Evolution of m-Gov in Brazil

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Abstract: *This paper elaborates on the research of fellow graduate students and research supervisor about e-Governmentment, Information Technology (IT) and the operations required to set an efficient governmentment network to evolve to m-gov in some areas of Brazil. With the visions and work of those researches, the paper illustrates the experience to modernize government organization in a developing country scenario, compared to what it can represent if the government is open to innovation. The present difficulty to overcome the resistance to changes, the need for long term training and dynamic skills development and opening the path to modernize technology for online searching of public services networks, legal procedures, cryptography, digital signature and Citizen Relationship Management (CRM) on an open source, multiplatform and multithread environment. The paradigm is that: the same force that turns one economy to attain high value standard, works on the contrary in another economy. This in turn brings about development in one economy and a deeper development gap in the other towards obsolescence.*

Keywords: Database management, e-government, m-gov, network security, e-business management, e-services, public policy.

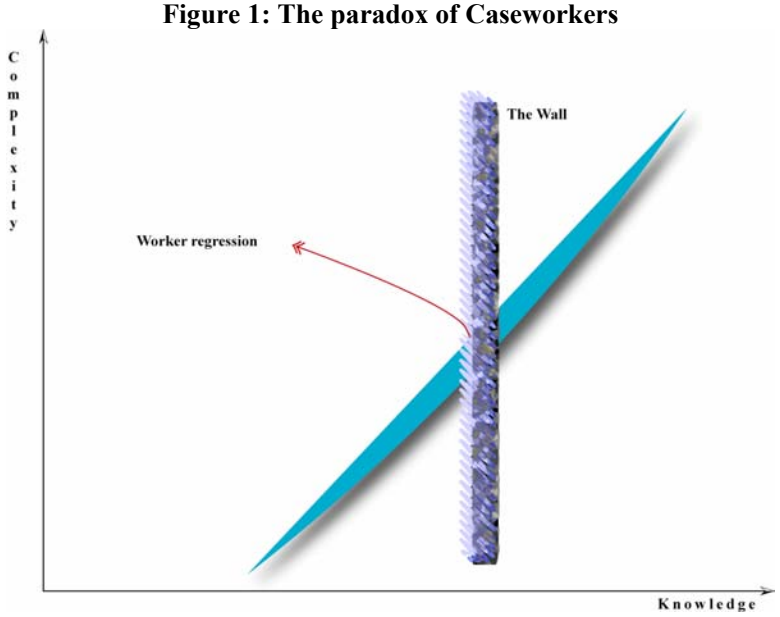
1. Introduction

Information Technology (IT) has a strong dominance on everyone's life nowadays. Therefore, the path to modernization is close to the speed IT renews technology and turns its predecessor obsolete. The speed that new technology advances is becoming increasingly faster which in turn prompt organizations and countries to a speedier response to modernity and competitiveness. In fact the major resource is human capability, which is vital to the modernity equation. Knowledge skill has the final and major correlation on an equation to new technology introduction. Modern economies *vis-à-vis* developing ones has labour skills synchronized with new technology adoption. IT capable workers focus on incremental learning, have high morale, motivation and are eager to have in hands the newest tech gains. Caseworkers (Nolan, 2000; Jose dos Santos, 2004) through the use of computers related to networks clients, can accomplish in real-time database, products and services operations. The downside is the permanent requirement to incremental learning, otherwise a "wall" like that breaks the possibility of new technology introduction as it becomes available. Figure 1 illustrates that condition which determines training in order to attain the incremental knowledge needed to master the new advancement.

Around the 1980s, the Japan Productivity Centre had discussed the "zebra-collar work" concept, which was defined by the high grade and homogenous skilled Japanese labour, noted phenomenon that had occurred among Japanese tech-labour. Kazuo Koike (1981, 74-78) pointed out that high-skilled blue-collar work in major Japanese corporation enables those to devise improvements in their plants. High automation and robotization turn university-graduated worker, in the level plant, into the "zebra-collar work" concept. Others have noted that like "humanware" and by "learning-by-doing" practices these combined resource respond for the high-end skilled human, capable to deal with up-to-date technology (Kenney & Florida, 1993, Jose dos Santos, 1994).

Such labor can overcome the difficulty imposed by the complexity-knowledge ratio, also named "The Wall" (Nolan, 2000). Developed countries have the benefit of a fast track to technology introduction, which occurs by combining self-motivated tech-labor and public servants with the capital resources to fund the acquisition of the new breed. Skilled workers are more motivated and open to challenge than their counterparts in less favored regions, besides the lack of budget that also prejudices the situation. Then this motive turn into a broader distance between those two scenarios: Highly motivated employees of one economy and those who exist on a bureaucracy without much to go for it.

Figure 1: The paradox of Caseworkers



Source: NOLAN, Richard. **Information Technology Management from 1960-2000.**

Harvard Business School: Discussion Paper, June, 2001.

Wireless network represents a new evolving breed for public communication, be it settled privately at the boundary of a firm or spread over a continent, a country or a region. Such network is phenomenal to remote interaction, without wires, what turns into mobility and a universe of possible usage. If that wireless net responds to an m-gov infrastructure, the possibilities to promote information, education, boost governmentment productivity and returns to a society are tremendous.

Jeff Hawkins, Chief Technology Officer at PalmOne (designer of the smart phone Treo 600, illustrated on Figure 2) and Chairman of the Redwood Neuroscience Institute (www.rni.org) has a clear understand of the problem. While he prototypes a novel computer vision system using an algorithm based on his theory of how the neocortex works make his point: "It's hard in any company to start something new, because there is a lot of resistance to it. People don't understand it. It takes a lot of force to make things happen" (Merritt, 2005).

Figure 2: The Treo 600

Source: http://www.palminfocenter.com/view_story.asp?ID=7403

The unknown turns people at work to fear the introduction of the advancements. Innovative technology can improve quality and standards of life of an entire society. In that case the opportunity is lost when a governmentment unit of a developing country, where labor competitiveness is a matter of relationship with the power instead of expertise for the job, put a red light on the effort of few visionaries to move

things ahead the losses can affect social-economic development. Under that circumstance the better skilled personnel could provoke enormous changes if they can progress on the chain of command, in both ways: technology introduction and serving the nation. Under the current status this sounds unthinkable: the most capable taking the position and promoting development. It is like a cultural revolution for many developing states, but skilled public servants have to be favored and replace old schemes of leadership and head new approaches to governmentment operations. The fear of innovation and lose power are what block modernity in some regions and bias development. Then the resulting actions generate increasing obsolescence at the potential cost of an entire community or even a nation. Jurassic managed societies are at risk that current leaders will backfire changes to keep power and status quo unchanged. This is the paradigm to forceful overcome.

It is clear to everyone that mobility empowers productivity and convenience. In large areas such as Europe, Americas and Australia, spread ones like Asia and someday in Africa, mobility is and will be a daily-basis reality. The wireless network is rapidly growing in leading countries what will determine a better accomplishment use of mobility. The need of human and capital resources to pursue an efficient m-gov environment can in developing countries and rich nations as well boost productivity and permit governmentment to more easily attain goals worthy by those societies. Public budget and credits are available to introduce the m-gov network, speeding goals as part of a country policy, but the status quo paradigm is the force to overcome by some of that compound (technology for capable workforce) potential recipients. An IDC Study called, "What Makes Mobile Users Tick? The Underlying Factors of Mobile Phone Usage and Purchase Criteria," claim that increases in productivity and convenience are they main reasons they use cell phones than any other reason (Mobile Pipeline News, 2005).

Researches and population call for governmentment efficiency. Government productivity requires the combination of technology, managing skills and tech-labor. The dismissal of underperforming staff is something difficult to be attained by governmentment, particularly on the most critical areas and influenced by old schemes of leadership. By introducing technology, better performance can be achieved among more capable government officials, better skilled for operating the advancements, whom gradually will rank on top of the administration. They can make the difference in boosting productivity, disseminating knowledge, educating peers, providing good management and serving people. In this sense m-gov policy is the strategic tool to outperform inefficiencies, but it has to overcome underperformers leadership who lacks strategic vision, close on their personal needs. In order to seek new management climate and create leadership compromised with accomplishment, government has to respond with more technology. Doing it so will reduce the power of leaders and servants that can't cope with the advancements and finally generating the productivity boost and serving citizens with quality.

Society can take advantage of skilled government people working remotely on their notebooks and palmtops. Interaction made in real time, providing information, planning and taking decisions. Wireless networks is gaining momentum in attain performance, usability and popularity. A new report from Parks Associates found that among US households on their home networks, 52% is wireless (also named Wi-Fi), 50% Ethernet and 5% is power-line networking via electrical wires. Some use both Wi-Fi and Ethernet at their home (Musil, 2005; Mobile Pipeline, 2005).

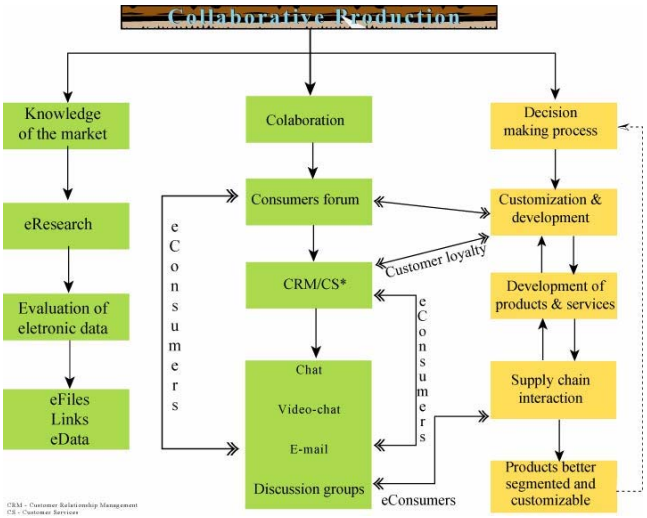
2. A model for on-line collaboration

A research that culminate with a Doctoral degree, focused on getting the ideal ambient that could combine IT, networks, customer relationship and e-businesses. That turned to a model of interactive relationship among peers on a binary relationship over the internet. The electronic marketplace, her counterpart do marketing, interacts, exchanging knowledge, tastes and preferences. Thus develops sustainability towards a long-term relationship that prompts firms to attain goals through the achievement of customer loyalty, as the results of an increasing level of customers' satisfaction and market compliance. The most advanced way of doing business is focused on customers' demand satisfaction, tastes and preferences fulfillment. Developing relationships among peers over digitalized-networks, can achieve better products and/or services, all customized by customers collaborative electronic chain at a more competitive cost for the firm than previous arrangements. That turns into

loyalty and long-term rewards among those partners. The achievement is to assert meanings of online interaction that can lead firms to maximize customer satisfaction and loyalty. Wherever that is possible under a specific market condition, an increasing market-share is the reward on the long-term run (The figure 3 illustrates the working model).

Its future development should be the compilation of one software that, by collecting interactive data, could provide a decision tool for organizations, in the meanwhile attaining loyalty. Other goal: to migrate the model to a public sector environment, generating a collaborative network with the community into what could result in a better governmented society. To do so and having the possibility of combining both efforts into a single governmentment policy, would require internal collaboration represented by the sum of leadership, technical skill hours and resources. The dramatic changes that could result of that effort, would rewrite ways of governmentance. However due to a non-responsive management, the project was left on the hard disk and the written thesis on a bookshelf. The conclusion is: Nobody would risk position or change the way decision is made within a governmentment agency. The most appealing: The tool is given, ready to use and easily compatible with the m-gov initiative.

Figure 3: A model for on-line collaboration



Source: José dos Santos, Mauro. Marketing Interativo: relacionamento e cooperação no mercado eletrônico. Available at http://aspro02.npd.ufsc.br/arquivos/200000/203200/18_203281.htm

3. Justice Cryptographic

The author of this master thesis has developed a digital signature system optimized to the characteristics of the Procedural Information System (PIS) at the Brazilian Labor Justice in Brazil. The need to fulfill trust and authenticity in the Tribunal's intranet, in order to guarantee authorship and validate document's contents as well updating and having it re-signed by the ones in charge. With the computing component proposed, intends to facilitate the implementation of the digital signature, improving the security of the current system, guaranteeing the integrity and computerized the documents' authentication created or altered by the system users (available at http://teses.eps.ufsc.br/Resumo.asp?6079).

In order to access the system an authorized user has to log on a screen and when logged can access the services the system provides according to his/her privileges: Data saved on a single data base, what allows its recovery and analysis for statistics and to generate public information, keeping the security characteristics in place while accessing information; records customized according to the user privileges; digital process records in substitution to manual controls and electronic emission of documents by the system; processes search engine through the combination of inputs; searching names by phonetic similarities; emission of certificates; control of death line, processing timetable and related activities (Figure 4 illustrates the login to PIS).

PIS and the digital signature are operational but could not initiate due to political disagreement by the Brazilian Labor Justice of a northern state named Rondonia and bureaucracy. Due to that situation, the entire country is missing the advances PIS can generate. The system would operate initially there and the next step nation wide. Another difficulty is that by changing governmentment officials with new elected politicians, the tradition makes a discontinuity of the services, while the new authorities seek to introduce their own ideas and procedures. Nevertheless PIS could be ready and in-place for m-gov operations.

Figure 4: Login screen to PIS

Source: Contador, Paulo. Um componente computacional para auxiliar o desenvolvimento de uma assinatura digital no Sistema de Informações Processuais. Available at http://teses.eps.ufsc.br/Resumo.asp?6079

4. Modern technologies and the bureaucracy gap

Advanced nations' government are generating the resources to have the most updated technology ready available to their citizens. National parks in the US are being tuned with Wi-Fi connection to provide visitors connectivity, which is free of charge to access park's webpage, maps, warning and related information (Richtel, 2005). Firms are turning employees to Wi-Fi connectivity and letting them do the job out of their desks (CNET News.com Staff, 2005). Wi-Fi providers are fighting hard to win auction bids for wireless connectivity on cities (Reuters, 2005).

That reality is quite different for a developing country. Even being technology available at the top leadership, the balance of power does not achieve reasonable and speedy decision. Due to longer schedule in reaching consensus, an agreement achieved at a later time can result in old technology being used by the time of introducing the planned governmentment service. In that case the adoption of an outdated package might deprive that region of having up to date services based on new advancement and keeping that society behind.

The forces that work towards modernity on one economy attains better quality on public services and a higher standard of life for that society. On the contrary there is the effectiveness of the paradigm encapsulating development, standards and social gains in favor of maintaining the bureaucracy status quo unchangeable. The effect in scale, that is the sum of mismanagement at a given period of time, works on the increase of social standard gap at the social cost of such society. If the public policy was set in direction to positively transform the economy, accelerate development and generate the conditions for more entrepreneurship, capital investment, better government and more employment the development stage would move upward. In the long run, the consequence in delaying modernization will respond for the increase in poverty and its correlation to crime and violence.

To find solution to this insane paradigm that, for keeping inefficiencies in place postpone the achievement of better standards for a society is the answer to a more homogeneous global social life. The technology is the tool to enrich entire community. It can open new posts to workers, increase income and improve life standards. Through m-gov initiatives the path can become even faster due to its capability to accelerate connectivity and without wires remotely gather entire countries. But one question has to be resolved: How to change old schemes of leadership to prompt social-economic development?

United States have enacted the Clinger Cohen Act of 1996, complemented and updated by other related documents to organize e-governmentment initiatives among several other regulatory issues, some of which were restated by the domestic security actions added after the September 11 terrorist act. That Federal Governmentment was seeking to set rules and manage the increasing IT reliance of that nation. Several points were intend to resolve, actually minimized over the time, case by case, though it turns harder to forecast possibilities on a ever changing technology as it is the case of IT and its rapidly evolution path. The Deputy Secretary of Defense on March 31, 2000 established the Department of Defense (DoD) Chief Information Officer Executive Board to advise the DoD CIO on every matter pertaining the implementation of the Clinger-Cohen Act.

The US have adopted Federal CIOs (Chief Information Officer), that is the executive officer in charge of information processing in an organization, on this case the US Government. They have the responsibility to look upon IT projects, to maximize socioeconomic returns to a budget of US$60 billions. The question asked by a recent Congressional technology subcommittee hearing was the reason for some projects success while others fail. All the 27 federal CIOs a the hearing assumed responsibility for five out of 13 management categories reports, but two categories were not taken responsibility: information disclosure and statistical policy (Greenmeier, 2005).

In Europe the European Parliament and The Council of The European Union have followed as policy to establish and advance the e-Europe initiative, the accomplishment of timing acts enacted by those unities in order to attain timely requirement of IT conformity and related evolving technology. Council Resolution and Council Recommendation apply to IT infrastructure from public R-LAN to network and information security culture. Mobility is the new breed and it is been rapidly evolving. The Official Journal of the European Union comprises all the approved rules for Europe and it is a recommended parameter to Brazil and others developing countries to pinpoint selected IT issues.

What approach is better or more applicable to developing nations is something to foresee. In fact a recipient country, eager to accomplish the best possible solution for her, have the advantage of the above two tested approach, which can turn into a better resulting possibility to attain the m-gov services infrastructure, change paradigm, boost productivity, attain standards of efficiency and assert a global development pattern.

5. Conclusion

The possibilities to engage a developing nation on the rapidly evolution of mobile technology have to be attained. Large countries such as Brazil and others, must cope with mobile initiatives as a possibility to spread connectivity over urban and rural areas. It is a matter of sovereignty but it works in quality of life to serve the rich and poor with public services wherever the population is and the presence of the governmentment is required. The change expects a turn of mind within those occupying position that can initiate the move, a needed change of a paradigm. IT is the catalyst of development through the use of modernity. Under such circumstances the procedures must be understood and put in effect.

Changing old practice is the step to have information spreading and impregnate the bureaucracy towards modernization. The lessons with m-gov initiatives worldwide have to be considered but having the respect of each country specifics for the successful accomplishment. Latecomers miss opportunities to social welfare, job creation and socio-economic growth.

The way to balance inconsistencies, bad management and wrong behaviour and change them all to consistency, good practices and appropriate behaviour lays on people's hands, those current in charge and conniving with the wrongdoings. In turn that makes management responsibility present on all steps. Developing countries must learn developed nations experiments on the field, such as the policies of the European Community and the US Governmentment. With that assertive it will result in lesser effort, faster track to m-gov infrastructure and services, what can result in better overall achievement resulting in larger market for the technology industry, employment creation and equalizing the stages of modernization on a worldwide standard of m-infrastructure.

Follows some examples of documents containing selected rules and best practices introduced by the European Union and published on the Official Journal for the European Union, available at http://europa.eu.int/ with free access for searching, reading and printing, which can advise nations worldwide in establishing secure measures on IT initiatives:

- Council Resolution of 18 February 2003 on a European approach towards a culture of network and information security. Published February 28, 2003.
- Council Resolution of 18 February 2003 on the implementation of eEurope 2005 Action Plan. Published February 28, 2003.
- Commission Resolution of 20 March 2003 on the harmonisation of the provision of public R-LAN access to public electronic communications networks and services in the community. Published March 25, 2003.
- Decision No 2256/2003/EC of The European Parliament and of the Council of 17 November 2003 adopting a multiannual programme (2003-2005) for the monitoring of the eEurope 2005 action plan dissemination of good practices and the improvement of network and information security (MODINIS). Published December 23, 2003.
- Regulation (EC) No 460/2004 of The European Parliament and of the Council of 10 March 2004 establishing the European Network and Information Security Agency. Published March 13, 2004.

Countries legislators have to assure that their countries efforts can surpass immobility of status quo defendants break the "Wall" lethargy and pursue new issues of technology services integration through current network advancements such as m-gov. In order to assure citizenship on those nations every single politician and public servant have to engage in responsible matters, and demonstrate the results to taxpayers in terms of efficient use of the money governments collect. To do it the possible solution is to assert legislation that contain late gains like the European approach to network and information, issue by The European Parliament and Council (Official Journal for the European Union, 2003-2004) or the Clinger Cohen Act and its development, as is for the United States. Such contribution can represent a turning point to solve the proposed paradigm.

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