ORGANISATIONAL PERMEABILITY WITH INFORMATION AND
COMMUNICATION TECHNOLOGY: OPPORTUNITIES AND
CHALLENGES

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Introduction

Today, we have a unique tool at our disposal to enable involvement of all, on a scale
undreamed of even several years ago. The Information and Communications revolution will
transform development, as we know. This revolution promises a historic opportunity to
redraw the global economy through broad and equal access to knowledge and information,
through enhanced empowerment and inclusion of local communities; and through economic
growth, jobs and improved access to basic services. And so over the last five years, we have
been focusing on how we can harness the power of Information and Communication
Technology (ICT) and of knowledge to accelerate development. The Information and
Communications revolution offers us an unprecedented opportunity to make empowerment
and participation a reality. ICT gives us the tool for true participation, this is levelling the
playing field. This is real equity.

These are the words spoken by James D. Wolfensohn, President, The World Bank,
while addressing the Board of Governors, 2000. The above speech emphasise the importance
of ICT in process of providing true participation and providing for real equity which in turn
leads to over all socio-economic development.

The application of ICT will change how citizens and Government relate to each other,
and bring forth how the concepts of citizenship, both in terms of needs and responsibilities. It
will not just redefine the government processes (what they do and how they do it) but
altering the very essence of democracy (why they do it). Organisational permeability with
ICT begins with a new view of society, and with a different kinds of citizens involvement.

First generation of Information age was characterised by relatively straightforward
automated data processing. Second generation has moved to automated decision-making
more technology-based telecommunications and the so-called information super highway.
(Telephone, PC, TV and new hybrids of these devices). The third generation of IT is mobile-
telecom age with satellite and wireless towers as the new technology. Decision-support
system, expert system and electronic mail putting every member of an organisation in direct
communication with everyone else, even around the world through the Internet have become
commonplace. Such information explosion has tremendous implications in the field of
administration.

In this paper the focus is on electronic permeability of the public service organisations
made possible with the application of ICT. The concept of organisation permeability is being
seen from the two angles:

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1. In enhancing the internal working processes and forms of administration; and  
2. Raising quality of life of the people of the rural and urban areas more particularly the 
   weaker and neglected sections.

In a nutshell organisational permeability is to make the boundaries of administration 
porous enabling the technological changes within the administration and improving citizen 
and administration interface. While relating ICT to contemporary as well as future needs in 
realistic manner it is also proposed to addressed both opportunities as well as challenges in 
respect to above mentioned two points.

Organisational Permeability with ICT

The organisational permeability with ICT can be broadly categorised as under:

- **IT for Support Processes:** IT can also be used for automating the internal 
  'back office' processes, like payroll and planning processes, involved in the 
  internal working of the organisation.

- **IT for Critical Processes:** Critical processes are the ones that produce goods 
  or services for the public, like registration and licensing process. The true 
  manifestation or E-governance is to re-engineer and automate these 
  information delivery critical processes where the government shares products 
  (like passport/Licensing forms) or information (status of an application) with 
  its own people.

We will deal with the organisational permeability with respect to these two processes.

**ICT for Support Processes**

ICT renders facilities to improve the internal organisational structure and processes of 
public administration. In this connection the use of Database, GIS, MIS, Expert System, 
Decision Support System enable the administrators to take quick reliable and effective 
decision at own level. Decision Support System for public administrators focuses on 
improving planning and monitoring development programmes.

Use of GIS enables administrators to plan the location of various facilities. Similarly 
provision of personal computers at various levels intends to improve the monitoring of the 
various development programmes. ICT enables public administrators to effectively perform 
supervision and monitoring.

ICT will further ensure involvement of people from professional bodies in 
government decision-making process. It also enables to Shift to performance orientation, 
rather than a procedure-oriented bureaucratic set-up. And provide full participation of 
personnel working at all levels of management. ICT for support processes will trigger 
Administrative Reforms to improve the quality of the citizens - government interface. By 
automating the existing manual processing it will improve the efficiency, standard, quality, 
accessibility and productivity of the government at reduced cost. Equally, the voice, data and 
video transmission and dissemination, connectivity, video conferencing, file transfer facility, 
e-mail, online applications processes will enable better communication and information
sharing, allowing people to work together more effectively resulting in cohesive administration.

The investment in ICT will enable shift of course of public service organisation as follows (Kapur 2000):

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
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<tbody>
<tr>
<td>Unwieldy paper files with torn covers,</td>
<td>Computer based files</td>
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<tr>
<td>frayed corner and with pins sticking out</td>
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<tr>
<td>Hierarchical authority</td>
<td>Networked power</td>
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<tr>
<td>Wielding power through hiding information</td>
<td>Empowerment through sharing information</td>
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<td>Expenditure orientation</td>
<td>Performance orientation</td>
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<tr>
<td>Individualistic</td>
<td>Organisational</td>
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<td>Compliance/Inspection orientation</td>
<td>Achievement orientation</td>
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<tr>
<td>Batch processing</td>
<td>On-line processing</td>
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<tr>
<td>Delayed access</td>
<td>Instant access</td>
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<tr>
<td>Delayed response</td>
<td>Prompt response</td>
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<td>More time for routine repetitive work</td>
<td>More time for creative work</td>
</tr>
<tr>
<td>Fear of unknown</td>
<td>IT savvy</td>
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<tr>
<td>Status quo</td>
<td>Continuous improvement</td>
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**ICT for Critical Processes**

The critical process focus on automating the process of delivering services to citizens, and, in the process, bring in transparency. Examples of such systems are the use of ICT for collecting a variety of payments that citizens need to make to government agencies. The use of ICT can shorten queues and waiting time at collection counters, improve accuracy in billing and accounts receivable and provide immediate proof of payments to citizens. The case study of collecting stamp duty for registration of property deeds, included in this paper, exemplifies the kind of benefits that can accrue to citizens as well as the department delivering the service. Computerization of land records which has been undertaken in many districts is another example, Similarly, issuance of important documents to citizens can also be done through computerized systems.

Critical processes aims at empowering citizens through access to information and knowledge. Access to information about markets is crucial for rural producers of all varieties of goods and services because these must be exported to other regions. Often middlemen, who bring consumers and producers together, are able to seek disproportionate rent because they have access to ruling prices in different markets. Use of ICT can provide up-to date information on markets to producers, thus increasing their bargaining power. The citizens become aware of free and priced services that institutions are expected to offer them. They also become aware of the expenditure that different agencies are expected to incur in their village and therefore, enable social audit. ICT can be used to deliver such information through kiosks located in rural areas, some experiments of which are described in this paper.
ICT for critical process ensures interacting with services, making payments, act as a Voter ID, obtain ration card, driving license and vehicle registration etc. It also enables to register for jobs, career and higher education based on the qualifications, capabilities and interests. Percolate IT education and literacy ensures a better quality to life to the citizens.

**Important Case Studies of ICT Interventions in Organisational Permeability**

We will be discussing some of the importance case studies highlighting organisational permeability vis-à-vis administrative reforms and citizen and government interface.

**ICT for Rural Development**

Rural development was concerned in alleviating poverty in rural side, improvement in micro planing, effective supply credit to the poorest of the poor, improved management of government run poverty alleviation programme and the work of the some NGOs in building network of self-help amongst the rural poor. Most countries have succeeded in alleviating poverty in smaller pockets but however, it is widely acknowledged that there is a great deal of waste in the way these resources have been utilized in the past. ICT is often identify as a key to improve the resources allocation process and to more efficiently implement programmes. ICT are indeed generating new possibilities to attack problems of rural poverty, inequality and environmental degradation. The ICT not only helped the decentralised planning and also helped large number of agencies, which are involved in rural development through sharing of information across departments, which led to coordination, and planning. Because of sheer physical distance of field functionaries and their supervisors there is a corruption and slackness. Through ICT it was made possible to decentralised power to Taluka level with effective monitoring from the Collector Office, which intern limit the fraud and corruption.

**The National Dairy Development Board (NDDB)**

The NDDB is a experience of ICT application at milk collection at cooperative diaries. This experience has not only led to increase in milk production in the country but as also helped the farmers in getting better services and profit before this experience.

Quality control was a major problem confronting the cooperatives. The cooperatives had difficulties to ensure accuracy in measuring quantity and fat content of milk and in making fare payments to the farmers. The farmers were paid every 10 days. When the NDDB financed the project in early 1990s for the micro-processor based Automatic Milk Collection Station (AMCS) the farmers became the main beneficiaries of this project, the farmers got immediate payment for their milk delivered, accurate information about fat content, quality of milk, and prompt payment. This also helped in increasing the confidence of farmers in the cooperative setup, removal of malpractices, improvement in the process and delivery infrastructure.

**Computer-aided Registration of Deeds and Stamp Duties (CARD)**

The procedure for the registration of a document in Sub Registrar Office had a conventional 13 steps registration procedure which was complex, time consuming and beyond the comprehension of the citizens. The tedious procedure use to take two to three
weeks. After the Card Project was implemented in Andhra Pradesh, through electronic delivery of all the registration services took place. It reduce the time taken for the sail of stamp papers, document writing, and the registration of the document considerably by 10 minutes, 30 minutes and 1 hour respectively. Thus CARD project ensures speedy, transparent, easily accessible and reliable services not only to the citizens but also enhance better infrastructure and computerisation within and also empowered the employees by removing drudgery of copying documents in hand.

**Computerization of Mandal Revenue Office (MRO)**

The Mandal Revenue Office (MRO) use to experience delay in issuing necessary certificate to the people. Also multiplicity of certificates rendered MRO functioning difficult. Andhra Pradesh was the first state to introduce computers at all levels of state administration to improve citizen services, to design a state-wide computerization programme covering all levels of administrative spectrum from the smallest - mandal revenue office (lower most institutionalised tier of State Administration) to the highest - A.P. Secretariat Campus. The main purpose of this computerisation is issue of integrated certificate inclusive of entire profile of the individual stating his caste, place, birth and land holding. This has reduced the earlier delay of 20 to 30 days to 10 minutes.

**Application of ICT for Rural Postal Services**

The use of ICT in Postal Services aims at improving productivity, improving services to the customers, ensuing proper accounting of transactions, generating necessary MIS reports, and fruitfully utilising the time of the postmaster. The three important people at the village i.e., the teacher, health care worker and village post master play an important role in socio-economic development of the rural masses but their work time is burdened with overwhelming paper work responsibilities, which effect their ability to interact with the citizens they serve. The CMC has designed and built a compact portable and user friendly embedded system called CUPS (Computerized Universal Postal System) which meets all the requirements, works either alone or in a network and can also work on solar power in rural areas. A weighing machine has been integrated with the system to improve compactness and utility. The system can handle different functions of a post office from a single counter and the operating staff is also benefited by generation of an automatic summary report at the end of the shift that makes winding up of a shift much simpler. The saved time of the Post Master especially would effectively then be utilised for educating the villagers. From administrative point of view one can have improved customer satisfaction, optimal utilisation of resources, record keeping and reduction of malpractices.

**A Wired Village: The Warana Experiment**

Ushering in the ICT revolution to villages where more than 70 per cent of the Indian population lives is a dream that has come true at Warana in the Kolhapur district of Maharashtra. This led to the 'wired village' project initiated by the Prime Minister's Office (PMO) in Warana.

The key objective of the project is to demonstrate the state-of-the-art information technology to the socio-economic development of a cluster of 70 contiguous villages around Warana Nagar in the Kolhapur and Sangli district of Maharashtra.
The project increased the efficiency and productivity of the existing cooperative enterprise by setting up a state-of-the-art computer communications network and also provided agricultural, medical and educational information to villagers at facilitation booths in their villages. It further provided communication facilities at the booths to link villages to the Warana Cooperative complex. It also provide distance education to both primary and higher educational institutes. And it also led to establish of Geographic Information System (GIS) of the surrounding 70 villages leading to greater transparency in administration especially in matters related to land.

Challenges

ICT enables organisational permeability and also exposes it to number of challenges.

Built in Resistance

The major challenge organisational permeability is built in resistance from the bureaucracy and official systems. They fear new technology on the following grounds:

1. With the introduction of ICT, the bureaucratic set up and other allied systems will become more transparent
2. The hierarchical organisational structure will be replaced by a more flattened one.
3. The implementation of new technology will render some important human resource element unemployed.

Communicating the Change Vision

The success of any ICT initiative requires how effectively you communicate with the affected people. This is one of the major problem confronted by the administrators and the citizens. So it is the duty of the government to make it clear to every one as to how the new technology is to be assimilated with the existence system so that all aspects of technology should be dealt in great detail leaving no doubt and fears. In this connection we can cite the example of the Files Monitoring Project in the state secretariat in Andhra Pradesh which ended up in failure. A Files Monitoring System was proposed in 1996 to track delays in movement of files in the Secretariat. Th system as originally designed involved filling up of a number of formats, which were then keyed into computers for tracking files movement. This approach not only meant additional work for the employees but also made them feel vulnerable and threatened, on account of close monitoring of disposal of files. The Project met with stiff resistance from the employees and could not succeed. This experience has prompted the government by opening the channel of communication with the employees at the each stage of planning and implementation of CARD Project. These contrasting experience highlight importance of proper communications with all stakeholders for successfully implementing IT Projects.

Involve Stakeholders

The key stakeholders should in involved in the process of conceptualizing the programme and defining the scope of different applications. An important lesson that can be learned from the Andhra Pradesh experience in using ICT is the importance of involving stakeholders in all aspects of planning, designing, implementing and maintaining computer based systems. Lack of such involvement can seriously thward and derail ICT initiatives.
Accessibility of Multiple Service Centres

There are a number of areas where citizens must interface with government departments to make payments and receive services. Careful analysis must be done to identify the number of citizens that would be benefitted by developing ICT applications, because they are expensive and the services need to be located as close to the customer as possible. It is therefore important to select centres that handle multiple services so that benefits accrue to a larger sections of the society.

Sustained Training

Since the purpose of field-level computerization is to improve management, it requires sustained training efforts and technical inputs. Training needs to be oriented towards use of information by workers, supervisors and managers for strengthening, planning and monitoring activities.

Initial Implementation on Pilot Basis

ICT application should be implemented after pilot studies had clearly indicated benefits to all the stakeholders. Application that touch the lives of large number of citizens are more likely to be able to find benefits outweighing costs.

Multiplicity of Languages

We can help strengthen people-to-people learning only when we ensure communication in local language and media. This is a major challenge as India is a country of languages and it is the duty of the government to see that the citizens would interact with the system in their natural language.

Suggestions

- ICT must play a role at all levels of management, which is both, pervasive and persistent. The benefits derived from ICT should not be confined to a particular group or a management.
- Schools need to shift from mere teaching technology to teaching application of technology.
- Emphases should be on ICT training rather ICT education.
- One has to look at specific application areas of ICT that can make a real impact on the Indian scene during the next two decades.
- Having recognised the potential areas, the contents and subject matter to be made available through these technologies must be consistent with the need of different categories of users, their information-seeking behaviour, capability of assimilation of information and application to their different tasks.
- The Offices/Officers should linked by network and the citizens/consumers may get a single window clearance. In the world dominated by ICT survival demands that one's skills are ICT friendly and the products one makes are designed or manufactured with ICT friendly process.
- It is well known that the product is the combined effort of processes and people who apply these processes.
• Instead of keeping pace with or getting swayed by the latest in hardware and software, the concerned authorities should rather concentrate on the optimum utilisation of the given resources.
• One department at national level should be responsible for the development and import of required hardware and application software to be used by other departments in the country that will save time energy and resources.

Conclusion

Pacific Council on International Policy in April 2002 rightly observed that the Governments around the world are embracing electronic government. In every region of the globe - from developing countries to industrialised ones - national and local governments are putting critical information on line, automating once cumbersome processes and interacting electronically with their citizens. This enthusiasm comes in part from a belief that technology can transform government's often-negative image.

The spread of ICT brings hope that government can transform. And, indeed, forward-looking officials everywhere are using technology to improve their governments.

Defined broadly, e-government is the use of ICT to promote more efficient and effective government, facilitate more accessible government services, allow greater public access to information, and make government more accountable to citizens. E-government might involve delivering services via the Internet, telephone community centres (self-service or facilitated by others), wireless devices or other communications systems.

However, these risks can be significant. If not well conceived and implemented, e-government initiatives can waste resources, fail in their promise to deliver useful services and thus increase public frustration with government. Particularly in the developing world, where resources are scarce, e-government must target areas with high chances for success and produce "winners". Moreover, e-government in the developing world must accommodate certain unique conditions, needs and obstacles. These may include a continuing oral tradition, lack of infrastructure, corruption, weak educational systems and unequal access to technology. Too often, the lack of resources and technology is compound by a lack of access to expertise and information.

In this connection the working group of Pacific Council on International Policy had a conference on August 6-7 at Red Wood City, California under the project the 'Road Map' for e-government in the developing world and presented ten questions that these e-government practitioner from around the world believe are crucial to successfully conceiving planning, managing and measuring e-government. The working group suggested that the government officials ask themselves these ten questions before they embark on the e-government path. The ten questions are as follows:

1. Why are we pursuing e-government?
2. Do we have a clear vision and priorities for e-government?
3. What kind of e-government are we ready for?
4. Is there enough political will to lead the e-government effort?
5. Are we selecting e-government projects in the best way?
6. How should we plan and manage e-government projects?
7. How will we overcome resistance from within the government?
8. How will be measure and communicate progress? How will we know if we are failing?
9. What should our relationship be with the private sector?
10. How can e-government improve citizen participation in public affairs?

The Working Group's Roadmap details many of the obstacles local or national governments may encounter along the e-government path. Because e-government is a costly and lengthy process, officials should be aware of these pitfalls before embarking on this journey.

E-government is a process that requires a sustained commitment of political will, resources and engagement among the government, private and public sectors. However, if e-government practitioners ask and answer the ten questions outlined in the Roadmap, they potentially can develop a system of e-government that not only makes current government practices more efficient, but also transforms the very relationship between the public, the private sector and government.

By promoting the larger goals of society and making government more responsive to its citizens-creating a citizen-centered, "user-friendly" government - e-government can be a powerful tool in improving a nation's quality of life.

The power and promise of e-government are open to all, in both the developing and industrialised world.
References

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