E-GOVERNANCE INITIATIVES IN KERALA: AN EMPIRICAL INVESTIGATION OF THEIR BENEFITS AND SUSTAINABILITY

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Abstract
In the knowledge economy of today, the state of Kerala in the Indian union which is characterized by a number of significant achievements in the socio-economic and educational fronts in the whole of India, could meaningfully utilize its knowledge resources for faster economic development. Over the last few decades, there has been a growing understanding that the fast advances in Information and Communication Technology (ICT) can be powerful instruments for advancing economic and social development through the creation of new types of economic activity, employment opportunities, improvements in health-care delivery and other services, and the enhancement of networking, participation and advocacy within society. The rapid advances in the field of ICT are being progressively adopted in Kerala for more effective governance of the state; including decentralized and participatory democracy.

The overall achievements of the State in adopting and implementing various ICT initiatives may be noted to be quite appreciable, despite the low per-capita income and considerable financial constraints faced by the State. The achievements in E-governance front is really remarkable. In view of the quite favourable socio-economic environment of the State, particularly the abundant amount of technically qualified and skilled human resources as well as high level of social equity, the state has got excellent potential for bringing in ICT-led economic development in a balanced and equitable manner and hence to achieve rapid prosperity sans digital divide.

In the above context, this paper looks into a few recent E-Governance initiatives in Kerala, makes an empirical study of their relative benefits in the form of better transparency, and enhanced operational efficiency in terms of resource utilization, cost, time and such other factors. The long term sustainability of such initiatives, their comparison with similar initiatives elsewhere in the country and world; and above all their major limitations are analyzed. Finally, the paper makes a few strategies for more effective implementation of E-Governance initiatives in Kerala for its faster development.

***Key Words: Ict, E-Governance, Decentralized Planning, Digital Divide, Sustainability.**

Introduction
Today, world is on the threshold of a new revolution namely knowledge revolution; a revolution that is similar to agrarian revolution, industrial revolution and the like in the past. Accordingly, there is a growing trend towards emergence of knowledge societies. This has been enabled essentially because of the fast advances in the field of Information and Communication Technology (ICT), often referred to as ICT revolution. Worldwide, ICT revolution and knowledge revolution have brought about a paradigm shift in the way in which business processes are being carried out, organizations are being managed, and governance of the state at its various levels is being done. ICT has emerged as an important developmental tool right from the 1980s both in the developing and developed countries. By accelerating the pace of generation of 'knowledge societies' as well as 'knowledge economies', ICT has proved its great developmental potential during the last two decades; these developments being more prominent in respect of many of the newly industrialized nations and some of the developing countries including India. In the specific case of Kerala state in the Indian union, the role of ICT in economic development is even more significant because of its peculiar socio-economic, industrial and political environment. This is characterized by very high level of technically qualified and skilled manpower, near full literacy rate, extremely high level of NRI population and hence very high level of foreign remittances, very high levels of social development as well as living standards almost comparable with any of the advanced countries etc. to name a few. Because of the above features it is widely recognized that Kerala should depend primarily on its knowledge resource for its development. In the above context, this paper seeks: (i) to study the various ICT initiatives of Kerala state particularly those for the purpose of state governance, their progress over the years, suitability and sustainability; and (ii) to offer suitable strategies for ensuring more effective use of ICT for economic development, particularly for e-governance.

1. Major ICT Initiatives in the State for E-Governance

Kerala has gone a long way in respect of ICT initiatives in E-governance. The State was selected as the Second Best State in the entire India in E-governance implementation. The details of the investments of the State in E-governance initiatives are shown in Table (1).

Table (1): Investments in E-governance by the State of Kerala (as of FY 2005)

E-Governance Initiatives	No. of Centres	Investment (Crore)
FRIENDS	14 Head Quarters	Rs. 04.50
Department Computerization	11 Departments	Rs. 200.00
Secretariat WAN	Govt. Secretariat	Rs. 08.00

Source: Economic Review 2005, Kerala State Planning Board, Govt. of Kerala, Thiruvananthapuram, p.533.

Box (1): Remarkable E-Governance Achievements in Kerala in FY 2005.

The year 2004-05 has been a period where Kerala's position in the IT sector was promising and now this is on a steady growth path. In the e-governance front, achievements include India's first fully computerized Panchayath, India's first fully computerized Collectorate, FRIENDS initiative to serve 35 lakh families, significant development in local language computing etc.

Source: Economic Review 2005, Kerala State Planning Board, Government of Kerala, Thiruvananthapuram, p. 528.

Besides the remarkably high investments in E-governance among the Indian states, there are other reasons also for Kerala to be proud of which include its achievements, like, having the India's first fully computerised Panchayat, fully computerised Collectorate etc. [Box (1)]. A few major E-governance initiatives of the State are given in the following paragraphs:

Fast Reliable Instant Efficient Network for Disbursement Services (FRIENDS)

'FRIENDS' (Fast Reliable Instant Efficient Network for Disbursement Services) is a "Single Window Mechanism" where citizens have the opportunity to pay all taxes and other financial dues to Government. FRIENDS seek to extend the benefits of full-fledged computerization of individual departments to the citizens, even before the whole backend computerization is completed. The salient feature of the project is the effective integration of IT and logistics for citizen services. Payments to departments and organizations under the Government of Kerala and Government of India like Kerala State Electricity Board (KSEB), Kerala Water Authority (KWA), various Local Bodies, Civil Supplies Department, Revenue Department, Motor Vehicles Department, Universities, Telecom Department etc. can be made through the FRIENDS centres. FRIENDS project was launched in Thiruvananthapuram in June 2000. At present, it is operational in 14 District Head Quarters of the State. Overall investment in FRIENDS Centres amounts to Rs. 4.50 Crores. FRIENDS' collection and transaction are growing constantly (Table. 2). Though these services are available only at district head-quarters at present, the Government is in the process of replicating the same even at municipality and block levels. (Rs. Crores).

Table (2): Collection & Transaction of FRIENDS

Particulars	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Collect- ions	05.30	52.30	106.20	158.80	202.00
Transa-ctions	1237.09	10269.19	20238.11	26680.71	34001.81

Source: Economic Review 2005, Kerala State Planning Board, Government of Kerala, Thiruvananthapuram, p.533.

1.2.E-payment facility (E-pay)

The State Government introduced an on-line bill payment facility named 'E-pay' through its Akshaya e-kendras, as an extension of FRIENDS project in Malappuram district during August 2004. Presently, facility for remitting Electricity (KSEB) bills and Telephone (BSNL, both mobile and landline) bills are available under the above E-pay system. Internet banking facility of State Bank of India is being used for transferring funds. The details of the bills remitted by Akshaya entrepreneurs are communicated to KSEB or BSNL through the Malappuram FRIENDS Centre. At present 162 e-payment centres are functioning in Malappuram district itself. The facility is proposed to be extended to other Akshaya Centres in the second phase of Akshaya implemetation.

1.3.Citizens Call Centre – another Major E-governance Project:

'Citizen Call Centre' is the first of its kind in the entire country and is set up in the State Capital viz. Thiruvananthapuram. It provides information on transactions pertaining to various Government Departments which are required by common citizens,

over telephone. The information that can be collected include details of various Government schemes, programmes, entitlements, welfare schemes etc.

1.4.Information Kerala Mission (IKM)
IKM is another revolutionary initiative of the State. Launched in 1999 IKM seeks to computerize and establish a statewide network connecting State Planning Board and its 14 District Offices, Directorate of Panchayath and its 14 District Offices, Directorate of Urban Affairs and its 3 Regional Offices, 1219 local bodies; and to develop a mechanism for the regular monitoring of the plan implementation and targets achieved by the local bodies over the network. This project is the single largest computerization programme for local bodies involving deployment of software developed in an Indian language in the entire country. IKM has successfully implemented Jansevana Kendras in all Municipalities, and has also piloted the Panchayath Computerisation projects in two Panchayaths (viz. Vellanad and Talikkulam) by making them the first 'Computerized Panchayaths in the country. Further, IKM is implementing another project named 'Hospital Kiosks' connecting all hospitals of the five cities of the state with the respective Corporation offices for on-line registration of births and deaths.

1.5.Secretariat Wide Area Network (Sec. WAN)
The State Government has decided to set up a Sec. WAN connecting the Secretariat, Secretariat Annex, Vikas Bhavan and Public Office Complex located in the State Capital viz. Thiruvananthapuram. At present, there are nearly 1400 computers installed in the Secretariat, out of which about 500 Nos. works in the networked environment as above. It is planned to enhance this facility up to 3000 in the final phase. Further, a tele-printer system for connectivity of the Secretariat to all the District Headquarters, Advocates General's Office and the office of the Special Representative in New Delhi has already been replaced by a network of computers at all these locations, called 'Internet Based Messaging System'.

1.6 Knowledge Archive System for Secretariat (K-BASE)
For enabling an effective knowledge management solution in the Government Secretariat the implementation of a Knowledge Archive System (K-BASE) is in progress. The main objectives of K-BASE are creating of knowledge repositories for effective decision support system, improving the speed, transparency, objectivity and consistency in decision making and to provide public access to important Acts, Rules and Orders of the State Government.

1.7. AKSHAYA – the Revolutionary Project of Kerala IT Mission
'Akshaya' is a path-breaking, people-oriented, grass root level project, similar to the FRIENDS project discussed earlier. This was launched in November 2002 by the Kerala State IT Mission. It was originally conceived to bridge the digital divide in Kerala and to act as a catalyst for socio-economic development of the state. The project has established 610 multi-purpose community technology centres, each with 5 to 10 computers, in Malapurram district in North Kerala. The project is conceived to promote local socio-economic development following the philosophy of an earlier Kerala model of development according to which a hospital, school and public distribution outlet would be located within a 2 km. distance from any household and serves approximately 1000 households in the locality. Private entrepreneurs who are known and respected in the village community own the centres. In the first phase of Akshaya, from October 2002 until January 2004, the centres acted as hubs for promoting IT literacy amongst villagers. The programme was funded by the gram panchayat and enabled the entrepreneurs to recuperate 30% of their initial investment within the first three months of the project. In the second phase of Akshaya, high-speed Internet connectivity for all centres was established in early 2004 and more specialized computer training and training in other areas including accounting and spoken English was provided. Each Akshaya centre has begun participating in one of the ten revenue and employment generating e-commerce activities identified by the IT Mission team and by the entrepreneurs. These activities include providing data management services to government and corporates, providing insurance and financial services, data entry or marketing services etc. Akshaya centres have been envisaged to serve as e-transaction centres or local payment centres with connection to the district FRIENDS office and entrepreneurs will be able to collect payment for bills from households in their area. Further, these centres are also intended to serve as front-end e-Government cells with various government-related applications delivered to citizens. For example, local panchayats have started to work on providing birth and death data to the Akshaya centres for digitisation enabling easy usage of birth and death data for various official purposes.

1.8 RTO - FAST (Fully Automated Services of Transport Department)
In order to provide more efficient and faster services to the public, all the offices of the Department have been completely computerized. The total computerization has been achieved on Build, Operate, Maintain & Transfer (BOMT) basis through a project called FAST (Fully Automated Services of Transport Department). M/s Electronic Corporation of India Ltd., was the first Service Provider for the FAST project.

The software, SMART MOVE has been developed by the National Informatics Centre (NIC), Kerala for the Department. All the citizen services have been computerized. Also facilities for applying online applications have also been provided through the department website www.keralamvd.gov.in. This is the only department in the State to be fully computerized.

In 2011, **Sub Regional Transport Office, Pattambi** was awarded with the **ISO certification**. Action is in progress for getting the certification for Transport Commissionerate and RT Office Thiruvananthapuram.

To give more satisfactory and efficient service to the public and also to avoid unnecessary procedures and undue delay in processing applications, the Department has introduced a single window system in all RT Offices called **'Any Counter Any Service'**. The important features are:
1. Fees for applications for all kinds of services and tax can be remitted in any of the counters.
2. All the applications could be submitted in the same counter and receipts would be issued simultaneously.
3. An extension counter from 8.00 AM to 10.00 AM and 5.00 PM to 7.00 PM is also introduced.
4. Facilities for the citizens to approach the employees for getting services without the help of middle men.
5. One time visit of office for submission of applications and the documents delivered by speed post.

Department has introduced "**FAST TRACK**" counters in all offices through which **selected services are being delivered then and there within the time span of 30 minutes**.

Important Projects of the Department
Government of Kerala decided to implement the total computerization of the Department under the project "**FAST"(Fully Automated Services of Transport Department**) on Public Private Partnership model on BOMT (Build Operate Maintain and Transfer) basis. M/s. ECIL was selected as the first Service Provider.

Salient Features of the Fast Project
1. Total computerization of the Department in the State including Head office, 4 Zonal offices 18 RTOs, 42 Sub RTOs and 19 Check Posts.
2. Implementation with private participation on Build, Own, Operate and Transfer (BOMT) basis.
3. The Service Provider, M/s Electronic Corporation of India was selected through open tender system.
4. The contract period was 3 years which ended on 31.12.2009.
5. The bid price was Rs 47.97 Crores to be paid quarterly over a period of 3 years with "Service charges" collected from the public.
6. The service provider had to prepare the sites, provide furniture, computer hardware and peripherals, maintain them, supply consumables, provide sanitation, drinking water facility etc during the contract period and transfer the assets to the department after three years.
7. Training to the Departmental Staff.
8. Penalty for down time of any equipment.
9. Posting qualified computer engineers in all offices as support staff by Service Provider.
10. Elimination of manual records.
11. Faster and transparent service to the public using the software "SMART-Move" developed by NIC.
12. Better amenities to the citizens and staff members.
13. Improved quality of services and documents.

The Motor Vehicles Department is one of the Government departments having large volume of records relating to Driving Licenses and Registration Certificates.

As a part of the computerization process of Motor Vehicles Department, it was necessary to digitize the old records of Registration Certificates and Driving Licenses maintained in the registers. The work of backlog data entry was entrusted to the "Kudumbashree", a Kerala Government Project for empowering women. An approximate number of 35 lakhs Driving Licenses and 20 lakhs Registration Certificates had to be digitized at that time. Data of all driving licenses and registration certificates issued till 2005 December except a few missing and illegible ones were digitized.

The Kerala Motor Vehicles Department is one of the departments identified for the implementation of e-Governance activities as it is one of the departments having large citizen interface. The Department has implemented many e-Governance initiatives with a view to provide faster, transparent and efficient services to the public and its employees. These changes are clearly visible in the administrative mechanisms of the Department. The Motor Vehicles Department has introduced many G2C, G2G services through its website www.keralamvd.gov.in.

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G2C (Government to Citizen) Services
1. Facility to view the details of driving license including photo, by giving the driving license number and date of birth of the license holder.
2. Facility to view the full details of a vehicle registered in the state by giving the registration number and chassis number of that vehicle.
3. Facility to view the minimum details of a vehicle registered in the State by giving the registration number of that vehicle.
4. Facility to practice mock Learners License Test
5. Facility to view status of an application submitted at any office of the department by giving the Inward number printed on the fee receipt
6. Facility to view the vehicle registration number allotment status on a particular day in an office
7. Facility to view the vehicle registration Number, availability for reservation/Booking Status of the office
8. Facility to view the current registration series
9. Facility to view the details of temporary registration certificate.
10. Facility for dealers to upload details of vehicles to be registered.
11. Facility to book date in advance for Learners Licence test and Certificate of Fitness test.
12. Facility to view status of applications in STA.
13. Facility for tax calculation and on-line complaint registration system.
14. Facility for online payment of NTV tax and fees.

G2G (Government to Government) Services
In the official website, the complete details of all the Driving Licenses and Registration Certificates issued in the State are available. These details can be used by any of the departments/enforcement agencies having authenticated login ID for verification purposes. Public can also get the data subject to restrictions.

G2E (Government to Employee) Services
An employee login has been provided to the employees for accessing various reports collected at the sub offices. The facilities provided are:
1. Details of licences and vehicles.
2. Tax report and fee report collected at all the offices.
3. Report of Tax and Fees collected at FRIENDS centres.
4. Verification and issue of All India Tourist Taxi permits online.

The department proposes to introduce Internet based payment facilities for the citizens. This will give the citizens facility to pay taxes, fees, cess and other connected charges through an electronic payment system which will generate authenticated receipts and which will have the following benefits:
1. The customer has the ease of payment from home/office.
2. Reduced queue at office counters of the MVD.
3. Reduction in handling of financial instruments like cheques, drafts, and currency.
4. Anytime anywhere payments offering relief for outstation customers.
5. The amounts collected are credited to the Government Account at the same day, i.e. faster than the present method.

Connectivity between offices is essential for speedy communications and transfer of data enabling the department to provide services to the citizens faster.

The Institute of Driver Training & Research, Kerala being set up at Edappal in Malappuram district is a centrally assisted project. The original cost of the project was 6.64 crores out of which Rs. 2.99 crores is central share. The Central Government released the first installment of Rs. 99.5 lakhs during 2004. The department has started functioning of the Institute of Driver Training and Research at Chevayur after registering the Institute as a Society under Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act 1955.

The construction of buildings and infrastructure for the institute has been entrusted with CPWD on turnkey basis. Accordingly MOU was signed on 26.11.2008.

Section 56 of the Motor Vehicles Act 1988 requires that every transport vehicle shall carry a Certificate of Fitness to the effect that the vehicle complies, with all the requirements of the Motor Vehicles Act and the Rules made there under. The inspection of vehicles for the purpose of issuing the Certificate is done by the Inspectors of Motor Vehicles. Presently the

fitness is tested by visual inspection and by driving the vehicle. Therefore only the limited standard of inspection is possible. The decisions by the inspecting officers are often arbitrary and the standards also vary considerably depending upon the officer inspecting the vehicle.

To have a uniform standard of inspection and to avoid arbitrariness in the decision, a scientific and fool-proof means of inspection has been initiated. Department has set up computerized Vehicle Testing Stations. Such Stations have equipments to assess the fitness in respect of various units and components of a vehicle. This will ensure the issue of Certificate of Fitness more scientific and technically validated. To enable such technical inspection the proposed Testing Stations have to be equipped with modern testing equipments. Total cost will come to Rs. 3 crores per centre.

The Department has only about 2 and half acres of land and buildings to set up a Vehicle Testing Station at Chevayur near Kozhikkode and is suitable only for the installation of Light Motor Vehicle Lane. Moreover since the Department has no land in any districts for the setting up of the same more funds would be required.

Over speed of vehicles has become a major cause of road accidents. The frequency and severity of road accidents in Kerala is higher than that of many other States in India. Therefore proper enforcement of traffic rules and road regulations has become absolutely necessary. The Motor Vehicles Department is the principal agency for the enforcement of the Motor Vehicles Act and Rules.

The Radar Surveillance System consists of Radars and Cameras installed at accident prone stretches of roads and important junctions. The Camera will catch and store the images of Vehicles. This data will be transmitted to a control room. The offences can be observed from the video records and charge memos are issued to the owners of vehicles violating traffic rules. This will enable the Department to enforce the traffic laws more efficiently without manual interruption.

In the last financial year also there was budget provision for establishing the Radar Surveillance System. This department had proposed to install the Radar Surveillance System under Plan Scheme as an extension of the Automation of Enforcement project funded by Government of India.

The applications for Driving Licenses are increasing day by day. The Department is still carrying out the test in the conventional way. Preliminary test for issue Learner's License is being conducted through computer using Computer Aided Learners Licensing System (CALLS). No facility is provided for proper testing of the competence of candidates and evaluation of the skills. Many a time the decision of the testing officers is arbitrary and leads to allegations. Improvement in quality of driving will reduce the road accidents, fuel consumption, air pollution and maintenance of the vehicles. Therefore, the Motor Vehicles Department has decided to set up Computerized Driver Testing Yards at least in all District Head Quarters at the earliest. The Department needs a minimum of 2 Acres of land for each of the 17 Regional Transport Offices. One track will cost Rs 30 Lakhs excluding the cost of land. Cost of Land will cost around Rs. 25 Lakhs.

A software module to handle all the works related to Driving License was developed by NIC, Kerala unit and it was first introduced in Regional Transport Office, Thiruvananthapuram during 1994. By 2002, the department was able to develop comprehensive software SmartMove for dealing with all works in the department. "SMARTMOVE" has helped to render all of the services through computer. By the implementation of this software, the delay occurred in services to the citizens could be reduced. Several modifications were made according to the need and changes in statutes. This software manages all activities from Inward to Dispatch through a digital work flow.A separate module in the SMART MOVE software called "CALLS" was developed for conducting learner's license test through computer in English, Malayalam, Kannada, Tamil and Hindi languages. Learners Licenses are issued within 10 minutes after the test.

Service and Payroll Administrative Repository for **Kerala** is an Integrated Personnel, Payroll and Accounts information system which is Web based application implemented for all the Employees in the State of Kerala. Every employee is allotted with a unique Permanent Employee Number (PEN) through the system. Motor Vehicles Department has been selected for the SPARK Pilot Project and successfully completed implementation in all the offices on January 2009.

Advantages
1. Interface for individual employees to view their salary, loan, leave, GPF, accounts and personnel details.
2. Provision for Filing Annual Property Returns .
3. Processing of Self Drawing Officers Salary (SDO's).
4. Increment Sanctioning.
5. Leave salary and arrear bills.
6. Management of recoveries, advances, loans etc of employees.
7. Online Transfer processing.
8. LPC Generation.

The Information Technology Department has implemented **'IDEAS'**, an advanced file information system, to track files of the offices of the State government. This system makes the government more transparent and approachable for the citizens, bringing benefits in its overall governance.

1. The CITIZENS can obtain online information about the current status of their petitions submitted to the government.
2. The OFFICERS can obtain online information about the movement of files related to their subject, office, department or ministry under the government.
3. The GOVERNMENT obtains an advanced information support system that facilitates more efficient administration.

Touch Screen Kiosks has been installed in all the offices of the MVD, to facilitate ease of enquiry to the citizens. Status of applications, current registration number and booking status, and mock test for CALLS is currently available.

'Smart Card' means a microprocessor chip embedded in a plastic card capable of storing data and executing commands. The specialty of this chip is that it will not carry any other information which is not prescribed. In addition any extra information as may be required can be stored in the card in the form of an additional information storage media or any other technological media outside the above referred microprocessor chip embedded in the Smart Card.

Although provisions have been made in the Motor Vehicles Rules for the manner of displaying number plates, the same is not being followed. Vehicle owners are using different kinds of plates and the numbers are written in fancy designs causing ambiguity. In the "vehicle theft" cases, the very first action is to change the number plate. Even terrorist activities are being carried with vehicles having fake number plates.

In order to prevent the misuse of number plates and strengthen the security of the nation, Government of India vide notification dated 22.08.2001 has introduced the scheme of HSRP through 'New High Security Registration Plates Order, 2001' by amending Rule 50 of CMVR, 1989. The scheme envisage to standardize the pattern of displaying registration mark throughout India and to ensure that the plates are distributed and manufactured by authorized agencies approved by the State Government. It had to be implemented with effect from September 2001. Though tenders were invited twice for implementation, they had to be cancelled due to various reasons.

The department had already developed a software for providing a few information services through mobile phone by SMS. These services were tested and introduced as a pilot project using a BSNL mobile. Department has already developed the following services and have implemented them. SMS in the prescribed format can be send to 537252 (53725 for BSNL).

1. **Vehicle Details: MVD V <Vehicle number>** - Essential details of a vehicle registered in the State can be known.
2. **Application Status: MVD A <Inward number>** - Status (Entered / Verified / Issued / Dispatched) of an application submitted in the RTO/SRTO.
3. **Fancy Number Booking Status**: **MVD F <Vehicle number>** - Status (Booked / Available) of a particular number in the current range in any RTO/SRTO.
4. **Fancy Number Booking Range: MVD F <Office code> -** Range of numbers in any RTO/SRTO that can be booked in advance on the current date.
5. **Alloted Number Status: MVD N <Inward number>** - Registration number of a newly registered vehicle.
6. **STA Permit Application Status: MVD P <Vehicle number>** - Status of permit applications submitted in the STA.
7. **Tax Calculator**: **MVD T <Vehicle number> -** Tax dues of a vehicle.

MVD has a database of over 65 lakhs Driving Licences, 66 lakhs of Registration Certificates, voluminous permits and other allied documents. Though the applications for all the services under the MV Act and Rules are processed through computers, the applications and supporting documents are still being received and kept in paper form leading to piling up of documents in the offices. It is also difficult to retrieve the documents. Hence it has become necessary to digitize all the documents.

Road transport is a very vital area of public interest. To render help to the public an effective and efficient method of complaints and queries management system has to be implemented. In the present scenario complaints are received by means of letters and there is no way of tracking the status of these complaints. There is also no system for addressing the queries received from public. Introduction of an automatic CQMS will benefit the citizen by allowing him to track the status of the complaints and bringing transparency and speed in disposing the application.

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The department has introduced a new innovative scheme called Fast Track Counters for selected services for the benefit of the citizens. The objectives of this are as follows:
- Faster and better services without the help of middle men
- Disposal of the applications on the same day.

The Services Done Through Fast Track Are
Driving License and Conductor Licence: Renewal, Change of Address, License Particulars, and Duplicate (on surrender of original)

Registration Certificates: Transfer of ownership (NTV), Change of Address, Hypothecation Noting, Duplicate (on surrender of original), Registration Certificate particulars.

Permits: Renewal of Motor Cab and Autorickshaw

At present, department is using the Smart Move software (Client-Server model) developed by NIC to deliver computerized services to the citizen. It has been proposed to develop web application software having a common database to avoid duplication of records and which can be accessed through online.

The department is implementing and developing various new e-Governance activities. It is necessary to impart adequate training to the employees in the field of IT and administration activities.

As per Government Order to modernize the administrative setup and to ensure punctuality of the employees, it is decided to implement a biometric finger print attendance management system in all the offices of the department.

The Smart Move software used for automating the services of the Department is designed in client server architecture and the data resides primarily in the servers of the field offices. By the Synchronization software, this data is replicated to the Central Server of the Department at the State Data Centre, Trivandrum and a consolidated State Register of Driver Licences and Registration details of vehicles is made. Thus the data in any of the offices can be viewed in all other offices and the public can also view this data through the website.

The data from the State consolidated register is replicated daily to the server of the National Informatics Centre kept in Poonkulam and forms the STATE REGISTER of Licences and Vehicles. This data is then uploaded to the server of the Central Government for making the NATIONAL REGISTER of Licences and Vehicles. **Kerala Motor Vehicles Department is the first State to supply data from all its offices to the Central Government.**

Online facility has been provided for AITT permits and thereby the public is free from sending their RC and other documents to the State Transport Authority by post. E-payment facility for AITT applicants will be introduced shortly. The application are filed online and the documents are verified by the RT Office concerned. The applications received in STA online is processed and the permit and authentication are send to the owners by post.

Keltron is developing a payment service module, which will handle all the functions relationg to the processing of check reports. E-payment facility will also be incorporated in the department website for the payment of compounding fee.

Integration between MVD application software and Friends Jenasevana Kendrams and Akshaya Centres has been achieved through the introduction of the 'FREES' software.

The Department is participating in the e-District Project which envisages to provide the services to the citizens to the block level itself through the Akshaya Centres. Department has also provided the database sharing facility for e-verification.

E-payment facility has been implemented as pilot in RTO, Thiruvananthapuram and Sub RTO, Kazhakuttom on 09.01.2012 for 20 services. An amount of Rs. 9 crores has been received so far through e-pay. The reconciliation process is automated by a web based software module developed by NIC. This has been done by using the scrolls received through e-mail from Treasury in confirmation of receipt of money in connection with e-paid transactions.

All the web pages of the Department website and all the web application servers are security audited. The auditing was done by the STQC. An agreement has been made with them for auditing of newly developed web pages and web applications regularly in a specified time interval.

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1.9. ICT Initiatives in Kerala – the Overall Picture: Thus, Kerala has remarkable track-record in ICT implementation. The major achievements are given in Box (2) and major ICTinitiatives in Table.3 below.

Box (2): Achievements of the State of Kerala in ICT Front – a few Major Land Marks.

- ➢ Malappuram – India's first e-literate district.
- ➢ Chamravattom India's first e-literate village.
- ➢ Vellanad and Talikkulam: India's first and second fully computerized Grama Panchayaths.
- ➢ Akshaya wireless network in Malappuram is World's biggest IP based network.
- ➢ Palakkad – India's first fully computerized District Collectorate.
- ➢ State with 99% of its high schools have modern Computer Labs.
- ➢ First state to use 'Edusat' for on-line learning solutions.
- ➢ Information Kerala Mission – Single largest computerisation program for Local Bodies, with the use of software developed in an Indian language in the country.
- ➢ First state to have Citizen's Call Centre on Government related details.
- ➢ First Technology Park in India to achieve CMMI level 4

Source: Economic Review 2005, Kerala State Planning Board, Government of Kerala, Thiruvananthapuram, p.537.

Table (3): Major ICT Initiatives of Kerala Government: Summary

Depts./Projects	Main Objectives	Remarks (Achievements, Current Status etc.)
Treasury Department of the State	Computerization and internet connectivity of District & Sub-Treasuries.	All District Treasuries are online now. A few Sub-Treasuries are also online
Registration's Department Project 'PEARL'	Computerization of land records and provision of citizen services	54 Sub Registrar Offices (SROs) have been identified for computerization. The pilot project has been completed in 4 Offices. In 37 out of the remaining 50 SROs, PEARL has been installed. The computerization of an additional 113 SROs is now contemplated.
Motor Vehicles Department (Computer-ization using CORE Software)	Computerization and provision of citizen services	The State Government and NIC have signed a MoU for customization of CORE software for implementation of back-end computerization. Regional Transport Office Thiruvananthapuram has been selected for the pilot project for back-end computerization. Software for conducting online testing for Learner's License is ready. It is being installed in a few RTOs on experimental basis.
Rural Development	Computerization of Blocks	RDNet - the project for networking all the 152 Blocks in the State has been completed
Local Self Government	Computerization of local bodies	Information Kerala Mission - The project for networking all the 1157 local bodies is considered. Software testing and purchase of hardware completed in some panchayats.
Kerala water Authority	Computerization and provision of citizen services	The computerization of 13 offices of the Kerala Water Authority and computerization of billing and collection at 9 centers have been completed. Centralized web-enabled billing and collection at Trivandrum is under consideration.
Civil Supplies	Computerized delivery of citizen services	Project for automation of Ration Cards has been completed. Smart Cards are being issued in 4 Taluk Supply Offices in Trivandrum.
Kerala State Information Technology Mission's	(1) To develop over 5000 numbers of networked Multi-purpose Commu-	On 18th November 2002, H.E. The President of India, Dr. APJ Abdul Kalam, launched Akshaya- an initiative powerful enough to transform the lives of 65 lakhs in the state. Under this project,

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Project 'AKSHAYA'	nity Technology Centers, (Akshaya e-Kendras) to provide ICT access to the entire population of the state; (2) To make at least one person in each of 65 Lakh + families in the state e-literate; (3) To enhance the quality of available IT infrastructure in the state, facilities for rural connectivity etc.	one person in every family in Kerala will be familiarized with the basic use of computer and empowered to access innumerable services that Information and Communication Technology offers. Over the years, Akshaya, the pretigious I.T dissemination project of Kerala has been catching so much of international attention. Now in 2006 UNESCO has come forward to support it in the field of Women Empowerment. It won the 'Golden Nica award of Prix Ars Electronica in the Digital Community category for the year 2005'. It was Runner-up 1 in 'India Tech Foundation- Telecom India 2005, Excellence Award 2005'. Further, it won 'Silver Icon award in Innovative Operations and Best Practices - New Entrants for Exemplary Implementation of e-Governance Initiatives for the Year 2004' and also 'PC Quest Best IT Implementation Award 2004'.
Kerala State Information Technology Mission's Project 'FRIENDS'	Computerized payment utility bills, taxes and fees pertaining to the participatingdepartments	Functioning in 14 District HQs, Replication at sub district level is considered.
'Kerala State IT Department's Project 'SEVANA'	To provide information on various government schemes, programs, general information on local bodies and other facts relevant to the rural populace.	State Library Council has launched the first computerized rural information centre at Kallara Gram Panchayat Library in Trivandrum District. 14 Rural Information Centers, one in each district of the State, have also been established.

2. Ict For E-Governance: Some Strategic Imperatives

In view of the foregoing, an attempt is made here to frame a few strategies for more effective use of ICT for development particularly for State governance. The strengths and weaknesses in the ICT front are the major factors considered for arriving at various strategies as above. (Table. 4).

Table (3): Kerala in the ICT Front: Strengths and Weaknesses

Strengths	Weaknesses and Problems
❑ Abundance of educated and technically qualified personnel. ❑ Low cost IT professionals are available at bottom /entry levels. ❑ Better human resource development ❑ Highest telephone density ❑ 100 percent digital connectivity ❑ High PC penetration ❑ International	➢ Shortage of highly skilled and rightly trained manpower in the middle and top levels. ➢ Inadequate communication / soft skills – essential for ITES industry. ➢ Lack of metropolitan social infrastructure to retain human resources. ➢ Poor associated infrastructure (like, suitable air connectivity to prominent cities) ➢ Absence of major Indian firms/ MNCs ➢ Lack of Industry-

gateway at Kochi ☐ Lower operational costs	Academia interaction. ➢ Poor investor perception of Kerala as a good investment destination.

2.1. Strategies Suggested

Given the special features of the Kerala economy, the best IT strategy for the State appears to be that of stimulating the market for the service sector. Within this sector, such initiatives for economic development and e-governance, indeed, offer excellent prospects. It is widely recognized that this market offers the largest growth opportunities for the State in the immediate future. As such, this strategy needs to be implemented on a war footing, primarily because it enables the use of ICT as an enabler of fast socio–economic development of the State. Considering the unique characteristics of Kerala economy, the following areas seem to offer maximum prospects for its fast economic development:

(i) **ICT for Micro finance and Women Empowerment:** The State's micro finance initiative for women empowerment viz. Kudumpasree' and a number of similar initiatives by various other agencies have been found to be quite successful and the banks here are eager to finance such initiatives. In a state like Kerala which is already having an enviably high level of gender equality, ICT can bring about very fast social change through women empowerment and hence contribute towards the rapid economic development of the State; by tremendously improving the efficiency and reach of Microfinance Institutions (MFIs).

(ii) **ICT for promotion of Small and Medium Enterprises (SMEs)**: An active SME sector has widely been recognized as one of the most crucial factors for attaining long-term and sustainable economic growth for developed and developing countries alike. For a country like India, increasing the viability of SMEs is of utmost significance among the strategies for overall economic development. Within the current context of the global, knowledge-based economy, the use of ICTs to help initiate, support, and facilitate SME development has become an imperative rather than a choice. For Kerala in particular, which is suffering from poor industrialization and low productivity, the need for ICT adoption for improving the efficiency and expanding the market of the SMEs need not be overemphasized.

(iii) **ICT for Distance Education:** The State is yet to start an Open University on the lines of IGNOU (Indira Gandhi National Open University) – a Central University offering quality distance education courses. Many states in India have already started state-level open universities in the pattern of IGNOU and these are increasingly going 'virtual' to enhance their efficiency and quality of delivery. It is high time that Kerala also join the bandwagon, particularly when the Central Government is giving so much of thrust to open and distance learning, in line with the global trend.

(iv) **Promotion of ICT as a production sector:** This broadly includes three major sectors viz. IT Service, ITES and IT Hardware. Urgent steps need to be taken for creating the requisite infrastructure, human capacity and urban amenities, including life style options. Favourable features of the State has already attracted many companies.

(v) **Other Areas Wherein ICT Could Be Employed Meaningfully In Kerala: These Include, Inter Alia**: (a) Tourism and Medicine: Believed to be the 'God's Own Country' by the foreigners, Kerala is one of the most sought after tourist destinations of the entire globe. Similarly, Kerala is quite popular for its traditional medicine (Ayurveda). Thus, e-tourism and e-medicine initiatives offer tremendous scope for the State. (b) ICT initiatives in handicrafts and other indigenous products, (c) ICT initiatives that are already in place, which include a few revolutionary schemes like, Kiosks for farmers (KISAN), schemes for promotion of Agriculture (e-Krishi), Tele-centres etc.

Concluding Remarks

The overall achievements of the State in adopting and implementing various ICT initiatives may be noted to be quite appreciable, despite the low per-capita income and considerable financial constraints faced by the State. The achievements in E-governance front is really remarkable. In view of the quite favourable socio-economic environment of the State, particularly the abundant amount of technically qualified and skilled human resources as well as high level of social equity, the State has got excellent potential for bringing in ICT-led economic development in a balanced and equitable manner and hence to achieve rapid prosperity sans digital divide. The ongoing Governmental initiatives themselves appear to be quite successful and sustainable in the State. However, the State needs to raise resources to meet the huge financial outlay required

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for the full fledged maintenance of the ongoing schemes; and further, it has to take immediate steps to improve the PC penetration rate in the State from the current very low level. Only then, the desired results of the large-scale ICT investments would be meaningful.

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