to possess the technical learning that is exacted of him with respect to the other and older branches of his professional studies?" Licensing began in Illinois in 1897 requiring a diploma from a school of architecture or passing a comprehensive examination in order to practice the discipline professionally.

Prior to the court decision in 1897 there had been controversy among the architect organizations about the requirement to certify architects. The American Institute of Architects (AIA) did not support the campaign for licensing because they had no real interest in increasing the number of professional architects through legislation. "They shared the views of British architects that state bodies could never evaluate artistry, the touchstone of architectural ability." Contrary to the AIA, the Western Association of Architects WAA supported the campaign for licensing that they felt indicated a measure of competence and possession of superior knowledge. Reed points out that practice statutes are pieces of legislation that not only protect public safety, but confer professional status as well. He notes that without such vigorous enforcement by the profession and its regulatory agencies, architecture would be only a trade. He argues for consistency across state boundaries so that architects licensed in one state can practice in other states.

The review on the report of Legislation regulating the architectural profession by Australia's Productivity Commission discusses the community benefits of certifying architects and the outlook of the Royal Australian Institute of Architects (RAIA). The question is whether price-based competitive models are adequate for knowledge-based professions such as architecture. The RAIA recommends a co-regulatory model in which a nationally uniform statutory system conforming to world's best practice guides consumers to-

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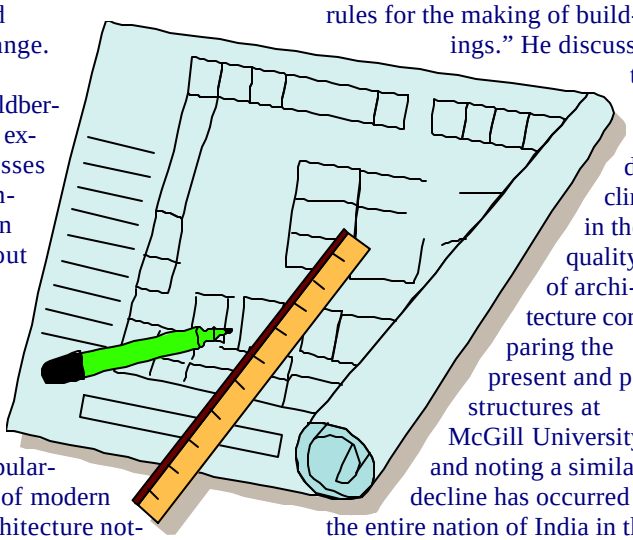
wards the best qualified suppliers of architectural services. This retains a competitive environment based on knowledge, skill and capability.

Currently I am aware of no licensing or certification requirement in order to practice as an enterprise architect. Still the consequences of an inappropriate architecture are quite significant. Would regulatory control improve the outcomes? This is not an easy question to answer. At a minimum it should ensure that those practicing have met a minimum set of qualifications. One needs only to look at the large numbers of malpractice suits in medicine to challenge whether or not licensing solves the ultimate problem of responsible and competent practice. The medical profession although highly regulated through licensing does not appear to have solved the problem of incompetent practice. However the issues that pertain to the licensing of a traditional architect or for that matter any regulatory control is the same for the enterprise architect. There are numerous issues including legal, ethical, and moral responsibilities that must be addressed based on the consequences of malpractice which leads to the question of the social impact of the architect.

Social Impact

Certainly there is evidence that the traditional architect has had a significant influence on society throughout history. Gavin Maxwell, the first architect to chair the British Royal Society of Health addresses how the role of the architect as a planner can influence social change. He expresses concern that modern planning is performed by managers and accountants who lack the basic planning skills. In contrast architects are able to assess radical alternatives indiscriminately and as such can interact with multi-disciplinary groups and consider all essential factors that should appropriately influence the structural design. In this manner the architect serves as a planner that has significant impact on society and change.



Goldberger expresses concern about the popularity of modern architecture noting that modern buildings are all over the landscape but they tend to be primarily used in places concerned in the making of money – skyscrapers, commercial buildings, and shopping centers. Traditional styles still are used for the places in which people seek a deeper emotional connection. He comments that although there are many great modern buildings, there are almost no great modern streets, places, or cities. He concludes that "classicism prompts us to subordinate our individualism to the greater good of the collective by adopting artistic conventions not entirely of our own making, so that architecture can communicate not just to our private selves but to others now and in the future. The challenge for new classicists is to use the architectural heritage to create real places and conquer the evils of modern architecture."

Rybczynski makes the point that "There is no longer a consensus on whether the responsibility of the architect is to the community, to the users of the building, to the client, or merely to himself. There are no more universally accepted rules for the making of buildings." He discusses the decline in the quality of architecture comparing the present and past structures at McGill University and noting a similar decline has occurred in the entire nation of India in the past forty years. These shortcomings may be due to the fact that the history of architecture has traditionally focused on buildings of monumental stature such as churches and palaces. However in modern times much of the work of the architect was geared to more practical structures such as factories, farm buildings, hospitals, prisons, libraries, and museums. As the quantity of such building increased, the aesthetic and theoretical concerns were superseded by engineering and commercial considerations which complicated the work of the art historians. The 15th century Vitruvian definition of architecture suggests that the art of building is an art of compromise. It produces a structure that combines aesthetics, (delight or beauty) with practicality (commodity and firmness).

Another study takes the impact of architecture beyond one of providing aesthetics and practicality. It examines the role of architecture in social relations. This research looks at three facets of intergroup relations – power, status, and conflict – and their interrelationships with architecture. It is based on a study of social relations between two religious groups and their homes. This work claims that intergroup social relations are mirrored through architecture. The report concludes that majority groups use various techniques such as regulations and social policies to influence the architecture of the minority groups. This impacted the lives of the minority groups significantly. Specific examples are described in which the impacts of space and architecture restricted religious practices.

Clearly there is potential for the enterprise architect to have significant impacts on society as well. The same type of intergroup relations discussed among the religious groups could easily be referring to the digital-divide that separates those with access to the technology infrastructure from those without. This divide could be expanded or reduced depending on the architecture of the enterprise. Similarly modern utility may drive differences in design ergonomics than were manifested in historical architectures. The enterprise architect can consider alternatives indiscriminately and interact with multi-disciplinary groups to provide the "big picture" perspective.

This article will be continued in the next issue of Info Tech Talk.

Education in 2004
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rating across department and college boundaries, the modules focus students' intellectual attention toward broad policy and issue questions, and related managerial challenges while experientially targeting the specific problem identified by the learner.

Jill intends to study "National Security Infrastructure" with her IRMC and NWC facilitators, examine "Information, Decisions, and Technology" with IRMC and ICAF facilitators, and explore "e-Government" at IRMC. Then she will model the critical infrastructure components in IRMC's e-Government and Information Assurance labs and simulate their performance using the facilities of several NDU Foundation partners, including Accenture, Booz, Allen, SAIC, EDS, and UUNet. Six agencies, twelve companies, and two tribal governments intend to incorporate the infrastructure assessments from Jill's experiential learning; the learning partnership with Jill, her agency and the IRM College benefits not only Jill but also the larger university and government communities.

Authors' Comment:

This scenario was developed for the University Educational Technology Committee's "NDU in 2004" look at University-wide educational technology issues.

Computer Supported Collaborative Work at the IRM College
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have even run some highly successful external sessions. The most notable being a session with representatives from an IT Acquisition Competencies Functional Integrated Product Team (FIPT). It was not easy, but we never gave up and we feel confident that we are as proficient as ever.

<u>Exploring the New Possibilities</u>

The IRM College has adopted distance learning. We have also used Meetingworks to facilitate a different-place-different-time session in a distance learning course. Meetingworks offers us the ability to connect via the Internet with all of our students. This is a possibility we look forward to exploring.

Computer supported collaborative work has been a trademark of the IRM College for over a decade, we look forward to some more interesting times and assignments in the future.

"Computer supported collaborative work has been a trademark of the IRM College for over a decade, we look forward to some more interesting times and assignments in the future."

Electronic Government

By Lt. Col. Martin Whelan, USAF, ICAF and Information Highway Student

Introduction

E-Government provides an efficient way to provide additional service paths to customers, to improve services and gain efficiencies in existing processes, and to identify and grow new areas of service and cooperation using this new media. By developing a citizen-centric approach to E-Government, government can enhance service, streamline processes, share similar data for dissimilar purposes, and provide a single customer service interface for constituents.

The power and potential of E-Government can work to strengthen service, streamline bureaucracies and enhance national power through gaining efficiencies and bolstering the effectiveness of the nation.

The Department of Commerce defined E-Government as "any process or transaction conducted by a government organization over a computer-mediated network that transfers ownership of, or rights to use, goods, services or information."

E-Government encompasses almost everything the government does with citizens, business, state and local governments and with their employees. Knowing the power of E-Government, it is ironic to think that the sector which first unlocked this great potential is the last to tap into the power it brings. The U.S. Government started the internet, which led to the development of the World Wide Web and the boom in E-Commerce, but the government was slow to adopt the technology itself.

Government's Development: Crawl, Walk and Run

The Crawl: We've all heard about the evolutionary path of "Crawl, Walk, and Run." E-government began it's journey by 'crawling' onto the scene in 1993 with the establishment of the website WhiteHouse.gov . New limited service websites for Congress, other foreign governments, state governments and federal agencies soon followed. These fledgling websites provided 'storefronts' for their parent organization. They used the storefront to provide media statements, mission statements and contact information. They were brilliant uses of the new technology, but they were little more than a quaint approach to introduce the constituency to the power and utility of E-Government.

The Walk: A series of legal initiatives laid the foundation to transition to the 'walking' stage. The Information Technology Act of 1996 (also known as the Clinger-Cohen Act) established the role of the Chief Information Officer (CIO) for each federal agency and created a change in mindset by setting an initial set of requirements for information systems procurement. The Government Paperwork Elimination Act of 1998 directed the Department of Defense (DoD) towards E-Government by requiring each agency to allow citizens and businesses to submit information, make transactions and keep records electronically. The 1999 Defense Authorization Act went further by directing DoD to develop a one-stop shop where vendors and their goods could be consolidated.

An "Electronic Government" memorandum from President Clinton in 1999 provided the top-down direction for the federal government to adapt to E-Government, then the 2000 Electronic Signatures in Global and National Commerce Act legalized electronic signatures as being contractually binding in commerce. These laws set the foundation, so in the late 1990's the government began to use the improving technology to provide specific services and interaction for the constituent. The IRS created web sites to allow citizens and businesses to download forms and instructions.

The Department of State provided travel advisories and instructions for foreign travelers. The internet had grown beyond the storefront, into a warehouse that held a vast collection of information and resources. The turn-of-the century E-government placed us clearly in the 'Walking' stage of the evolutionary path. Almost every federal government agency has a web site, stocked with the millions of pages of information, data, facts and services. But, the web site only

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The views expressed are those of the author and not necessarily the Air Force, NDU or IRMC.

E-government is about transformation. It is citizen-centered not program-centered. It is not just a tool but part of a whole system of technology, process and organization that brings change. E-government is not in isolation of other management challenges

Daniel Chenok, OMB

Electronic Government (cont.)

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informed constituents on the services or solutions provided by a particular agency. The problem is citizens don't necessarily care who can provide the service, or to whom they must provide information. The citizen seeks a single face to the government; one-stop to provide a comprehensive look at a problem or provide a complete solution.

The Run: Today, E-Government offers opportunity for interaction, for information, for searches and to perform services. However, we have just tapped the opportunity E-government provides. The next phase must yield a functionally oriented, citizen-centric service that provides solutions. We need to understand what E-Government can do and how it is growing, the barriers, benefits and potential inherent in E-Government, and finally how E-Government will enhance our National Security in the future. E-Government must evolve to allow the constituency to 'Run' through the warehouse of information and services and find the comprehensive solution they are seeking.

The E-Government Task Force

In July 2001, the Director of the Office of Management and Budget began the transition to the "Running' phase by establishing the office of the Associate Director for Information Technology and E-Government. Mark Forman was appointed to the position and was directed to establish a task force to "set in motion a transformation of government around customer needs." The task force, comprised of over 80 federal employees from throughout the government, determined the E-Government Strategy to support multi-agency projects that improve citizen services and yield performance gains. They found 30 distinct lines of business in the federal government and that, on average, each agencies had a role in 17 of the 30 business lines. More distressing, 19 agencies participated in all 30 business lines. This redundancy presents a major impediment to creating citizen-centric electronic government. The task force developed a strategic vision to deploy E-Government solutions so that "…conducting business with the government is easier, privacy is protected and security provided. Citizens and business can visit one point-of service online or by telephone that reflects the 'United States Government'."

In their report to the Director, Office of Management and Budget, the Electronic Government Task Force stated, "More than 60 percent of all internet users interact with government websites. E-Government will save taxpayers a significant amount of money, while adding value to the citizens' experience with government and better serving their needs. Consequently, the President has made 'Expanding E-Government' integral to a five-part Management Agenda for making government more focused on citizens and results." The primary theme is that Electronic government is a **citizen-centric** approach to enhancing government service, **providing results** and **finding efficiencies** that will save taxpayers money. It means that E-Government must provide the citizen, business, government agency or government employee full dimensional solutions to everyday problems.

To make the issues more manageable, the task force broke E-Government into four key constituencies: government-to-government (G2G), government-to-business (G2B), government-to-citizen (G2C), and government-to-government employee (G2E) initiatives. Each constituency has different needs and differing levels of involvement, which means that E-Government solutions must be versatile enough to provide solutions in multiple interface domains. The federal government has three branches, all of which play a necessary role in government, but not all have the same linkages to the citizens, other levels of government and business.

The Task Force has adopted an approach that applies to all branches of the federal government. Their approach is customer centric and it looks to link

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the existing 'Internal Business Operations' with 'Customer Relations' and 'Supplier Relations'. These linkages bring the business of government to the citizen in a personal, web based, multi-channel approach. They enable business to participate in e-procurement and supply chain management in a way never envisioned. The Task force has migrated over 5600 G2C, G2B and G2G transactions online and facilitated over 1000 inter-governmental interfaces to raise service to a new level. All this is driven by the vision to improve service 'by an order of magnitude.'

Why E-Government?

The U.S. federal government will spend over $48 billion in FY 2002 and $52 billion in FY 2003 on Information Technology. The citizens must see that investment as part of the solution to addressing their needs and providing faster, better, more efficient solutions. According to a poll for the Council for Excellence in Government, 68% of Americans initially said that it should be a high or medium priority for the government to invest tax dollars in making more information and services available over the internet. After learning more about the positive examples of E-government already employed, the portion of the public placing priority on E-Government grew to 77%. The Center for Excellence in Government poll found that the overwhelming majority of Americans believe that E-Government will mean better government because it will (1) make government more accountable to the citizens, (2) help agencies carry out their missions more effectively and efficiently, (3) deliver more convenient government services, and (4) facilitate greater access to government information.

What is the Federal Government Doing?

A large portion of the federal spending mentioned above is dedicated to "internet initiatives, yielding over 35 million web pages online at over 22,000 web sites." To focus that spending, the Task Force determined that the federal government could significantly improve service to the citizen by focusing on 24 high-payoff, government-wide initiatives.

The transition from 'Walk' to 'Run' is not easy to achieve or detect. To begin the transition, the Task Force endorsed 24 multi-agency initiatives that represent a balance between the citizen, business, government and internal (employee) groups. The projects were chosen based on their value to the constituency groups, potential improvement in agency efficiency and likelihood of deployment within 18-24 months. They provide a more focused use of billions of dollars in redundant information technology investment and can reduce the burden on the taxpayer.

For the citizen (G2C), Recreation.gov is one the first examples to be deployed. The new recreation service offers comprehensive recreation planning information, allows users to locate Federal and State recreational areas on-line, generates on-line maps and makes reservations for campgrounds and other services. For both the business community (G2B) and government (G2G), the federal government is developing Federal Commons, a one-stop-shop for federal grant applications. This portal will become a common face of the government, offering all grantees (state and local governments, universities, small businesses, etc.) full service grants processing across all functions in the grant life cycle. The Federal Commons will provide both public information, such as grant programs and funding opportunities, as well as the secure processing of e-grant transactions. For the government employee (G2E), Employee Express was deployed. This is a single customer service portal to provide services for leave and pay, health benefits, Thrift Savings, and numerous other services essential to government employees. This portal has even adopted a feedback mechanism to employ the concept of constant improvement.

But, these 24 initiatives simply scratch the surface. The E-government initiative must drastically change the way the government does business. The early deployers have gained efficiencies and linked 'like' services (i.e. Recreation.gov linked numerous federal recreation sites and is expanding to include state and local links, as well). A number of contractors are providing useful technology to help the federal government down the E-Government path. At the recent FOSE 2002 Convention, a number of firms (such as Defense Electronic Business and Ezenia) developed streaming video to explain their role in E-Government, including voice over IP, whiteboards and instant messaging.

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Electronic Government (cont.)

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What's Next for E-Government?

Improved Management

First, improvements must be made in the approach to E-Government. The federal government must establish a federal CIO who has authority to direct compliance with information technology architectures that address everything from security, to data storage, to citizen-centric E-Government. A Senate Bill was sent to the Senate floor in May 2001, but the bill has been watered down and no longer requires the establishment of a federal CIO. The Senate and the House need to work together to make the federal CIO a statutory position with specific authorities and budget influence that will make the position credible. The CIO must specifically address the synergy of E-Government and the management of the back-end of the computer, data management, which constitutes the products in the E-Government warehouse.

Next, the new CIO must quickly establish an awards system for the best, most innovative, or best maintained web portals. This approach is needed to reward the hard work of those who dare to try, aimed at breaking the resistance to change. Rewards need to be targeted to capture the best practices within the government, and to build a database of lessons learned on prioritization and keeping data fresh, that can be applied to new portals or new web communities. The CIO must develop and promote a robust rewards system to help bridge the digital divide.

Finally, the CIO must rapidly develop the next tier of E-Government efforts. The inaugural 24 initiatives were well thought out and mentored. The fruits of these efforts are now being seen at Recreation.gov, the Federal Commons, the Patent Office and Employee Express. But, the federal government works in budget cycles that need to be effected years in advance. It is essential to develop the next tier so that organizations can build sustainable programs and insert them into the budget cycle, in time to be funded. These new initiatives must be small citizen-centric efforts that can be rapidly prototyped and quickly deployed.

Improved Portals

Specific effort must be made in all four disciplines of E- Government. For citizens (G2C) the federal government needs to build a portals such as *License.gov*, that can provide a central point for requesting the numerous government licenses. Citizens can apply for Radio Operator licenses and Pilot Licenses. The portal can be expanded to include new licenses provided by different federal agencies and links to state licensing agencies. Simple functions, such as Change of Address and license renewal can also be incorporated. This continues to expand the 'personal' touch E-Government is striving to achieve.

Government interaction with business (G2B) can continue to expand by placing federal government procurement on-line at a single portal. Today, most agencies have 'single face to customer' portals, but businesses must search each portal to find contracts they can bid on. A single portal, with search engines that tap into the agency portals, will improve supplier relations and help achieve an order of magnitude improvement.

Government to Government (G2G) collaboration must be improved to enhance homeland defense. This area has the greatest potential to consolidate all the federal, state and local efforts at a single portal. Sharing information on warnings, threats, training and procedures will help each agency improve while bolstering security for the citizens. *HomelandDefense.gov* should be the next major portal endorsed by the E-Government Task Force and linked to every level of government.

Finally, government employee support can continue to be improved under EmployeeExpress.gov. Expanding the portal to include all federal agencies is a must. After all agencies are included, the portal should grow to include internal to the government job postings and recreation services. This effort will ensure employees remain informed and improve their work environment.

Conclusion

E-Government is a new way to serve the needs of the nation, fuel the economic engine, and enhance the world conditions unlike any other medium this world has seen. The evolution of E-Government will require movement through the crawl and walk phases to reach the efficiencies available.

The U.S. government has just transitioned into the running phase, but need to take immediate action to prepare itself for the long run ahead. By overcoming barriers, such as security, bureaucracy slowdown and the digital divide, the U.S. can leverage E-Government to enhance its economic, military, informational and diplomatic elements of power.

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