Digital Workflow using MESSAGE in Government of Kerala

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1. Goals and Objectives

The objective of this project is to use digital workflow as the norm of operation within Government and thereby, realizing the benefits of efficiency, productivity, speedier transactions and service delivery at lower costs. The project also demonstrates that the paperless operations can be effectively used in the public sector to reduce paper use and provide better services to its clients and citizens. A digital document management system allows the citizens to know the status of their files through web and mobile interface. The integrated digital file flow management system makes the governance transparent, faster and more efficient.

The biggest beneficiaries of the project are implementing organizations themselves as the implementation has led to higher efficiency and increased productivity. The employees benefit as the drudgery of maintaining paper files and their movement is reduced, retrieving of files and information becomes easier and anywhere anytime access is enabled. The employees also benefit as paperless office leads to better working ambience. The public all over Kerala are the beneficiaries of the project as the new system paves way for faster and efficient file movement and speedy redressal of grievances. Besides, they can access details of their petitions through Internet improving service delivery.

The application being used for digital workflow in the Government of Kerala is MESSAGE. Developed in an open-source by the National Informatics Center (NIC), the MESSAGE system provides an efficient monitoring and control of files and effective internal and external information exchange. It helps in the development of an effective knowledge base, content and document management

system which in turn will provide a quick access to information. It also enables use of local language—Malayalam—in the workflow. With the advent of the system, the records are maintained in a better way as electronic files and it helps to create a less paper office with a better and neat working ambience.

At present the system is operational at Kerala State IT Mission, Akshaya Directorate and all district offices of Akshaya, Kerala State Urban Development Programme and Kerala State IT Infrastructure Ltd. Recently, the Government has introduced the system in six Departments of the Secretariat, namely: Higher Education, Public Works, Finance, Food & Civil Supplies, Information Technology and the Department of non-Resident Keralites Affairs. All petitions received from MLAs, MPs, common people will be handled on through the digital workflow system in the Secretariat. The project envisages drawing all secretariat departments to this integrated file flow system.

2. Spread of Project Service Users

The biggest beneficiaries of the project are implementing organizations themselves as the implementation has led to higher efficiency and increased productivity. The employees benefit as the drudgery of maintaining paper files and their movement is reduced, retrieving of files and information becomes easier and anywhere anytime access is enabled. The employees also benefit as paperless office leads to better working ambience. The public all over Kerala are the beneficiaries of the project as the new system paves way for faster and efficient file movement and speedy redressal of grievances. Besides, they can access details of their petitions through Internet improving service delivery.

3. Services Provided

The digital file flow through MESSAGE automatically establishes a network-based system to monitor the flow of electronic files. The files/tapals are captured at source and the movements are tracked across the office. Thus, the use of MESSAGE provides for an efficient and transparent administration, efficient monitoring and control, effective internal and external information exchange, building knowledge bases, content and document management systems and robust decisions support systems; it also paves way for a structured workflow environment and helps in an effective policy-making and improves service delivery systems.

The paperless working through digital workflow is primarily a G2E project with spillover benefits to citizens.

- G2E benefits in terms of ease of working, better ambience, anytime, anywhere access of files, easy search and retrieval are some of the direct benefits which accrue to employees.

- From the organization perspective, improved productivity and efficiency, reduced costs are direct benefits. The ability to handle growth in activities is a consequence of the increased productivity of employees. Being paperless, saves the respective organization lakhs of rupees per annum in terms of paper costs, printing costs, filing costs and postage. Moreover, there is saving in terms of maintenance costs, reduction in space requirement for safe-keeping of paper records and files, which is in addition to the direct savings. Since employees use electronic files, the digital file flow has reduced the time taken in file movement. File tracking, retrieval and access have become far easier, enabling each officer to handle larger number of files.

- The system also provides significant G2C services. In the manual system, to know the status of a file or a complaint, the citizen was forced to contact multiple sections/seats. After the introduction of the digital workflow the citizens need not approach multiple points. The feature available in digital workflow helps the citizen know the file status through Internet from anywhere at anytime. This ensures transparency in administration.

- The implementation of the system has resulted in more space all around. The working ambience of employees has improved, as heaps of papers and piles of file folders have gone and the desk primarily consists of a computer and a scanner. No new filing cabinets/almirahs had to be procured.

- Another important service provided by the system is document security. There is no threat to lose important documents due to theft, fire or other disasters as such. The server for the system was hosted in a State Data Center which is a tier III facility and provides very high standard of security and availability. The users were required to follow standard security practices at the client side.

- **Ability to handle growth of e-governance activities in the state:** There is explosion of e-governance activities in the State. Being the nodal Department for all e-governance activities of all Government Departments

and organizations, KSITM needed to grow very fast. Digital workflow has enabled employees to work more efficiently. Their productivity has increased manifold. For example, before the introduction of the system, KSITM with the same staff strength was handling about 15 projects. Presently, it is handling over 30 projects. The details of these projects are available at *www.keralaitmission.org*. While it may be inaccurate to attribute this change solely to the implementation of digital workflow and paperless operations, nevertheless, we feel that the increased efficiency has been largely due to the new system.

- Access from anywhere anytime enables employees to attend to files from home or when on travel. This further reduces time delays.

- The implementation of the system is slowly resulting in accepting less paper from external agencies. In KSITM, it is common to ask the sender to send soft copy of reports and store them electronically. This has spillover effect beyond the organizational boundaries as well. Similarly, the use of system is also resulting in less paper out. There is increased dependence of sending communication electronically wherever the recipient organization is accepting such communications. Notice for holding meetings, agenda notes for meetings, drafts for comments etc., are some of the documents which form a huge proportion of paper communication in the past. These are increasingly becoming electronic.

- In the long-run, paperless working is also environment-friendly. Increasing migration to paperless working also has positive impact on the prevention of deforestation and the reduction of carbon emissions as there is no need to use energy for paper production.

- There are intangible benefits like improvement of self-esteem and pride among employees of working in a paperless office and serving as a role model for others.

- The implementation had spillover effect to implementation of other productivity tools in the organization. The SPARK was introduced for personnel management and the accounts were also increasingly computerized.

4. Geographical Spread of Project Implementation

The digital workflow has already been adopted in the following organizations:

Kerala State IT Mission (KSITM) in its headquarters in Thiruvananthapuram and and its office in Kochi, Akshaya Directorate and all district offices of Akshaya, Kerala State Urban Development Programme and Kerala State IT Infrastructure Ltd. Recently, Government has introduced the system in six Departments of the Secretariat, namely: Higher Education, PWD, Finance, Food & Civil Supplies, Information Technology and NORKA.

In addition, several other Government Departments/organizations are in various stages of studying the feasibility of converting their operations into paperless operations.

5. Project Timelines and Milestones

In the conceptual phase, when the Government decided to go for a more efficient, integrated file flow system, it approached NIC for developing a software. After developing the software, the project was first implemented in Kerala State IT Mission with effect from January 1, 2008. After trial run, it was formally inaugurated by Shri V. S. Achuthanandan, Hon'ble Chief Minister of Kerala on February 15, 2008. The top leadership in KSITM drove its implementation. Necessary back-up policy was put in place so that, records created were available for future reference. All paper-files were closed on their extant positions, and continued as electronic files.

The Hon'ble Chief Minister himself took the initiative to get the implementation of the system in the Secretariat. Later in March, KSUDP also decided to implement the system in their department. At present, the system is operational at KSITM, Akshaya Directorate and all district offices of Akshaya, Kerala State Urban Development Programme and Kerala State IT Infrastructure Ltd. The project envisages drawing all Secretariat departments to this integrated file flow system within one year. Recently, the Government has introduced the system in six Departments of the Secretariat, namely: Higher Education, PWD, Finance, Food & Civil Supplies, Information Technology and NORKA. Apart from these, all petitions received from MLAs/MPs/common people will be handled on MESSAGE.

6. Direct Cost and Time Savings to Avail Services

Message and the concept of integrated file flow provided the facility for easy administration and speedy redressal of grievances. With the upgradation of the software, the public will be provided with various service access points—SMS (mobile telephone), touch screen kiosks, Internet, Akshaya etc. So, they need not go personally to the departments concerned to know the details on file status. Thus, they can save the cost and time, which will be otherwise spent on travelling. This easy access makes the governance more transparent and efficient.

7. Direct Time Savings to Deliver Services

- In the manual system, it was taking lot of time to move the files to the next section and for higher officials' approval. For want of a peon's service, a file may be waiting for hours/days together in a particular table without moving to the next table. It took at least one day for an employee to act on a file. But with the introduction of the integrated digital file flow management system, the time taken to act upon a file has got drastically reduced to minutes.

- In the new system, the employees will be saved from the duty of filing/binding/putting paper clips/putting paper flags etc. They need not go for repeat typing for draft and fair copies. There is no need to make multiple copies of meeting notices/circulars and to maintain a personal register. All the files can be sent to the record room with just one click. Searching back-files is made easy by the 'Search' facility of this system. The facilities provided by MESSAGE thus save money, time and human resource of the departments. The new system also enables the officials to work from anywhere at anytime, thus making the maximum utilization of available human resources. As the departments are using the already available network infrastructure and computer, there is no extra cost except for the scanners.

- The benefits in terms of time and cost can be best manifested with the example of KSITM. KSITM is a twenty-five employee's organization. Being paperless saves it about Rs.2.5 lakhs per annum in paper costs, printing costs, filing costs, postage. This is considerable considering that the total establishment charges for KSITM are about Rs.1 crore per annum. Moreover, there is saving in terms of maintenance costs, reduction in

space requirement for safe-keeping of paper records and files, which is in addition to direct savings. Other organizations which have switched over to digital workflow will have similar figures to report in future. Since employees use electronic files, the digital file flow has reduced the time taken in file movement. File tracking, retrieval and access have become far easier, enabling each officer to handle larger number of files. Before the introduction of the system, KSITM with the same staff strength was handling about 15 projects. Presently, it is handling over 30 projects. The details of these projects are available at *www.keralaitmission.org*.

8. Replication

The model, first implemented in KSITM was later replicated in many organizations as stated earlier. The MESSAGE can be replicated in all offices to make the file flow faster and smoother. This Government initiative may become a model for the other states to follow.

9. Implementation Model

This is a Government-owned project implemented by Kerala State IT Mission. The technical support is provided by NIC.

10. Technologies

The application used for the digital workflow system called MESSAGE, is open source based. It has been developed and supported by NIC. Being an open source it provides opportunities for continuous upgrades for the system without additional proprietary costs and issues of intellectual property. It therefore, provides clear opportunities for scalability. It has been developed on a three tier architecture.

- E-Services layer is the front-end layer of MESSAGE which interacts with citizens and offer services to the citizens.

- Middle layer is the Intranet Services layer, which offers lot of collaboration services and tools. E-Mail, Messaging, bulletin boards are few worth mentioning.

- Backend layer is the key functional area comprising all functional modules along with the database.

- The software is developed using Web and Portals technologies along with a proven RDBMS. Open software technology is utilized wherever appropriate. The applications, which are of public interest, will be given access through INTERNET and Touch Screens based kiosks using standard software and web interfaces. MESSAGE is developed in Linux-Appache-MySQL-PHP (LAMP). Details are given below:

    – Operating Server—RHEL 4.0

    – Web Server—Apache 2.0.52

    – RDBMS—MySQL 5.0.41 Standard

    – Application Server—PHP 5.1.1

11. Capacity Building

- The technical support and training to the master trainers were provided by NIC, who had developed the system. The master trainers were primarily in-house technical officers. After that, these master trainers trained and supported the employees within the KSITM. No external support was hired for the purpose in KSITM. KSITM also provided training and handholding support for replicating the system in other organizations. The local availability of the NIC team to support the application helps make it sustainable. The NIC team is available for customization, handholding, trouble-shooting, and making such other Department specific/organization specific needs.

12. Process Reforms

- With the advent of the new file flow management system, all files have been digitalized and all the works were computerized. The implementation of the system is slowly resulting in using less paper by the employees as well as accepting less paper from external agencies. In KSITM, it is common to ask the sender to send soft copy of reports and store them electronically. This has spillover effect beyond the organizational boundaries as well. Similarly, the use of the system is also resulting in less paper out. There is increased dependence of sending communication electronically wherever the recipient organization is accepting such communications. Notice for holding meetings, agenda notes for meetings, drafts for comments etc., are some of the documents which form a huge

proportion of paper communication in the past. These are increasingly becoming electronic.

13. Project Financials/Sustainability

As the departments are using the already available network infrastructure and computer, this does not incur any extra cost on the department except for the scanners. Maintenance charges too are minimal. An initial capital of Rs. 30 lakh was spent to buy servers and other equipment.

14. Project Teams and Leadership

Kerala State IT Mission is the implementing agency, which promotes the digtital workflow system using MESSAGE and it gives training to the officials of the departments concerned. NIC had developed the software for the project. There are two types of users in the computerized system: System Administrator and normal users. System Administrator will be responsible for the day-to-day administrative functions of the computerized system like creation of seats, employees, setting passwords etc. Authorized employees/officers working in the various sections covered in the network based centralized system will be the primary endusers. In addition, other department staff and public also can be linked to this system with proper authentication for transactions and information.

15. Key Project Outcomes

Outcomes need to be listed in terms of (a) Sustainability (b) Usage (c) Usefulness (d) Satisfaction (e) Empowerment

The project is sustainable as it is faster and more efficient than the earlier system. The user can confidently abandon the earlier system to accept the new one, which ensures better monitoring and control by higher officials and reduced workload for the employees. The paperless office improves efficiency by developing a scientific digital document management system which makes it easier to obtain, access, share and store files in a networked infrastructure. This leads to employee as well as customer satisfaction. This is a very user-friendly system which demands only normal word processing skills from the user.

Since the application is in open source form, there are provisions for continuous upgrades for the system without additional proprietary costs and issues of intellectual property. It therefore, provides clear opportunities for scalability.

The MESSAGE application is also adopted by Government as the standard for digital work flow system across Government Departments. Since consultation with the IT Department is mandatory for implementing any major e-governance initiative, it will be possible to roll-out its implementation across Departments. This would allow the system to be inter-operable between Departments and organizations, thereby bringing uniformity and standardization. The uniform usage of MESSAGE across different Government departments and organizations will further add to the sustainability of the application.

The third component of sustainability derives from the improved citizen services which the system is capable of delivering. As larger number of citizens gets informed about the status of their petitions/files through the electronic system, the drive to continue and roll out the system would increase even further.

Seeing the success of the project in KSITM, many departments have come forward seeking its implementation here. This demand from other organizations is itself a proof of its sustainability. The resources required for implementing the digital workflow is simple and easy. Continuous monitoring and evaluation can be done using this system which again a proof of success and sustainability.

16. Service Users' Feedback Mechanism

The users are provided with mailing facility to make the project more interactive.

17. Implementation Challenges

Migrating to paperless office from the usual paper-oriented system which has been in existence for over hundred years, is possibly the most difficult task in the Government, as it hits the basic edifice of Government functioning. In the Government, where there is a huge reliance on paper documentation, authentication is done by signature by each person. To transform from the said system to a paperless system is a matter of intense trauma and shock. In addition, there are issues of training on the use of application, learning new processes and unlearning the old ones.

18. Key Lessons Learnt

1. Commitment from the part of employees is necessary for the successful implementation of the system. Commit to going to a paperless office, and convince staff to go along with it by explaining the advantages for each of them individually, and as a group, and involving them in the process.

2. Proper training should be provided to the employees to make them confident in using the system. The main hindrance faced during the implementation was the resistance from the employees to change into a new system. To bring about the change, there is a need for commitment from the leadership at the top.

3. It is necessary to develop a transition plan and a timetable.

4. Start small with just a single department or area of our business so you can address any problem before broadening your scope.

5. Provide a team for hand-holding support for initial period.

6. Develop a plan for ongoing organization-wide use. Include a document storage plan for employees with specific guidelines.

7. Gradually take your paperless transition through the company.

8. Commitment and acceptability from the part of the end users has to be ensured.

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