



Contextualizing The Role Of Information And Communication Technology (ICT) With Special Reference To Its Implementation In The State Of Mizoram, India

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Abstract: E-Governance has revolutionized the ambit of governance by making it efficient, easy and transparent through the services offered under ICT. These ICT policies are understood through the implementation of the programs envisaged therein, in the state of Mizoram. The more popular programs and flagships started by Government of Mizoram including SDC, CDC, E-Districts, E-Plan etc have been documented contextually and their roles in bettering governance is studied. It is found that these e-initiatives have opened up governance frameworks through inclusive, responsive and effective initiation of policies and programs and accelerated pace of work by the various departments. Considering that the shortfalls in the implementation can be addressed by better connectivity of rural populace through sound internet connection and other paraphernalia, it is now up to the administrators and leaders to quantify the roles and responsibilities that ICT can address in achieving the overall development of the state.

Index Terms - Citizens, Electronic, e-governance, Government, ICT, Mizoram.

I. INTRODUCTION

Government's use of Information and Communication Technology (ICT) to provide and exchange information and service for and to its citizens, employees, business and to other agencies as well as back-office interactions and processes within the framework of governance is known as electronic governance, or e-governance. Efficient, ease and transparent service accessibility through security, interactivity, system and information quality, reliability and responsiveness, service capability are the dimensions that dictate the service quality of any e-governance mechanisms (Li and Shang, 2020). The use of ICT has transformed the role of e-governance and IT technologies and also corresponded with associated sustainability impacts (for detailed review, see Charffedine and Umlai, 2023).

To put it simply, e-governance encapsulates the use of advanced forms of ICT in delivering services, maintenance of organisational relations and customer services including the bigger contexts of public policy setting (Ghere and Young, 1988). This is explained by the understanding that expansion of citizens access to public information, increased public accountability and transparency, strengthening of democracy and civil societies with an associated weakened authoritarianism and reduction of costs and delays in delivering services are all but a facet of what e-governance can actually bring in (Pardo, 2000; Norris, 2001).

The Indian Parliament in 2000 passed an important cyber law, the Information Technology Act, 2000, which established the legal framework for e-commerce in India (Gupta, 2007). The Act make electronic document filing with government agencies easier and to give legal legitimacy to transactions conducted through electronic data interchange and other electronic communication channels.

In the state of Mizoram, India, the Department of Industry, Government of Mizoram served as the Nodal Department until October 2004, when a Deputy Secretary was appointed to the Department of ICT by the Government of Mizoram (DICT, 2016). At that time, the Department of Industry was only in its infancy. A distinct Directorate of ICT was established on July 10, 2008, and since then, it has been actively working to make Mizoram one of the nation's most IT-literate states and to provide citizen-centric services enabled by ICT for the welfare and advancement of society (Sharan, 2015). Since its founding, the department has worked on several projects to fulfil the government of Mizoram's vision and aim, which is to employ ICT tools to advance the state's economy and sustainable development. In order to support economic development, the Department's mission is to employ information and communication technology to provide local citizens with minimal formalities and access to government services and information about essential needs throughout their lives (DICT, 2016). ICT also supports other departments in digital literacy, e-governance, e-commerce, e-medicine, e-infrastructure, and e-education in information technology. The state of Mizoram's E-Governance Roadmap, Capacity Building Road Map, and E-Readiness Documents were significantly influenced by ICT. These included setting up a state-of-the-art IT resource centre to generate highly skilled labour in the ICT field, offering women and young people from rural areas affordable IT education and helping them find IT jobs both inside and outside the state.

II. INITIATIVES THROUGH ICT IN MIZORAM

A. STATE DATA CENTRE (SDC) PROJECT

The State Data Centre (SDC) combine citizen services, e-Government applications, and auxiliary infrastructure to enable effective electronic delivery of various services. These services are provided via a shared delivery platform that is backed by additional key infrastructure components, such as CSC and SWAN, with block-level connectivity. IT infrastructure aggregation is done at this centre to ensure and accelerate application deployments, manage resources, better operations and standardisation of management and systems control. They also provide dynamic scalability as demand grows, including uptime of 99% and security-related requirements. As a result, for the purpose of hosting e-Government applications, several line departments are receiving a smooth, highly resilient, shared, secured data centre infrastructure with a suitable and expandable capacity. Better operations and management control, as well as a reduction in the overall cost of data management, IT administration, deployment, and other expenses, are now offered by SDC. Both ISO 20000-1:2011 and ISO 27001:2013 have been certified for the State Data Centre (SDC).

B. COMMON SERVICE CENTRE (CSC) PROJECT

136 CSCs have been set up in Mizoram to serve as a delivery point for services between the government and the populace. They serve as integrated front-end service delivery locations.

C. E-DISTRICT PROJECT

Of the two North-Eastern states, Mizoram is one of the 14 states that the Indian government has sponsored to conduct the e-District pilot project as a State Mission Mode Project (MMP) under NeGP. In order to computerize every aspect of district administration and citizen services that will be accessible through CSCs, MSeGs, under the ICT Department, has taken up the E-District Pilot Project in Aizawl under state MMPs. In 2016, Mizoram's e-District project was successfully implemented, earning the state's Skoch Platinum Award. The State of Mizoram has gone live with e-District 2.0.

D. NETWORK INFRASTRUCTURE

Under the New Economic Development Plan, the Mizoram government is in the process of developing vertical wireless network connectivity to all district headquarters and Gigabit Passive Optical Network (GPON) technology for network connections in the state capital. This project will serve as the state's backbone network for phone, data, and video communications and serve as a means of successfully implementing electronic governance state-wide. The Mizoram State e-Governance Society and the ICT

Department have implemented both horizontal and vertical connectivity, utilizing GPON to link all of Mizoram's district headquarters and government offices. The Mizoram State Wide Area Network (MSWAN) was established by the government of Mizoram as part of the National e-Governance Plan. Its objective is to offer dependable Internet access to all state capital government offices, including PSUs, Societies, Institutions, and district administration offices.

E. DIGITAL LAND RESOURCE INFORMATION SYSTEM (DLRIS) PROJECT

With funding from the Department of IT, Government of India, the MSeGS, working with C-DAC, Kolkata, was also implementing GIS-based DLRIS under the auspices of the ICT Department. The project's goal is to produce and develop comprehensive resource information that can be integrated with geographic maps derived from satellite imagery. This information will include details about transportation networks, power distribution lines, school curriculum, drainage and water distribution pipelines, agriculture, village information, town planning, etc.

F. PROPERTY RETURN ONLINE SYSTEM

The Property Return Online System (PROS) is an initiative that the Government of Mizoram's Vigilance Department started. This system was created to help automate a procedure that would otherwise need to be done manually in order to maximize efficiency in recording the property of all gazette officers. The Mizoram State e-Governance Society, a society under the ICT Department of the Government of Mizoram, designed, developed, and successfully implemented the project. It maximizes work efficiency and production and meets departmental needs while maintaining ease of use and comprehension. By resolving the issues of inefficiency, poor efficacy, less transparency, and less accountability existing in the Department, it improves the overall approval/rejection procedure of the Vigilance Department and makes it easier for Gazette officers to file their Property Returns online.

G. E-PLAN

The Department of ICT launched the e-Plan initiative, which is being carried out by the Mizoram State e-Governance Society for Planning and Program Implementation Department of the Mizoram government. The goal of the project is to make it easier for departments to submit Quarterly Progress Reports (QPRs) and to computerize the back end so that reports can be approved or rejected. It facilitates the department's internal workflow and process automation. Additionally, it offers smooth departmental connection with the Planning department by utilizing a single database for all QPR submissions. Additionally, e-plan gives other government departments simple access to the Department's services. E-plan's ability to generate reports both automatically and manually is a key feature. The host for this application is Mizoram SDC. The system was effectively established in 2014–2015 but however it is currently waiting to be implemented because the Central Government dissolved the Planning Commission.

H. ONLINE WATER BILLING SYSTEM FOR PHED

An online water billing system that enables citizens to pay their water bills online has been developed as a result of a cooperative endeavour by MSeGS and PHE Department Mizoram. Residents can pay their water bills at any time via the PHE website using a credit card, debit card, or net banking. They will receive an email or SMS as confirmation. This saves time spent waiting in line at billing counters and gives you more freedom when it comes to paying bills.

I. INVENTORY MANAGEMENT SYSTEM

The Mizoram State e-Governance Society (MSeGS) launched the Inventory Management System (IMS) project for the Mizoram government's Secretariat Administration Department (SAD). The goal of this project is to improve the inventory system and make it possible for the officer in charge of the department in question to approve specific invoice items using the relevant automated system. The primary goal of this project is to provide an integrated IT platform that will serve all government departments. By automating tasks that would otherwise need to be done manually, IT will be used to maximize efficiency in inventory management and requisition. In the 'Service delivery' area, this initiative has been awarded the

Skoch-Order-Of-Merit 2016. It is a step toward identifying the best governance structures and techniques for superb and effective program and service delivery execution.

J. AIZAWL DDMA APPLICATION

The DC Aizawl Office collaborated with the creators of the Aizawl District Disaster Management Application. This software helps the people of Aizawl during emergencies. For improved use, the app is connected to the Government of Mizoram's official Disaster Management website. Among the attributes are:

1. A prompt report on any calamity
2. Official notification of calamities and citizen directives
3. A way for residents to report information about disasters.
4. Crucial details about safety procedures, how to prevent certain mishaps, first aid knowledge, etc.

K. CONTENT MANAGEMENT SYSTEM (CMS)

All government department websites are hosted on an online platform called the Mizoram Government Content Management System (CMS). A content management system (CMS) is an online program that facilitates content organization, deletion, editing, and publication from a central interface. These content management systems offer guidelines for handling workflow in a cooperative setting for all websites run by government agencies. While human coding may still be necessary for certain pages or elements, content management systems (CMSs) generally try to prevent it for most websites. A content management system (CMS) can function as a digital asset management platform, housing phone numbers, emails, papers, and images. Documentation can be stored, managed, edited, revised, semantically enhanced, and published with CMSs. Content can be selected or assembled at runtime, catalogued and indexed, and sent to particular visitors in a requested format (e.g., multiple languages) using a Web content management system. Depending on the system depth and the specialty it serves, Mizoram Content Management Systems typically give clients access over files, documents, and Web hosting plans based on Hypertext Mark-up Language. One of the greatest honours in India's smart governance field, the Skoch Platinum Award 2016 was given to this project by the Skoch Summit.

L. ONLINE RTI

The Mizoram State e-Governance Society has adopted the RTI online application as an automated service delivery model. It will allow RTI submission online via desktop and mobile apps, as well as backend workflows at the ASPIO, SPIO, PIO, and CIC levels through the appropriate Business Process Reengineering. For services when the whole process flow is automated, an automated service delivery model is envisioned and created. This translates to automated front-end application submission, automated routing to the relevant department, automated workflow processing (both intra- and inter-departmental), and automated front-end final delivery of the application. The software has been finished, the payment gateway has been integrated, and as of July 1, 2022, RTI Online is operational.

M. MIZORAM SCHOLARSHIP PORTAL

With the help of the Mizoram Scholarship Board and the Mizoram State e-Governance Society, an integrated portal for an end-to-end paperless workflow for processing scholarship applications has been successfully implemented. Scholarships will now be credited directly to beneficiaries' bank accounts or Aadhaar-linked bank accounts, and the government of Mizoram's payment and accounting system will be linked with it through its connections to the Aadhaar Payment Bridge (APB) and interface with the CBS of 105 banks. Students can register once through the portal and upload the necessary files to have their scholarship applications processed at different phases. Once filed and approved by relevant authorities, documents are kept on file for the duration of the student's study. All stakeholders can receive full MIS and SMS/email alerts through the platform.

III. ISSUES AND CHALLENGES IN THE IMPLEMENTATION OF ICT

The majority of ICT-related projects and initiatives carried out by state government departments are funded by the central government; these initiatives and projects are carried out independently by the concerned departments via IT consultants and agencies, without coordination or collaboration with the state's ICT Department. This frequently results in problems with the technical support provided after installation by agencies and hired IT consultants, the majority of whom operate outside of the state. IT is a technical field; after installation, technical issues might arise in the user platform as well as the back end. In these cases, the department may encounter difficulties that are beyond the scope of the outside consultants they have been hired to solve. These problems might also have an impact on how well the current ICT projects are coming together.

Since internet connectivity is crucial to e-governance, connectivity problems are among the most frequent concerns encountered when utilizing information technology services. The lack of dependable connectivity in Mizoram's villages has forced residents to go to various government offices in order to obtain various services, including birth certificates, income certificates, and certificates of domicile and caste. Due to these connectivity problems, residents must frequently visit district or state offices to obtain essential government services and paperwork. This increases the amount of time required to complete tasks as they become more manual, which raises long-term expenses that are paid for by the residents. These problems could be avoided if the state were to provide reliable connectivity. According to current information, the ICT Department is working with telecom service providers (TSPS) and internet service providers (ISP) to improve connectivity throughout the state (pers. communication). This effort is anticipated to close the digital divide and benefit the state as a whole.

IV. DISCUSSION AND CONCLUSION

Understanding the contexts and frameworks in which ICTs have been used in a remote state like Mizoram is crucial at this point. It also helps to understand how these initiatives have improved the way the state functions and the additional benefits and co-benefits that the state as a whole enjoys, as has been observed in many of the countries (for review, see Dubyna et al., 2022) It is not incorrect to say that the advancements made in this sector have significantly contributed to a larger growth in terms of connecting citizens and harnessing the vital IT boom (see Alhassan and Adam, 2021 for a review on ICT impact on overall quality of life).

There are many different development programs and sectors that have adopted a variety of activities and programs that work as change agents; education is one such area that should not be overlooked (Rana and Rana, 2020; Fernández-Gutiérrez et al., 2020; Kozlova and Pickhart, 2021; Machmud et al., 2021). On this front, Mizoram's adoption of ICT in education is praised for improving both the formal and non-formal education sectors both qualitatively and quantitatively (Zohmingliani and Lalhruaitluanga, 2016; Chuaungo et al., 2022). The two programs, Educational Technology (ET) and Computer Literacy & Studies in Schools (CLASS) Project, were combined into a single composite program, ICT in Schools Scheme, on September 3, 2004, in accordance with standards established by the Central Government. Among the numerous areas where the state's education system has made development are district empowerment through DIKSHA portal learnings and the introduction of virtual labs for practical learning. These tactics and approach methods have helped to develop fully functional, user-friendly ICT, which has fuelled the industry's expansion. These include, among other things, developing generic core applications that require less development but greater usage, adopting open source systems and upgrading skills, and implementing cross-departmental, cross-tier interoperable e-governance projects.

Since the use of ICT in the workplace and other contexts is changing, it is necessary to address five major thematic areas. These include innovation in business models, digital transformation, innovation ecology, technology innovation, and sustainable development (Zhu et al., 2023). The foundation of our

breakthroughs in preparing government setups to fulfil the ever-changing duties of government must be these particular areas of innovation and technological development through sustainable basis. The rise of ICT has made it possible for citizens to take part in more processes of development, including government. ICT is revolutionizing the way that citizens and the government interact by accelerating the flow of information and knowledge between them.

These new developments have made it possible for citizens to demand accountability for resource use and to take part in processes like the creation of municipal and national budgets. The government can better understand complicated issues thanks to e-governance platforms, which also present potential to reorganize current decision-making procedures. At all levels, inclusive, transparent, effective, and efficient governance is now achievable thanks to these developing trends in ICT, e-democracy, and e-governance (for review, see Monga, 2008).

It makes sense to use the ICT outlets and studies that are currently available to show how beneficial ICT is for fostering equitable and wise growth. By implementing these suggestions, these channels of change also speak to the leaders' ability to effectively lead in the era of ICT reforms and e-government by learning from these technologies. Can the e-governance movement support the need for an open, responsive, and efficient government in a time of escalating political and economic polarization? Will digital technology widen the gaps in public service or foster more responsive government? In order to establish paradigms and practices that encourage the use and interchange of e-governance tools for the general progress and prosperity of the state and, eventually, the citizens, each of these roles and responsibilities needs to be evaluated by the relevant legislators and executives.

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