

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

III. NAME OF CATEGORY- 'INNOVATIVE USE OF TECHNOLOGY IN e-GOVERNANCE'

1. Coverage – Geographical and Demographic :-

(i) Comprehensiveness of reach of delivery centers

Government e-payment system is a secure payment delivery system for direct credit of dues from the Pay and Accounts Offices (PAO) and Cheque Drawing & Disbursing Offices (CDDO) of Government of India into the accounts of beneficiaries, through CBS/NEFT/RTGS/APB, who have an account with any Bank Branch having an IFSC Code assigned to it by the Reserve Bank of India using digitally signed electronic advice (e-advice) through the '**Government e-Payment Gateway**' (GePG). E-payments can be credited to beneficiaries having an account in **1,00,396 branches of 170 banks spread over 26,440 geographical locations** all over the country.

(ii) Number of delivery centers

The e-payment project is delivered from the **Pay and Accounts Offices** (*currently 410 PAOs*) and Cheque Drawing and Disbursing Offices (CDDO) (*currently 47 CDDOs*) of the **Govt. of India** of different ministries and departments (*currently 54*) spread **over 140 geographical locations all over the country.**

(iii) Geographical

(a) National level – Number of State covered

29 States + 7 UTs

(b) State/UT level- Number of District covered

675 Districts

(c) District level- Number of Blocks covered

Data Not Available

Please give specific details:-

The key Stake holders of this project are as follows (*as on 28.08.2014*):

- 1) The **Pay and Accounts Offices** (*currently 410 PAOs*) and Cheque Drawing and Disbursing Offices (CDDO) (*currently 47 CDDOs*) of the **Govt. of India** of different ministries and departments (*currently 54*) spread **over 140 geographical locations all over the country.**
- 2) The **Principal Accounts Offices of different Ministries and Departments** (*currently 54*)
- 3) **Private Sector and Public Sector Banks** (*currently 22 debit branches and 47,490 recipient branches*)
- 4) The **Office of the Controller General of Accounts**, Department of Expenditure, Min of Finance.
- 5) The **Drawing and Disbursing Offices of different ministries and departments** (*Currently 6,730 DDOs*) spread all over the country covering **886 geographical locations.**
- 6) **Govt. payment recipients** viz. Employees, Vendors, etc. (*currently over 7,69,617 beneficiaries*)

(iv) Demographic spread (percentage of population covered)

Govt. payment recipients viz. Employees, Vendors, etc. (*currently over 7,69,617 beneficiaries*)

2. Situation Before the Initiative (Bottlenecks, Challenges, constraints etc with specific details as to what triggered the Organization to conceptualize this project #):

Background behind the Initiative:

Under the traditional system of government payments, paying units in central government were using cheque, cash,

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Demand Draft or in few ministries ECS for payments to employees and vendors by drawing a cheque in the name of the accredited bank along with a list of beneficiaries whose accounts are to be credited. The Cheque based system had its own share of inherent drawbacks.

- Not completely integrated processes – payment and reporting systems separate, difficult to enforce validation requirements, multiple control points.
- Multiplicity of data capture – e.g. Scrolls, put through etc.
- Long payment process life cycle in DDO to PAO to Bank and finally credit to the beneficiary's account (average about 20-22 days)
- Payment through Cheque has to go through a 13 stage time consuming process.
- Transaction wise reconciliation for all payments not possible.

There was a need felt by the Government to bring transparency and expedite direct payments from central paying units relating to all government payments which is already a declared objective of the government. This would increase the adoption of other e-services due to its efficiency and ease-of-use for all Central Government Ministries and Departments for online payment transactions. The e-payment system would save time and efforts in effecting payments and will facilitate elimination of physical cheques and their manual processing. Further the constraints of manual deposit of cheque by the payees into their bank account would also be eliminated. Such a system would also have online reconciliation of transactions and efficient compilation of payment accounts. It would certainly make the system more transparent as the mid-level agency would not be needed. By expanding electronic payments, the Ministry of Finance expects to bring about increased transparency and promote good governance in the public sector. The goal to be facilitating 'paperless transaction', reducing overall transaction cost and promoting green banking also drove the project forward. Such an initiative would eliminate almost 2 crores cheques which would bring in a saving of ₹ (INR) 10 crores per year.

With the tremendous growth made by banking sector in past decade in improving their payment/receipt systems through Core Banking and the advances made in the telecom sector, the need to leverage them for effecting prompt payment through electronic means has become even more relevant. Advances made in digital security standards have also given a big boost to this initiative. The following triggers also contributed to the desire of the Controller General of Accounts to start this e-payment project.

- Monumental growth made by banking sector in past decade – over 1,00,000 branches spread over 25,000 geographical locations on the Core Banking System – resulting in efficient payment/receipt delivery systems.
- Window of opportunity for Government to improve efficiency of its payment/receipts functions – leveraging progress made by RBI and various agency banks in systems such as RTGS/NEFT/ Core banking solutions.
- Unprecedented penetration of telecom services enables linking geographically spread entities. India's telecommunication network is the second largest in the world with over 886.3 million Mobile phones users (2013) having a tele-density (2013) of 74.02%.
- Advance IT tools for secure transactions and faster processing.

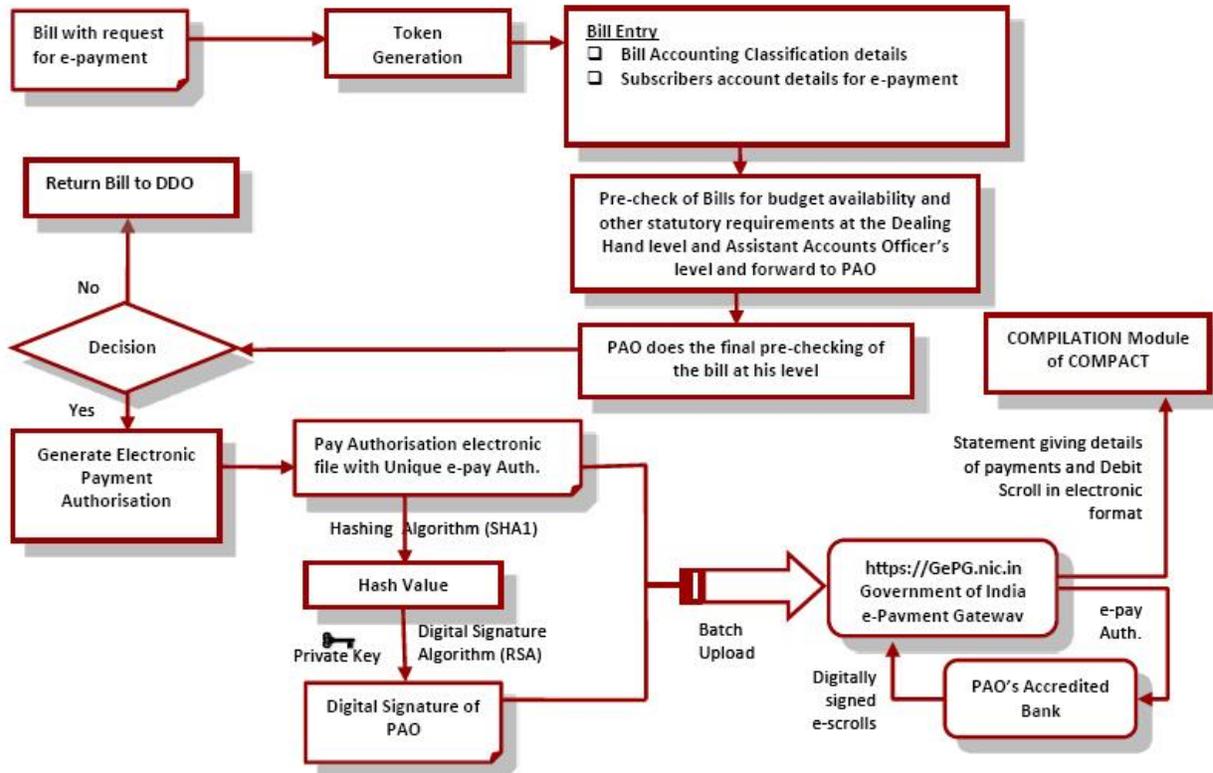
3. **Scope of Services/ Activities Covered** (Relevance of choice of application for client/ agency, Extent of e-enablement in terms of number of services, Extent to which step in each service have been ICT- enabled #)

1. **Components of the e-Payment Solution**

The Government e-payment system comprises of two sets of application, one being COMPACT the core application running in the Pay and Accounts Offices which has been made interoperable with the middleware, Government e-Payment Gateway (GePG). COMPACT has facility to process payments through cheques as well as through digitally signed e-payment advices. For activating e-payments, the authorised signatories register their digital certificates with

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COMPACT and GePG through a workflow. For receiving payments through the e-payment advices, the beneficiary is required to opt through a mandate form which has his bank account details, mobile no, e-mail address. The DDO prepares the bill with a request to process the payment through e-mode. The PAO or the authorised signatory in COMPACT in conjunction with GePG has been facilitated to cater to making such payments as explained in the schematic below.



Government Payment Gateway (GePG) is the key enabler to the successful delivery of payment services from Pay & Accounts offices for online payment transactions and the application developed by the office of CGA through NIC has been duly tested by the Standardization Testing and Quality Certification (STQC) of Department of Information & Technology for functional and security compliance. The GePG serves as middleware between COMPACT application at PAOs and the Core Banking Solution (CBS) of the banks/RBI and facilitates automating the manual registration process, payment advice, and scrolls communication. The system has been implemented in all Central Government Civil Ministries/Departments in a phased manner.

Highlights of e-payment and GePG System

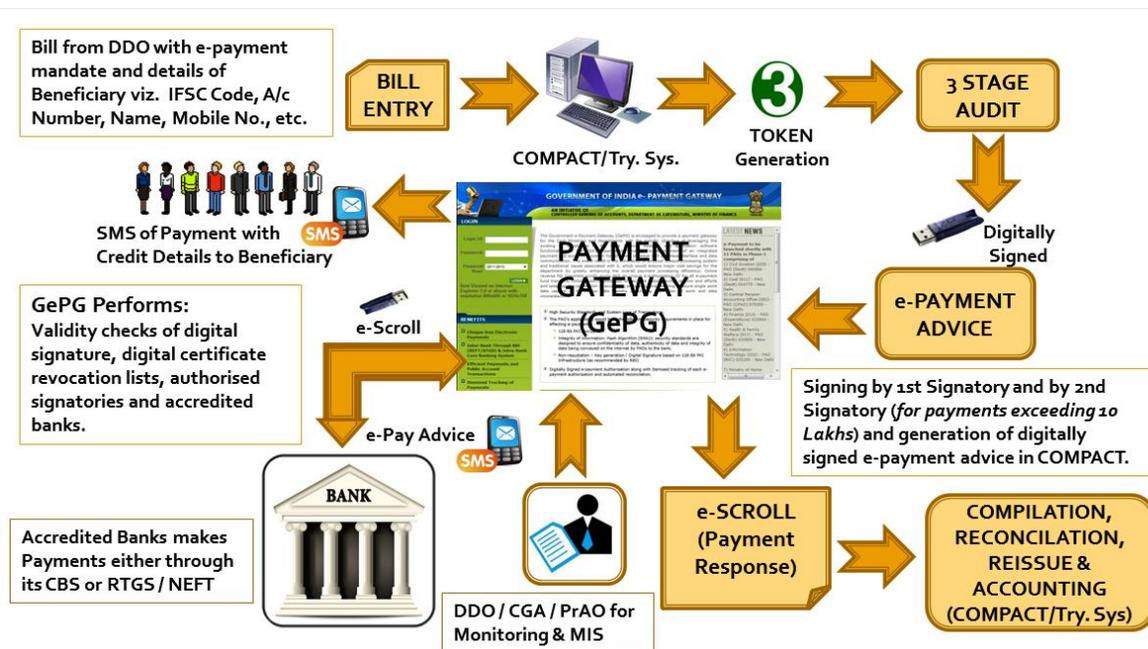
- High Security Standards and System Logs of Transactions.
- The PAO's applications has the following security requirements in place for effecting e-payments
 - 128/256 Bit PKI encryption.
 - Integrity of information: Hash Algorithm (SHA1): security standards are designed to ensure confidentiality of data, authenticity of data and integrity of data being conveyed on the internet by PAOs to the bank.
 - Non-repudiation – Key generation / Digital Signature based on 128/256 Bit PKI Infrastructure (as recommended by RBI)
- Digitally Signed e-payment Authorization along with Itemized tracking of each e-payment authorization and automated reconciliation.

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Public Key Cryptography Standards #7 for signing e-payment authorisations has been adopted which offers the highest level of security. All digitally signed authorisations provides for (a) Accuracy and Authenticity, (b) Security, (c) Protection from unauthorized access, (d) is Tamper-resistant, (e) protection from Intentional - Fraud and (f) Credibility in Judicial Proceedings. The digitally signed authorisations will provide necessary AUTHENTICATION (the ability to prove the sender's identity), INTEGRITY (the ability to prove that there has been no change during transmission, storage, or retrieval), NON-REPUDIATION (the ability to prove that the originator of an authorisation is intended to be bound by the information contained in the authorisation). All three of these requirements which exist with a physically signed cheque are ensured in the digitally signed authorisation.

2. Process Flow of e-payment system

A. Registration of digital signatures: The Pay & Accounts Officer obtains digital signatures from the NIC Certifying Authority. The digital signatures obtained from the NIC Certifying Authority are stored in a USB token called i-Key. The PAOs register the digital signatures with GePG portal through the Principal Accounts Office of the concerned Ministry/Department. The concerned banks download the PAO's digital signatures from the GePG portal. Digital signatures of the authorized signatory of the concerned bank are also uploaded on GePG portal for authentication of payment scrolls.



- B. Submission of bill:** The Drawing & Disbursing Officers (DDOs) submit bills for e-payment along with mandate form from the payees and details of payee viz. IFSC Code of Bank Branch, A/c Number, Name, Address, etc. to the Pay & Accounts Officer (PAO). A token is generated from COMPACT and communicated to DDO.
- C. Bill processing:** The bills are processed in the Pay & Accounts Office in COMPACT system.
- D. Digital Signatures:** Once the bill is passed by the PAO it is digitally signed using the secure I-Key using simple hash algorithm (SHA1) and e-payment authorization is generated by the system.
- E. Uploading authorization on GePG:** The e-payment authorization file is uploaded on the GePG server in a secure environment for the banks to download the same. After necessary verification of signatures etc, the banks would credit the beneficiaries' account using CBS, NEFT or RTGS as the case may be.
- F. Payment Scroll:** A digitally signed electronic scroll is generated and uploaded by the bank on GePG server. This is downloaded by the PAO and incorporated in accounts through the COMPACT system and is used for reconciliation

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and other purposes.

3. Services that are currently being delivered:

Government to Government, Government to Banks and Government to Citizens are rendered by the Government e-Payment Systems – COMPACT & GePG.

- Payment of Government dues to beneficiaries which would include Govt. employees, pensioners, vendors and all citizens and institutions receiving government benefits.
- All 22 Banks including the Reserve Bank of India registered on Govt. e-Payment gateway for processing e-payments through CBS / NEFT / RTGS and interfaced for receipt of response (success or failure) of such transactions.
- The Drawing and Disbursing Officers and Pay and Accounts offices for MIS and status enquiry of all e-payments initiated by them.
- The Office of the Controller General of Accounts and Principal Accounts Offices of respective ministries and departments for reconciliation and settlements with the Reserve Bank of India.
- SMS to beneficiaries informing them of the nature and amount of the payments that have been credited to their respective bank accounts.

The following are the list of deliverables from the system (along with quantitative data). The data indicated is as on 28-08-2014:

- Registration of Digital Certificates of signatories through a workflow in COMPACT and GePG (*over 6129 signatories registered – 1725 activated and 4404 deactivated*)
- Registration of participating Banks in GePG (*22 banks along with its Nodal officers*)
- Processing of bills pertaining to e-payments to beneficiaries which include retired and employed government employees, vendors, contractors and others receiving government funds, through an end-to-end workflow in COMPACT. (*26,35,412 bills, 76,38,242 transactions, totalling ₹ (INR) 8,82,740.79 Crores*)
- Generation of digitally signed e-payment advices (*over 2,55,025 advices containing 76,38,242 transactions*) and pushed into GePG for payments.
- Over **76,00,893** successful transactions reported by participating banks
- Reissue of **37,021** transactions which had failed.
- Reconciliation and Accounting for all payments.
- About **76 Lakh Cheques** eliminated from the system so far (*savings of ₹ 11.4 Crores to the public exchequer*)
- Tracking of each and every e-payment transaction of Govt. of India in the system for Pay and Accounts Officers.
- SMS alerts are generated for Bank Nodal Officer when PAO pushes e-payment advices to GePG and SMS alerts are sent to beneficiaries when bank submits scroll (payment response) into GePG. Over **2,55,218 SMSes sent to Bank Nodal Officers and over 25,02,572 SMSes sent to beneficiary** informing them of credit made into their accounts.
- MIS reports to Financial Managers (Controllers) in different ministries as well as for the Ministry of Finance.
- Bill Status information to Drawing and Disbursing Officers.
- Exception reports indicating Bank performance indicating “Not Payable Before” (NPB) violations, pending payments, scrolls, failed payments, etc.

4. Description of the services delivered in subsequent stages / phases

GePG is scalable for use not only by the PAOs under the CGA's umbrella, but also other sister organizations in **Railways, Defence, Centrally Administered Union Territories, Posts and Telecommunication** and the **state governments** too. Already **Department of Telecommunications** has joined this initiative. The **State Govt. of Mizoram** has also requested for using the services of the e-payment gateway. About **300 CPWD Divisions** would soon be using the services of the e-payment gateway for making their vendor payments. **47 Divisions of CPWD** are already on board. The **Department of Supply** has also shown interest in using the e-payment gateway for making DGS&D payments. Over **2,500 Cheque**

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Drawing DDOs are also expected to come on board soon. All **inter-govt. advices for transfer to States** can also be routed through this gateway mechanism.

5. Implementation coverage till date

The key Stake holders of this project are as follows (*as on 28.08.2014*):

- 7) The **Pay and Accounts Offices** (*currently 410 PAOs*) and Cheque Drawing and Disbursing Offices (CDDO) (*currently 47 CDDOs*) of the **Govt. of India** of different ministries and departments (*currently 54*) spread **over 140 geographical locations all over the country.**
- 8) The **Principal Accounts Offices of different Ministries and Departments** (*currently 54*)
- 9) **Private Sector and Public Sector Banks** (*currently 22 debit branches and 47,490 recipient branches*)
- 10) The **Office of the Controller General of Accounts**, Department of Expenditure, Min of Finance.
- 11) The **Drawing and Disbursing Offices of different ministries and departments** (*Currently 6,730 DDOs*) spread all over the country covering **886 geographical locations.**
- 12) **Govt. payment recipients** viz. Employees, Vendors, etc. (*currently over 7,69,617 beneficiaries*)

Year-wise transaction volumes for various services

Financial Year	No of Pay & Accounts Offices	No. of Files	No. of Transactions	Amount in ₹ (INR) Crores
2011-2012	84	2,481	30,184	6,267.72
2012-2013	327	80,755	14,55,535	3,25,930.33
2013-2014	376	1,19,131	39,31,267	3,92,127.73
TOTAL	380	2,02,367	54,16,986	7,24,322.14

Year-wise transaction count for “hits” in the web presence. [“Hit” refers to the number of times the GePG web site has been accessed by intended beneficiaries] *@ 2000 hits per day (average)*

Financial Year	GePG Website Hits					TOTAL
	DDOs	PAOs	Banks	Pr.AOs	Others	
2011-2012	834	22,484	19,180	2,879	3,636	49,013
2012-2013	1,32,159	4,97,693	1,10,691	14,271	9,907	7,64,721
2013-2014	1,63,146	2,52,521	42,814	5,320	8,821	4,72,622
TOTAL	2,96,139	7,72,698	1,72,685	22,470	22,364	12,86,356

6. Innovative ideas implemented in e-Governance area and their impact on services

The Controller General of Accounts (CGA) wanted to improve efficiency of its payment systems to bring in greater transparency and faster processing. Typically a bill payment life cycle is about 20-22 days in the cheque based manual system. There are instances where high value bills have been kept pending much beyond 20 days due to corrupt practices. This E-Payment project aims to shrink the payment lifecycle, add transparency to Government Payment and Accounting Processes. The system has shrunk the payment life cycle from about 20 days to just 5 days. Apart from faster payment processing, multiple payment options offers a complete and transparent accounting processes. The objectives of better governance and improved efficiency are also met. Within one year, of its launch, the e-payments system via the new Government e-Payment Gateway (GePG) crossed U.S.\$ 78.5 billion approximately (INR ₹ 4,95,001.66 crore) to almost 2.8 million beneficiaries across 50 ministries through 22 public sector and private sector banks. With GePG, the office of the CGA is seeing significant improvement in efficiency of payment procedure, lowering of transaction costs,

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and just in time availability of funds. The system developed is a completely secure, web-based electronic payment service that brings transparency to government financial transactions. With over 90,000 bank branches currently enabled for e-payments, it has become feasible to transact electronically for government payments cutting across geographic divides. GePG improves efficiency of payment system by facilitating faster payments, quicker receipt of scrolls, and hassle free reconciliation. The result is enhancement of overall payment processing efficiency. Previously, payments were made through manual cheques. The writing, signing, issue, and dispatch of cheques were all manual. Now GePG ensures online fund transfer using digitally signed unique e-authorization ID. Earlier vendors and beneficiaries had no way of knowing when they will receive their payments. They had to regularly visit the department to find out at which stage their payment was stuck. GePG ensures complete transparency of the accounting process. The application reduces the beneficiary's dependency on the Government and Government employees to receive their dues/payments. GePG informs beneficiaries via SMS alerts with the payment details. Overall, GePG offers transparency, improved payment efficiency, and good governance. GePG is now gearing up to make Fertilizer, kerosene, LPG subsidy directly to beneficiaries.

7. The extent of integration of this e-Governance initiative with other internal and/or external ICT systems.

- The GePG application is integrated with COMPACT an end-to-end workflow treasury application running in the Pay and Accounts Offices.
- The e-payment gateway is also integrated with all the Banks systems through web services for effecting payments and submitting payment responses (scrolls).
- The e-payment gateway is integrated with NIC's SMS services for sending SMS to beneficiaries and Bank Nodal Officers.
- It is also integrated with e-mail server of NIC (NICEMAIL) for SMTP services.
- The e-payment gateway exchanges data for checking Digital Signature Revocation lists with the Certifying Authority.
- Data exchange formats have been standardized for external applications to use GePG. Department of Space, Department of Posts, Ministry of Defence are in the process of developing interfaces with GePG.

8. ENABLER INDICATORS

8.1 Process reengineering

Sl. No.	Process Change	Description
1	Cheque processing	The complete cheque process which includes Cheque Memo preparation, Cheque No allotment, Cheque Printing, Cheque Review, Cheque Issue and Cheque Delivery which on an average requires 2-3 days has been done away with. Necessary Changes in the accounting procedure made.
2	DDO Process	The process where the cheque is collected by the DDO and then disbursed is now not required as the payment is directly credited into the Beneficiary's account.
3	Payment Mode	The Government Receipt and Payment Rules were modified to accommodate payments through digitally signed e-payment advices in addition to cheques, demand Drafts or Cash.
4	Mandatory e-payments for ₹ 25,000/- or more	Ministry of Finance passed regulation mandating that all governmental ministries to make payments above ₹ (INR) 25,000 electronically, replacing cash and cheques with transfers direct to recipients' bank accounts.

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5	Payment Settlement of Agency Banks with Reserve Bank of India	Operating procedure for e-payment through COMPACT and Government e-payment Gateway (GePG) finalised and passed.
6	Heads of Accounts for e-payments introduced	New Heads of Accounts introduced to account for electronic payments separately: 8670001110000 - PAY AND ACCOUNTS OFFICES ELECTRONIC ADVICES 8670001120000 - PR/CONTROLLER OF COMMUNICATION ACCOUNTS OFFICES ELECTRONIC ADVICES 8782001020700 - PUBLIC WORKS ELECTRONIC PAYMENT ADVICES 8658001022500 - UNCLAIMED ITEMS UNDER E-PAYMENTS 8658001022600 - UNCLAIMED ITEMS UNDER E-PAYMENTS FOR CPWD

8.2 Challenges faced in implementing Process changes

The development of this new e-payment system posed many challenges. As we had to provide for the requirements of all departments, the banks and other stakeholders, the system needed to provide sufficient flexibility and needed to fit into the generic framework. In order to implement these process changes, security and capacity building were major challenges because of the level of IT awareness and capability of working with IT systems available in Government offices. The following process changes and initiatives had to be taken to meet these challenges.

8.3 Business process Changes

- Modification in Government Receipt and Payment Rules carried out with respect to Introduction of payments and receipts of Government department through electronic media.
- Procuring the Digital signature certificate for PAO on USB I-Key tokens
- Sensitisation of Pay and Accounts Offices in the use of digital signatures and best practices
- Operating and accounting procedure for e-payment through COMPACT and Government e-payment Gateway.
- The complete cheque process which includes Cheque Memo preparation, Cheque No allotment, Cheque Printing, Cheque Review, Cheque Issue and Cheque Delivery which on an average requires 2-3 days had to be done away with. That required changes in the accounting procedure to be adopted.
- The process where the cheque is collected by the DDO and then disbursed was now not required as the payment is directly credited into the Beneficiary's account. This needed to be factored in.
- The information as to the nature of the payment which needed to be passed on to the beneficiary had to be included with the payment details in the file metadata and Banks were asked to include this in their bank statement to beneficiaries.

8.4 The Lessons learnt from the Process re-engineering exercise

The CGA IT systems which are mandated for a much wider coverage and scope catering to entire financial accounting systems for the GOI, have a focus on providing updated payments and accounts information to various stakeholders. These IT systems comprising several applications have evolved over the last many years with the high-level objective of meeting the mandates of the CGA's organization as specified in the business allocation to the organization (under Allocation of Business Rules, 1961 and government executive order of 1980.

Since these IT applications have evolved based on the requirements of ministries, available technologies and capacity of personnel to absorb and effectively utilize IT systems, they have not been implemented in the typical project mode and the bulk of the initiatives follow the internal need driven IT systems development approach. However recent initiatives are following the project mode. Individual application developments have internal timelines to monitor and there have

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been cases of changes in the desired timeline due to various reasons like changing user requirements, hardware acquisition delays, etc.

The architecture of each system / solution was conceived at the time of its commencement with appropriate degree of clarity in keeping with the requirements and technology prevalent at that point of time. With technological advancements and growth in capabilities / possibilities offered, expansion in scoping and integration of these systems has been gradual. Though several options /solutions were considered by NIC, however technology limitations resulted in limited choice. The data architecture for systems were well defined within the limitation posed by technology prevalent at respective points of time. Where ever applicable, the network architecture is as per NIC data Centre network policy and guidelines. The security architecture is as per Cyber Security Policy of NIC. All possible delivery channels feasible under the technology have been adopted.

4. Strategy Adopted

(i) The details of base line study done

Challenges faced in Change Management and Capacity building

Several Challenges were faced in change management and Capacity building. The resistance to change for moving from a Cheque based payment mode to a paperless digitally signed e-payment advice needed to overcome lot many hurdles. The mind-set of the staff of the pay and accounts offices whose level of IT awareness is very low, needed to be changed. They needed to have the level of confidence in the system required to bring in such a change. Several sensitisation workshops were conducted during the two year period prior to the launch of the e-payment system. A **pilot was run in the Ministry of Agriculture** for one complete year (2008-2009) was carried out and based on the feedback necessary changes were incorporated.

PAO Code	PAO Description	Successful Transactions		Failed Transactions	
		No	Amount (₹)	No.	Amount (₹)
000001	PAO(Sectt)-I	10,960	1,47,92,43,865	98	1,86,14,089
000085	PAO(DMS), New Delhi	2	71,980	0	0
000264	PAO(Agri-Coop), Mumbai	2,513	4,15,00,714	19	3,21,392
000365	PAO(Agri-Coop), Chennai	770	3,39,79,230	4	49,520
000476	PAO(Agri-Coop), Cochin	3,905	52,57,87,338	31	9,86,030
000569	PAO(Plant Protection & Misc), Faridabad	1	150	0	0
004797	PAO(DMI), Nagpur	2	1,011	0	0
075602	PAO AHD and Fisheries, Mumbai	5,488	21,24,60,048	49	6,53,036
057050	ZAO(CBDT), Mumbai	480	8,09,37,737	9	27,88,731
Total		24,121	2,37,39,81,073	210	23,412,798

(ii) Problems identified

Some of the major changes and Capacity building initiatives are listed below.

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1. Security Features Introduced

- E-payment registration request of PAO is now vetted by Principal Accounts Office through a work-flow. This feature has been introduced to enhance accountability and security.
- E-payment activation/deactivation in COMPACT system is linked with Payment Gateway (GePG) after vetting by Principal Accounts Office so that accredited banks are aware of valid signatories whenever any change takes place at the payment units and also for GePG to validate payment advices at the time of submission.
- COMPACT database backups encrypted so that database is tamperproof.
- Dual Signatories introduced for high value payments of ₹ 10 Lakhs or more, as mandated in Govt. of India.
- Signature revocation verification carried out online with CRL from Certifying Authorities at the time of submission of registration requests and e-payment advices.

2. Functional and security testing:

- Functional and Security testing of COMPACT and GePG carried out.
- STQC - Standardization Testing and Quality Certification under D/o Information technology has carried out the above testing.

3. Capacity building

- Training programs organized with the assistance of Controller of certifying authority, D/o IT and Centre for Development of Advanced Computing (C-DAC) in the area of PKI infrastructure.
- More than 150 officials at the cutting edge level have been imparted training by C-DAC.
- INGAF (Institute of Government Accounts & Finance) to organise regular training programs in e-payment system.
- Workshops conducted at RTCs (Regional Training Centres) of Kolkata, Chennai and Mumbai and INGAF Delhi.
- Review workshops conducted for PAOs.

(iii) Roll out/implementation model

1. Implementation and Roll out

2. The implementation was carried out in three phases covering a one year period, where initially 11 PAOs and 9 banks were taken up in the first phase.
3. In the Second Phase another 77 PAOs and all 22 banks taken up for implementation.
4. In the Third phase all the remaining 237 PAOs taken up.
5. The Implementation was monitored by the Office of the Controller General of Accounts with weekly review meetings and follow up with all stakeholders viz. Controllers of different Ministries and Banks.

2. Special efforts to ensure sustainability of the e-Governance initiative

The project is envisaged to run perpetually but, may need to be augmented from time to time to meet scalability requirements as more ministries / State Governments join the system. Steps are already being carried out to augment scalability at both the National Data Centres at Hyderabad and Pune where the GePG application is hosted. The system is also being tuned for enabling Adhar based payments and NECS in addition to the existing modes.

The COMPACT – GePG application is also being modified to handle –

- Remittance of Subscription of New pension Scheme (NPS) of employees to trustee bank through GePG.
- Facilitating e-payments in the PAOs of Ministry of Space, Atomic Energy and Union Territories.
- Introducing e-payments in over 273 CPWD Divisions for all Vendor payments and 2500 Cheque Drawing DDOs.
- Vendor payments of DGS&D for the Department of Supply, Ministry of Commerce.
- Implementing e-payments in the treasuries of Govt. of Mizoram.

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- Take up low value transactions less than ₹25,000/- and salary payments which are currently not mandatory for e-payments.
- All inter-govt. advices for transfer to States to be routed through this e-payment gateway.

Already **Department of Telecommunications** has joined this initiative. The CGA is also considering making all direct subsidy payments with respect to Fertilizers, Kerosene, LPG, etc. through the e-payment gateway. Inclusion of Ministry of Defence, Railways, Atomic Energy, Space, Posts and Telecommunications and the Union Territories are also in the anvil.

(iv) Communication and dissemination strategy and approach used.):

1. Change Management and Capacity Building

1.1 Leadership support for capacity building, visibility of actions with current status

The following are the highlights:

- The Office of the Controller General of Accounts has provided the necessary impetus and commitment in driving the project right from its inception to its present full blown status.
- The project was inaugurated by the Hon'ble Finance Minister Shri Pranab Mukherjee on 31-10-2011 and is being monitored at the Secretary (Expenditure) level on a fortnightly basis.
- The Status of e-payments is also monitored at the Controller General of Accounts meetings with Chief Controller of Accounts of ministries and necessary follow up and change management issues are dealt with.
- E-Payment is also reviewed in Bank Steering Committee meetings and all Bank related processes and performances are dealt with.
- Ministries making over 80% payments through this system are shown in the table below:

MINISTRIES / DEPARTMENTS MAKING OVER 80% PAYMENTS April 2013 – September 2013 (Total 73.84% Govt. of India payments made through GePG)

MINISTRY	CHEMICAL AND FERTILIZERS	PETROLEUM AND NATURAL GAS	CIVIL AVIATION & TOURISM	RURAL DEVELOPMENT	NEW AND RENEWABLE ENERGY	POWER	SCHOOL EDUCATION AND LITERACY	CENTRAL PENSION ACCOUNTING OFFICE	COAL	HIGHER EDUCATION	INDUSTRY	SCIENCE AND TECHNOLOGY	YOUTH AFFAIRS & SPORTS	PANCHAYATIRAJ	EARTH SCIENCES	
(%)	100	100	99.9	99.8	99.8	99.7	99.6	99.2	99.2	99	99	98.7	98.6	98.5	98.1	
MINISTRY	ECONOMIC AFFAIRS	SOCIAL JUSTICE AND EMPOWERMENT	DISINVESTMENTS	URBAN DEVELOPMENT AND URBAN POVERTY ALLEVIATION	INFORMATION TECHNOLOGY	ENVIRONMENT AND FORESTS	PLANNING STATISTICS AND PROGRAM IMPLEMENTATION	CULTURE	INFORMATION AND BROADCASTING	SHIPPING	TRIBAL AFFAIRS	MINISTRY OF MINORITY AFFAIRS	AGRICULTURE	WATER RESOURCES	COMMERCE	STEEL
(%)	97.4	97.2	96.9	96.7	96.1	95.5	95.3	94.4	94.4	91	89.7	89	87.9	84	83.5	83.3

- Bank wise performance indices are as shown in the table below:

FROM DATE - 22/07/2013

TO DATE - 22/08/2013

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

PARTICIPATING BANKS	PAO Process Delay		Time Delay (in Days) for Bank Processes in									
	Authorization Upload		Authorization Download		Settlements Reported		CBS Failures Reported		NEFT Failures Reported		RTGS Failures Reported	
	(0-1) Day	>1 Days	(0-1) Day	>1 Days	(0-1) Day	>1 Days	(0-1) Day	>1 Days	(0-2) Days	>2 Days	(0-1) Day	>1 Days
STATE BANK OF INDIA	2,12,431	1,417	1,54,484	59,317	1,90,832	19,104	-	-	306	199	1	46
STATE BANK OF HYDERABAD	633	5	638	-	632	5	-	-	-	1	-	-
BANK OF BARODA	9,046	127	8,478	695	8,149	820	7	-	50	14	7	1
STATE BANK OF PATIALA	3,875	5	3,766	42	3,558	186	2	-	4	-	-	2
STATE BANK OF BIKANER AND JAIPUR	1,356	64	1,420	-	1,296	109	8	3	2	2	-	-
ALLAHABAD BANK	422	1	276	146	228	142	1	-	-	2	-	-
BANK OF INDIA	4,423	5	4,119	254	4,092	261	3	1	-	3	-	-
BANK OF MAHARASHTRA	182	1	56	123	-	-	-	-	-	-	-	-
CANARA BANK	3,781	30	77	3,690	3,437	302	1	-	16	3	1	4
DENA BANK	524	-	379	120	340	-	3	-	-	-	-	-
INDIAN BANK	105	1	106	-	104	2	-	-	-	-	-	-
INDIAN OVERSEAS BANK	360	-	320	40	135	195	6	1	-	-	-	-
CENTRAL BANK OF INDIA	10,439	366	10,764	41	8,574	383	44	2	6	-	-	-
UNION BANK OF INDIA	7,496	25	6,944	397	6,429	686	9	2	6	2	3	1
PUNJAB NATIONAL BANK	6,691	50	6,712	29	6,151	496	7	1	7	1	-	-
UNITED BANK OF INDIA	1,289	14	1,303	-	1,271	30	2	-	-	-	-	-
UCO BANK	3,704	18	2,904	706	3,094	342	34	7	-	-	-	-
SYNDICATE BANK	3,070	71	2,927	118	2,783	252	1	-	-	-	-	1
AXIS BANK	922	-	873	14	840	39	7	-	-	-	-	1
ICICI BANK	1,539	12	1,551	-	1,401	77	-	-	1	-	-	-
IDBI BANK LIMITED	964	1	965	-	873	51	9	-	1	-	-	-
RESERVE BANK OF INDIA	195	-	194	1	168	-	4	-	-	-	-	-
GRAND TOTAL	2,73,447	2,213	2,09,256	65,733	2,44,387	23,482	148	17	399	227	12	56

1.2 Lessons learnt from Change Management and Capacity building exercise

At the macro level, the organization has an IT Strategic Plan and a roadmap for achieving the intended IT developments. The roadmap is detailed into short term (1-2 years), medium term (2-3 years) and long term (3-5 years) items. Each item is either a desired functionality or a project in itself. The application-specific detailed plans also include the software development timeframes, manpower requirements assessment and rollout plans. As detailed in the IT vision and goals of the organization the organization strives towards excellence in delivery of its mandated tasks by leveraging IT and modernizing the systems to the best extent. For several processes, computerizing requires business processes in accounts offices to be reengineered to achieve the benefits of automation. These process reengineering are undertaken whenever required and is an ongoing activity, which however consumes a lot of time. This is in line with the IT goal of improving accounting process efficiency and detailed as an objective & strategy. Necessary changes in the rules and manuals are also made whenever reengineering in business processes is affected.

The CGA IT applications are developed to be in accordance with all legal / regulatory framework and accommodate any changes in these (e.g. the IT Act enabling e-payments requires appropriate systems to facilitate digital data technology for payment systems). Changes in relevant rules and regulations of government are undertaken as an ongoing exercise whenever required and follow the prescribed procedure for obtaining all necessary clearances, including audit approvals if required.

The CGA's IT Strategy includes the strategies for effective change management. However change management is considered as an operational issue of a project and is an ongoing exercise and project-specific plans to manage change are worked out.

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The IT objective of creation of an adequately trained workforce and accompanying strategies include assessment of IT skill levels, skill gap and matching training plan. Based on the needs of the organization, the training plans in IT for the organization are drawn up by the Institute of Government Accounts and Finance (INGAF) for all levels of officers and staff and published in its annual training calendar. Nearly 700 such programs with over 10000 participants have been conducted at INGAF since 2003.

Financial procedures adopted are as per the prescribed ones under the various rules and regulations e.g. the GFR, Receipt & Payment Rules etc. The IT systems are in line with the approved manuals and regulations including the Civil Accounts Manual, CTR, R&P etc. All administrative approvals are through the prescribed procedures for government and no special relaxation / dispensation has been sought or is in effect.

1.3 Change management and Capacity building strategy defined

Change Management is well defined with a dedicated Cell headed by a Senior Officer who coordinates with the Technical Advice Section and Reserve Bank Deposits Sections of the Office of the CGA each of which is headed by a Deputy CGA level Officer.

1.4 Capacity Building and Status

Training programs have been conducted by the Institute of Government Accounts and Finance (INGAF), New Delhi and its Regional Training Centres at Kolkata, Chennai and Mumbai. In all around 30 programs have been conducted so far to train 350 Pay and Accounts Offices and their staff.

1. Workshops on COMPACT – Lekha best practices and e-Payment Sensitization.
2. Training Videos of e-payment processes distributed to all Stake holders.
3. Series of trainings on e-payments were conducted details of which are as follows:

TRAININGS CONDUCTED ON THE GOVERNMENT e-PAYMENT SYSTEMS						
Type	From Date	To Date	INGAF Delhi		RTC, Kolkata, Mumbai and Chennai	
			PAO	Persons Trained	PAO	Persons Trained
Basic Trainings	07-02-2012	28-02-2012	67	134	53	106
	05-03-2012	22-03-2012	30	60	69	138
	29-01-2013	08-03-2013	26	52	72	144
	28-05-2013	20-06-2013	20	40	47	94
Refresher Workshops and feedback	07-10-2013	16-12-2013	143	286	241	482

2. Project management & Monitoring adopted

2.1 Project Management

1. Constitution of a Cell for implementation of e-Payment System through GePG in PAOs of all Civil Ministries Departments.
2. Monitoring at the level of Principal Accounts Offices of Ministries is done on a day-to-day basis by respective Chief Controller of Accounts; at the level of Secretary Expenditure, Ministry of Finance, GoI, it is done on a fortnightly basis. Reviews are also done during the regular CCA's meeting with the CGA and in Bank performance is reviewed at the Steering Committee meetings with Banks and Reserve Bank of India.
3. Initiation of a Centralised Helpdesk for Centralized Reporting, Monitoring of bugs related to problems & issues and end user support to all stakeholders.

2.2 Services, Capacity Building and Support

The Services and support utilized are completely in-house, provided by the Accounts Informatics Division of the National

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Informatics Centre for the development and maintenance of the application with technology support from Microsoft. The Data centre services are provided by the National Data Centres of the National Informatics Centre at Hyderabad and Pune.

The roll out, capacity building and implementation support is provided by the Office of the Controller General of Accounts, along with the Accounts Informatics Division (National Informatics Centre) and Institute of Government Accounts and Finance (INGAF) and its Regional Training Centres.

5. Technology Platform used-

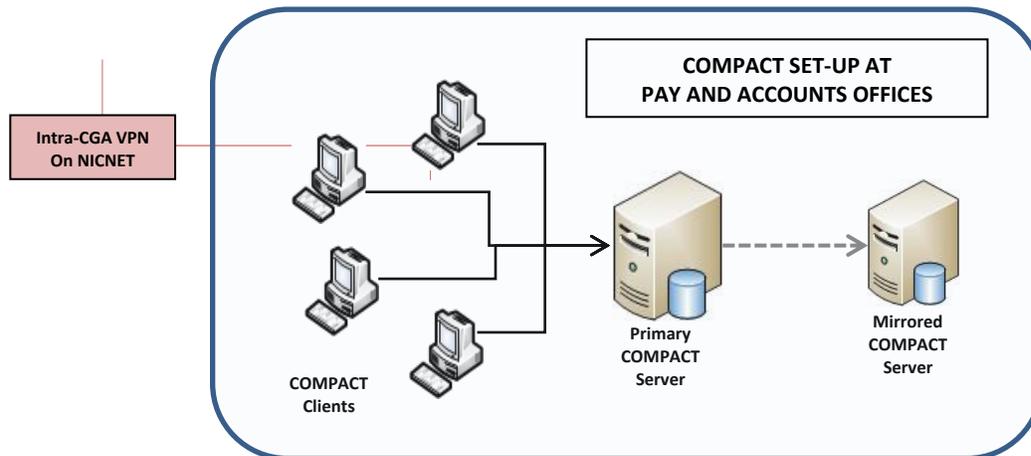
(i) Description

1. TECHNOLOGY

1.1 Technological solution adopted

1.1.1 COMPACT Architecture at the Pay and Accounts Offices

COMPACT application is running in Civil Accounts Organizations at over 350 expenditure locations in various PAO offices. It is a Client/Server application with multi-user facility for major accounting functions i.e. Pre-check, Compilation, GPF, Budget and Pension. Microsoft Windows Server Standard with varying versions 2008 / 2008 R2 / 2012 and the Microsoft SQL Server Standard with varying versions 2008 R2 / 2012 are installed at different locations in the Server. The Microsoft Windows XP / Vista / Windows 7 / Windows 8 operating system is installed in the Client Machines. For conducting the Pre-audit workflow, at least 3 client systems are required for the three audit levels (DH, AAO and PAO) to process the payments.



Database mirroring is implemented at every PAO location, on a per-database basis, and works only with databases that use the full recovery model, for ensuring zero data loss.

1.1.2 GePG Architecture at National Data Centre (NDC) at DC and DR Sites

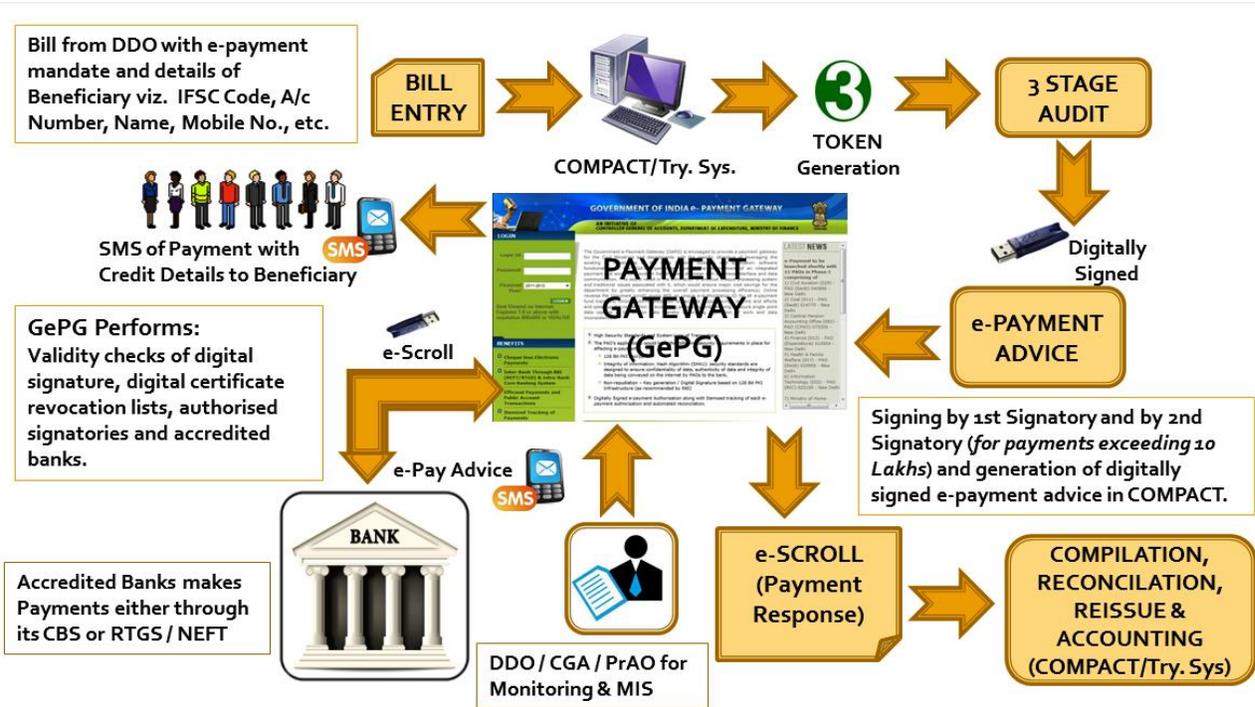
The Government e-Payment Gateway (GePG) middleware web-based application consists of 2 Web Servers in network load balancing along with 2 SQL Server reporting Services connects to two high end database Servers (*in an active passive failover cluster*) to meet the transaction and reporting requirements of the Pay and Accounts Offices, Banks and other stake holders. The application is housed at National Data Centre of the National Informatics Centre at Hyderabad with the Disaster Recovery Site hosted at the National Data Centre of the National Informatics Centre at Pune.

(ii) Interoperability

GePG is interoperable with other treasury systems through message exchange formats for signatory registration and for

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

exchange of e-payment advices with banks and receiving scrolls (payment response files) from banks into the Treasury system for reconciliation.



- The GePG application is interfaced with COMPACT an end-to-end workflow treasury application running in the Pay and Accounts Offices through eeb-services.
- The e-payment gateway is also integrated with all the Banks systems through web services for effecting payments and submitting payment responses (scrolls).
- The e-payment gateway is integrated with NIC's SMS services for sending SMS to beneficiaries and Bank Nodal Officers.
- It is also integrated with e-mail server of NIC (NICEMAIL) for SMTP services.
- The e-payment gateway exchanges data for checking Digital Signature Revocation lists with the respective Certifying Authorities.
- Data exchange formats have been standardized for external applications to use GePG. Department of Space, Department of Posts, Ministry of Railways are in the process of developing interfaces with GePG.

(iii) Security concerns

Security and confidentiality standards adopted

- High Security Standards and System Logs of Transactions.
- The PAO's applications has the following security requirements in place for effecting e-payments
 - 128/256 Bit PKI encryption.
 - Integrity of information: Hash Algorithm (SHA1): security standards are designed to ensure confidentiality of data, authenticity of data and integrity of data being conveyed on the internet by PAOs to the bank.
 - Non-repudiation – Key generation / Digital Signature based on 128/256 Bit PKI Infrastructure (as recommended by RBI)
- Digitally Signed e-payment Authorization along with Itemized tracking of each e-payment authorization and automated reconciliation.

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

Public Key Cryptography Standards #7 for signing e-payment authorisations has been adopted which offers the highest level of security. All digitally signed authorisations provides for (a) Accuracy and Authenticity, (b) Security, (c) Protection from unauthorized access, (d) is Tamper-resistant, (e) protection from Intentional - Fraud and (f) Credibility in Judicial Proceedings. The digitally signed authorisations will provide necessary AUTHENTICATION (the ability to prove the sender's identity), INTEGRITY (the ability to prove that there has been no change during transmission, storage, or retrieval), NON-REPUDIATION (the ability to prove that the originator of an authorisation is intended to be bound by the information contained in the authorisation). All three of these requirements which exist with a physically signed cheque are ensured in the digitally signed authorisation.

(iv) Any issue with the technology used

Technology related challenges faced

- a. Running SQL Server databases at over 380 PAO locations without a DBA is in itself a big challenge. We have built all required DBA operations and database management tasks like taking a backup, restoring from a backup, setting up mirroring of the two databases, through front end utilities. The database is locked at the time of installation by the application at the back end. All health parameters like log file size, database size, etc. are passed on from different COMPACT databases to a central server e-Lekha at the End-of-the-Day (EoD) operation and are monitored by the support team. The support team attends to the problems remotely over the Intra-CGA MPLS VPN and resolves issues.
- b. We were faced with implementing Digital signatures on the existing COMPACT application which was developed in VB6. A .NET DLL was included to the native application for creating the signature, getting the number of certificates in the store, displaying details of the certificate, or removing the signature and also insertion of digital signed documents to the Microsoft SQL Server database.
- c. Deploying Upgrades and patches over 350 locations is also a herculean task in itself. Here also we have leveraged on the EoD operation to check whether all COMPACT locations are updated with the latest patch and if not the user is forced to upgrade before he can resume using the COMPACT application.
- d. The GePG data is hosted in the Data Centre at NDC, Hyderabad and Disaster Recovery at NDC, Pune. The administration, maintenance and housekeeping tasks are managed and performed through remote management services from the Accounts Informatics Division, NIC, New Delhi.
- e. In order to overcome data loss risk at 380 decentralised database locations a Zero data loss solution was implemented across the PAO locations using Microsoft SQL Server Database Mirroring technology.

Lessons learnt from Technology choices and implementation strategy adopted

There are several lessons learnt during the implementation phase. Summarizing them as below:

- 1) A completely Centralised architecture would have been a better choice subject to availability of network connectivity at all PAO locations. However, we had to adopt a hybrid architecture because of the unavailability of sufficient bandwidth and redundancy connecting the Pay and Accounts Offices on the Intra-CGA VPN.
- 2) However, it was felt, within the available infrastructure available, the choice of technology and architecture adopted is the best way to move forward. The centralised architecture running GePG is available to Principal Accounts Offices of Ministries and Agency Banks while the Pay and Accounts Offices running COMPACT are connected through batch mode with the GePG application.
- 3) The Digital Signature Certificates of Pay and Accounts Offices are mandated to be issued from the NIC Certifying Authority as doing so helped in checking validity of certificates with respect to root certificates and checking against certificate revocation lists.

(v) Service level Agreements(SLAs) (Give details about presence of SLA, whether documented, whether referred etc. #)

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

The entire e-payment system is developed and managed by the National Informatics Centre and the O/o the Controller General of Accounts. The data center services are provided by NIC, National Data Centres at Hyderabad and Pune. Existing NIC data centre SLAs apply to this project as well. The Intra-CGA VPN is also maintained and managed by the National Informatics Centre. The application level support is provided by a dedicated Implementation Team and centralised Helpdesk.

6. Demonstrate innovative use of ICT for development (Give details about use of new and emerging technology, innovative usage of ICT for process change to improve quality of the life/organizational effectiveness, relevance of technology to provide the service #)

1. Software Used in the Project

COMPACT is the core application at the PAOs. It automates payment and receipts systems as well as accounting processes. Built on Visual Basic 6.0 it runs across over 350 PAOs spread over 80 locations. GePG is developed on Windows Server 2008 R2, ASP.NET, Microsoft SQL Server 2008 R2, Microsoft SQL Server mirroring technology and System Centre products.

This zero data loss solution is implemented across the PAO locations using Microsoft SQL Server Database Mirroring technology. A module has been added to the existing COMPACT system that is based on Visual Basic 6.0 and Microsoft SQL Server 2008 R2, for facilitating digital signatures using a .NET DLL. This .NET DLL allows functions that include creating the signature, getting the number of certificates in the store, displaying details of the certificate, or removing the signature and also insertion of digital signed documents to the Microsoft SQL Server database. The technologies used are ASP.NET, Visual Basic 6.0, Microsoft CryptoAPI, and Visual Basic.NET.

COMPACT application at over 400 PAO locations is a Client/Server application running on:

A. System Software Products	
Product Description	
Microsoft Windows Server Standard 2008 / 2008 R2 / 2012	
Windows Server CAL 2008 Single OLP D User CAL	
Microsoft SQL Server Standard 2008 R2 / 2012	
SQLCAL 2008R2 Single OLP D User CAL	
Microsoft Windows XP / Vista / Windows 7 / Windows 8 operating system in the Client systems	
B. Hardware Requirements	
Hardware Description	
COMPACT Server	Intel Xeon E 5310, 1.6 GHz 2 Processor Quad Core (to be supplied with one Quad Core processor as standard) 8 MB L2 cache
COMPACT Clients	Intel Core 2 Duo E4600, 2.4 GHz, 2 MB L2 cache and 800 MHz FSB.

- Zero data loss solution is implemented across the PAO locations using Microsoft SQL Server Database Mirroring technology.
- COMPACT system is based on Visual Basic 6.0
- A VB.NET DLL is included to the native application for creating the signature, getting the number of certificates in the store, displaying details of the certificate, or removing the signature and also insertion of digital signed documents to the Microsoft SQL Server database.
- The technologies used are:
 - ASP.NET,
 - Visual Basic 6.0,
 - Microsoft CryptoAPI, and
 - Visual Basic.NET.

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

Govt e-Payment Gateway (GePG) is hosted on Secure Socket Layer on IIS 7 and is developed in ASP.NET at National Data Centre, Hyderabad with Disaster recovery at NDC, Pune.

Application / SSRS Servers : IBM – 3550 M3 (2- Processor RAM 32 GB 1 HBA Card) Servers in Network Load Balanced at DC & DR Site at Hyderabad and Pune

Database Server : IBM – 3850X5 (4 – Processor, RAM 64 GB, 2 HBA Card) Servers in Active Passive Cluster at DC & DR Site at Hyderabad and Pune

Domain Controller : IBM- 3550 M3 (1- Processor, RAM 8GB) at DC & DR Site at Hyderabad and Pune

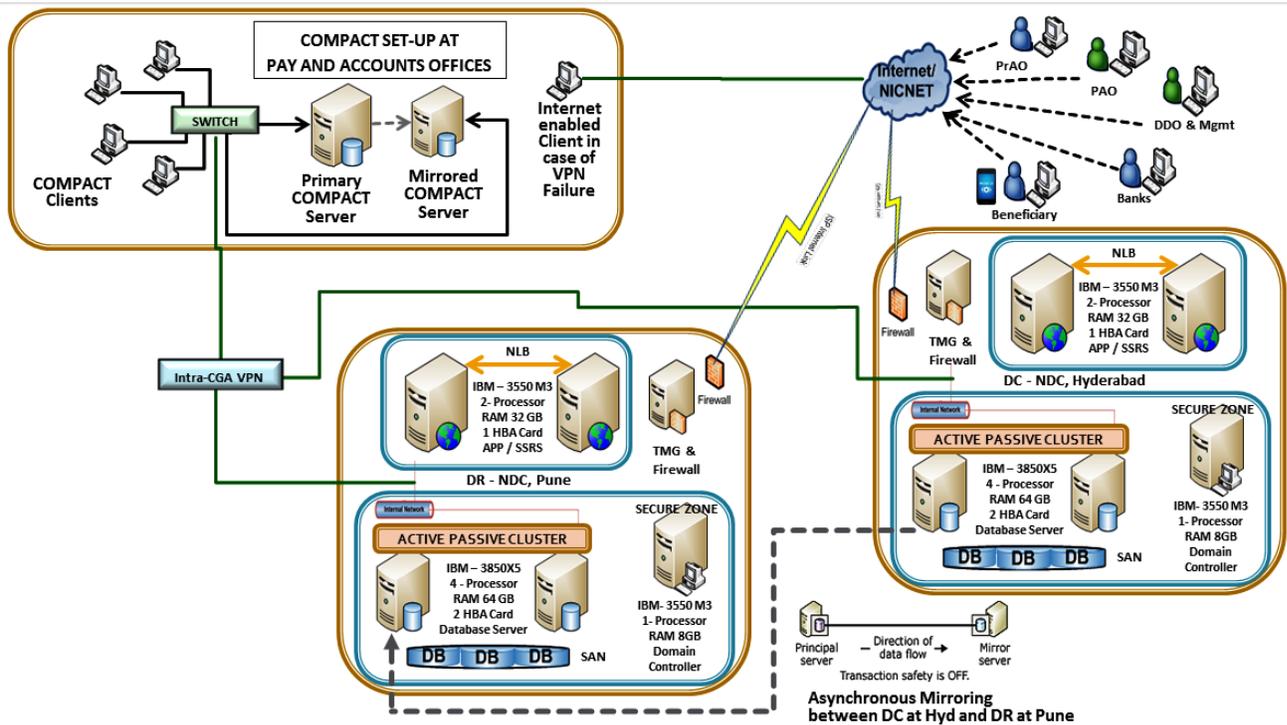
The GePG application is **integrated** with an **SMS Server** for sending alerts through SMS to beneficiaries and to the Bank Nodal Officer. It is also **integrated with the NICemail services of NIC for SMTP services**.

The DC and DR Sites are replicated using **Asynchronous Mirroring technology** of Microsoft SQL Server 2008 R2

2. Compliance of the Technology adopted with e-Government standards

- Information Technology Act 2000 Compliant. Section 5 of the Act gives legal recognition to digital signatures based on asymmetric cryptosystems. The digital signatures are now accepted at par with the handwritten signatures and the electronic documents that have been digitally signed are treated at par with the paper based documents.
- Compliance with Guidelines for Usage of Digital Signatures in e-Governance Version 1.0 (December 2010) with e-Government standards notified / recommended by the GOI.

3. Strategy for Disaster Recovery and service continuity



The above diagram shows the DC and DR deployment architecture at NDC, Hyderabad and NDC, Pune.

The GePG application is **integrated** with an **SMS Server** for sending alerts through SMS to beneficiaries and to the Bank Nodal Officer. It is also **integrated with the NICemail services of NIC for SMTP services**. The DC and DR Sites are replicated using **Asynchronous Mirroring technology** of Microsoft SQL Server 2008 R2.

Zero data loss solution is implemented across the PAO locations with a secondary mirrored server using Microsoft SQL Server Database Mirroring technology.

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

7. Citizen Centricity (Give specific details on the following#)

(i) Impact on effort, time and cost incurred by user,

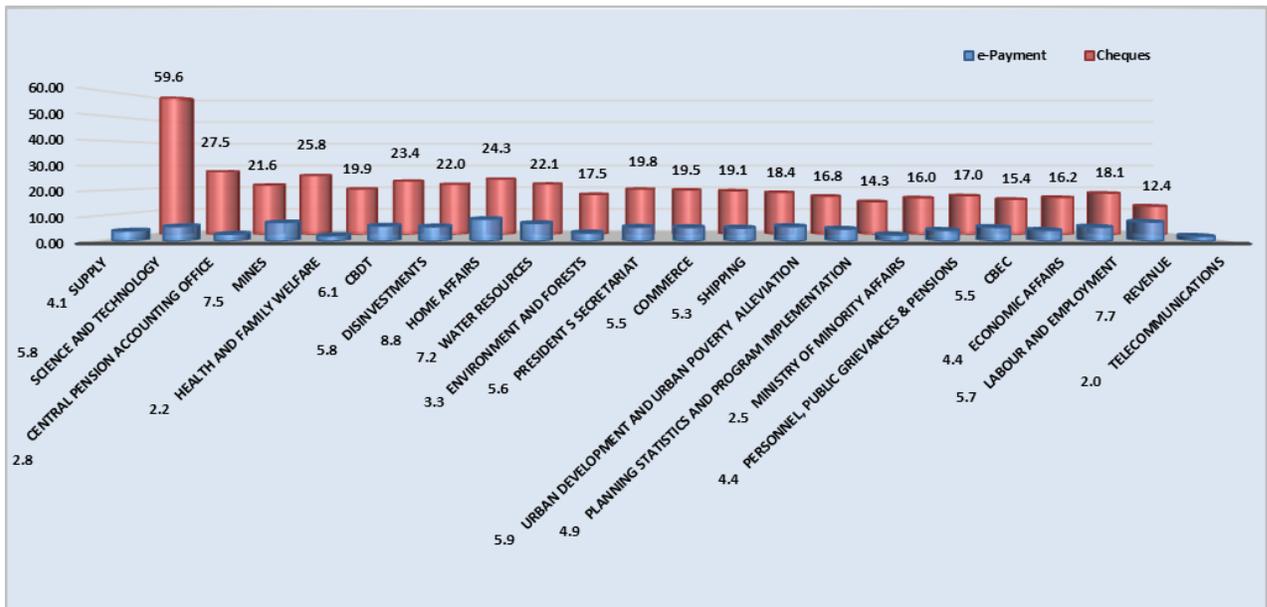
1. Innovative ideas implemented in e-Governance area and their impact on services

The Controller General of Accounts (CGA) wanted to improve efficiency of its payment systems to bring in greater transparency and faster processing. Typically a bill payment life cycle is about 20-22 days in the cheque based manual system. There are instances where high value bills have been kept pending much beyond 20 days due to corrupt practices. This E-Payment project aims to shrink the payment lifecycle, add transparency to Government Payment and Accounting Processes. The system has shrunk the payment life cycle from about 20 days to just 5 days. Apart from faster payment processing, multiple payment options offers a complete and transparent accounting processes. The objectives of better governance and improved efficiency are also met. Within one year, of its launch, the e-payments system via the new Government e-Payment Gateway (GePG) crossed U.S.\$ 78.5 billion approximately (INR ₹ 4,95,001.66 crore) to almost 2.8 million beneficiaries across 50 ministries through 22 public sector and private sector banks. With GePG, the office of the CGA is seeing significant improvement in efficiency of payment procedure, lowering of transaction costs, and just in time availability of funds. The system developed is a completely secure, web-based electronic payment service that brings transparency to government financial transactions. With over 1,00,000 bank branches currently enabled for e-payments, it has become feasible to transact electronically for government payments cutting across geographic divides. GePG improves efficiency of payment system by facilitating faster payments, quicker receipt of scrolls, and hassle free reconciliation. The result is enhancement of overall payment processing efficiency. Previously, payments were made through manual cheques. The writing, signing, issue, and dispatch of cheques were all manual. Now GePG ensures online fund transfer using digitally signed unique e-authorization ID. Earlier vendors and beneficiaries had no way of knowing when they will receive their payments. They had to regularly visit the department to find out at which stage their payment was stuck. GePG ensures complete transparency of the accounting process. The application reduces the beneficiary's dependency on the Government and Government employees to receive their dues/payments. GePG informs beneficiaries via SMS alerts with the payment details. Overall, GePG offers transparency, improved payment efficiency, and good governance. GePG is now gearing up to make Fertilizer, kerosene, LPG subsidy directly to beneficiaries.

2. Time and cost efficiency improvements

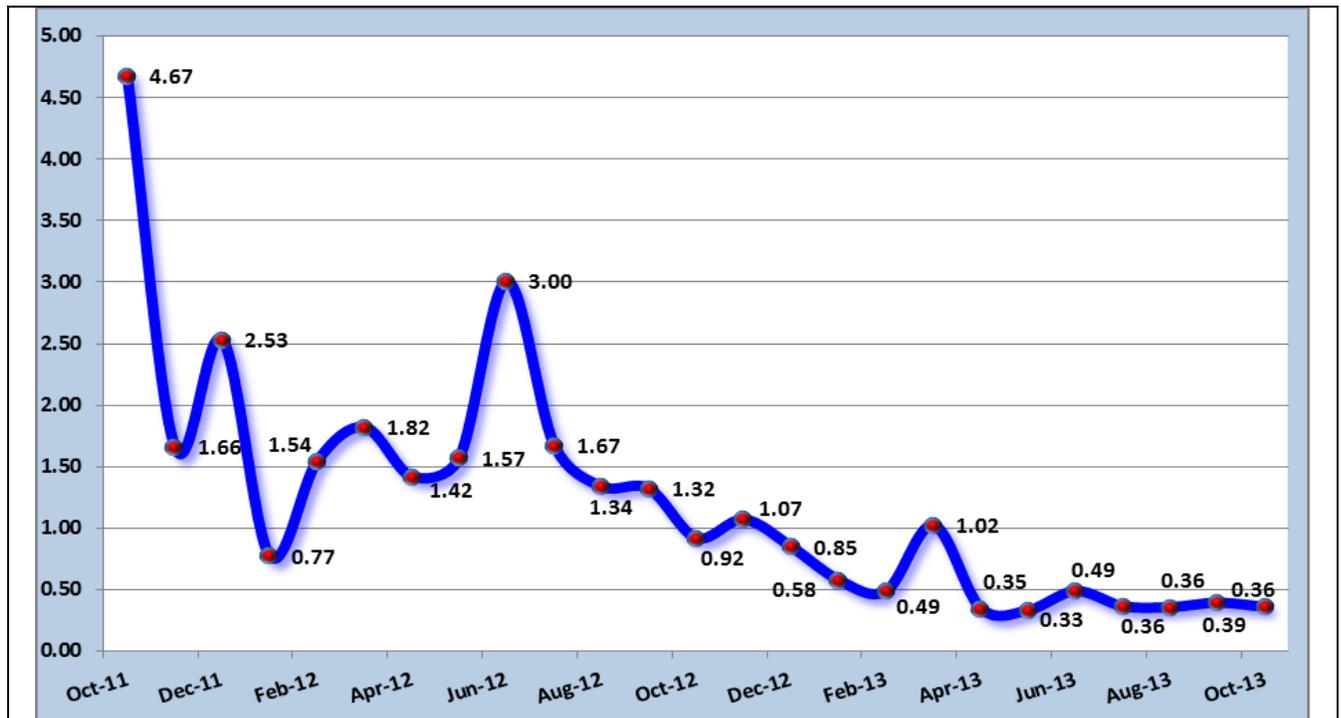
Some of the major Time and Cost efficiency improvements are as listed below:

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES



- The Payment Life Cycle has shrunk to **5.21 days (March, 2013)** from the Bill preparation Date to Beneficiary Account Credit date as against the average of 20.07 days in the Cheque based mode of payments before the introduction of e-payments. The chart below shows ministries where Savings > 10 days in the Bill Life Cycle during August, 2013:
- Paperless environment friendly payments – towards green banking. Lower transaction cost. About 76 Lakh Cheques eliminated from the system so far (**savings of ₹ 11.4 Crores** to the public exchequer). Can eliminate almost 2 crores cheques which would bring in a saving of ₹ (INR) 10 crores per year.
- Payment through Cheque has to go through a **13 stage time consuming process**. PAO now issues e-payment advices after only a **5-Stage process**, which is a 8 stage reduction in the payment process.
- Automated Banking Systems – Reduced requirements of branch offices to transact Govt. business – saving on manpower and resources at Agency Banks.
- A tool for good governance and reduction of corruption. Process Efficiency – free of discretion and bureaucratic delays.
- Improves efficiency of payment system by facilitating faster payments, quicker receipt of scrolls and hassle free transaction wise reconciliation.
- The reduction of failed transactions from 4.67% to **0.36%** can also be noted from the following chart:

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES



3. Green e-Governance

Government e-Payment Systems in itself is a Paperless environment friendly initiative – a big leap towards green banking and is expected to remove 2 crore cheques annually from the system which not only gives a savings of ₹ 10 crores per year, but also helps in reducing huge amounts of paper. Besides the system also eliminates paper based bank scrolls which was earlier the norm, to digitally signed e-scrolls which again not only reduces huge amounts of paper from the system but also provides a clean environment in the Pay and Accounts Offices as they do not have to store these paper based documents. Already since its inception the system has helped reduce 50 lakh cheques and about 1.5 Lakh paper scrolls from the system. The system also facilitates electronic bills (invoices) into COMPACT for making payments which will further reduce the usage of paper. Monitoring and MIS for different stake holder's viz. DDO, PAO, PrAO are also available online and will further reduce huge amounts of paper used for transacting Govt. business.

(ii) Feedback/grievance redressal mechanism,

The following mechanism exists for grievance redressal and support.

1. Constitution of a Cell for implementation of e-Payment System through GePG in PAOs of all Civil Ministries Departments.
2. Monitoring at the level of Principal Accounts Offices of Ministries is done on a day-to-day basis by respective Chief Controller of Accounts; at the level of Secretary Expenditure, Ministry of Finance, GoI, it was done on a fortnightly basis during the initial phase of the project. Reviews are also done during the regular CCA's meeting with the CGA and in Bank performance is reviewed at the Steering Committee meetings with Banks and Reserve Bank of India.
3. Initiation of a Centralised Helpdesk for Centralized Reporting, Monitoring of bugs related to problems & issues and end user support to all stakeholders.
4. The Drawing and Disbursing Officers and Pay and Accounts offices can also be approached for payment status enquiry of all e-payments initiated by them.

(iii) Audit Trails,

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

Complete audit trail of transactions at all levels are maintained in the system:

- 1) Logs maintained of all users logging into the system with date time stamp along with their system IP addresses.
- 2) Date time stamps kept of all e-advice uploaded by Paying Units of the Govt. of India.
- 3) Date time stamps kept of all Banks downloading e-payment advices and submitting e-scrolls (payment response files) on GePG.
- 4) All digitally signed e-payment advices uploaded by Paying Units and digitally signed e-Scrolls are stored in the database for future reference and retrieval.
- 5) Every transaction can be tracked at any point of time by stake holders.

(iv) Interactive platform for service delivery,

1. Paying Units have access to GePG for checking and tracking of status of each and every payment.
2. DDOs have access to GePG to check status of e-payment bills submitted by them.
3. SMS Alerts are generated for registered Bank Nodal Officer and concerned DDOs when PAOs submits e-payment advices on GePG for payments and SMS alerts to beneficiaries are sent when successful credit or failure information is submitted by accredited banks.
4. Paying Units gets SMS alerts when participating banks submits scrolls (*response files*) on GePG.
5. Beneficiary (*Vendors / Employees / Pensioners / Institutions / Citizens*) also have access to "Know your Payments" on GePG home page to track status of their payments through their registered mobile numbers and OTP (*One Time Password*).

(v) Stakeholder consultation

Project Management, Review & Stakeholder consultation

- Cell for implementation of e-Payment System through GePG in PAOs of all Civil Ministries Departments.
- Monitoring at the level of Principal Accounts Offices of Ministries is done on a day-to-day basis by respective Chief Controller of Accounts; at the level of Secretary Expenditure, Ministry of Finance, GoI, is done on a fortnightly basis during the initial phase of the project. Reviews are also done during the regular CCA's meeting with the CGA and in Bank performance is reviewed at the Steering Committee meetings with Banks and Reserve Bank of India.
- Centralised Helpdesk for Centralized Reporting, Monitoring of bugs related to problems & issues and end user support to all stakeholders.

Services, Capacity Building and Support

The Services and support utilized are completely in-house, provided by the Accounts Informatics Division of the National Informatics Centre for the development and maintenance of the application with technology support from Microsoft. The Data centre services are provided by the National Data Centres of the National Informatics Centre at Hyderabad and Pune.

The roll out, capacity building and implementation support is provided by the Office of the Controller General of Accounts, along with the Accounts Informatics Division (National Informatics Centre) and Institute of Government Accounts and Finance (INGAF) and its Regional Training Centres.

6. **Adaptability and Scalability** (Give details about Local language support, ability to leverage shared Government infrastructure, Standardization of technology used (hardware, software, application etc. #)

Adoption of adequate standards

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

The CGA IT systems which are mandated for a much wider coverage and scope catering to entire financial accounting systems for the Govt. Of India, have a focus on providing updated payments and accounts information to various stakeholders. These IT systems comprising several applications have evolved over the last many years with the high-level objective of meeting the mandates of the CGA's organization as specified in the business allocation to the organization (under Allocation of Business Rules, 1961 and government executive order of 1980).

Since these IT applications have evolved based on the requirements of ministries, available technologies and capacity of personnel to absorb and effectively utilize IT systems, they have not been implemented in the typical project mode and the bulk of the initiatives follow the internal need driven IT systems development approach. The CGA IT applications are developed to be in accordance with all legal / regulatory framework and accommodate any changes in these (e.g. the IT Act enabling e-payments requires appropriate systems to facilitate digital data technology for payment systems). Changes in relevant rules and regulations of government are undertaken as an ongoing exercise whenever required and follow the prescribed procedure for obtaining all necessary clearances, including audit approvals if required. Financial procedures adopted are as per the prescribed ones under the various rules and regulations e.g. the GFR, Receipt & Payment Rules etc. The IT systems are in line with the approved manuals and regulations including the Civil Accounts Manual, CTR, R&P etc.

Leveraging shared Government Infrastructure

The COMPACT and GePG applications runs on the Intra-CGA VPN which is a subnet on the NICNET/NKN infrastructure of the National Informatics Centre (NIC) with the last mile leased line connectivity provided by BSNL/MTNL to the nearest NICNET/NKN Node. All the 410 PAOs executing e-payments are part of the Intra-CGA VPN.

Government e-Payment Gateway (GePG) is run from the National Data Centre at NIC Regional centre, Hyderabad with the Disaster recovery site hosted at National Data Centre at NIC Regional Centre, Pune. Shared resources of both the NDCs have been leveraged to run the necessary services viz. Manpower and day-to-day maintenance, Storage (SAN), Networks, Application hosting and other data centre services and infrastructure.

Standardisation of technology Used

COMPACT is based on a Client-Server technology and is implemented for running treasury functions, General Provident Fund (GPF) management and Pension processing in all Pay and Accounts Offices of Civil Ministries of the Government of India. The technology adoption is standardised in terms of the hardware and software used and delivery of payment, receipts and accounting services.

Third Party Compliance

STQC - Standardization Testing and Quality Certification under D/o Information technology has carried out testing for functional and Security compliance for both COMPACT and GePG.

7. Adaptability Analysis

- (i) Measures to ensure adaptability and scalability

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The architecture of each system / solution was conceived at the time of its commencement with appropriate degree of clarity in keeping with the requirements and technology prevalent at that point of time. With technological advancements and growth in capabilities / possibilities offered, expansion in scoping and integration of these systems has been gradual. Though several options /solutions were considered by NIC, however technology limitations resulted in limited choice. The data architecture for systems were well defined within the limitation posed by technology prevalent at respective points of time. Where ever applicable, the network architecture is as per NIC data Centre network policy and guidelines. The security architecture is as per Cyber Security Policy of NIC. All possible delivery channels feasible under the technology have been adopted.

(ii) Measures to ensure replicability

Description of the services planned to be replicated in subsequent stages / phases

GePG is scalable for use not only by the PAOs/CDDOs under the CGA's umbrella, but also other govt. organizations in **Railways, Defence, Centrally Administered Union Territories, Posts and Telecommunication** and the **state governments** too. Already **Department of Telecommunications** has joined this initiative. The **State Govt. of Mizoram** has also requested for using the services of the e-payment gateway and efforts are underway to bring them into the ambit of e-payments. About **278 CPWD Divisions (47 Divisions** already on board) would soon be using the services of the e-payment gateway for making their vendor payments. The **Department of Supply** has also shown interest in using the e-payment gateway for making DGS&D payments. Over **2,500 Cheque Drawing DDOs** are also expected to come on board soon. All **inter-govt. advices for transfer to States** can also be routed through this gateway mechanism.

The GePG application is replicable through standard message exchange formats defined for exchange of e-payment advices, digital certificate registration, and e-scrolls between banks and paying units and can be easily replicable across all government paying units conducting payments through accredited banks of the Reserve Bank of India.

(iii) Restrictions, if any, in replication and or scalability

There are no known restrictions with respect to replicability and scalability.

(iv) Risk Analysis

In order to mitigate risk, the application went through the following cycles before it was adopted for delivery of payment services.

1. Development taken up and first prototype implemented in 5 PAOs of Ministry of Agriculture
2. Based on the feedback from the prototype several enhancements in the e-payment system carried out.
3. 9 Rounds of testing carried out to eliminate bugs.
4. Standardisation Testing and Quality Certification (STQC) Directorate of the Department of Electronics and Information Technology (DeitY) carried out extensive three rounds of testing for functional and Security compliance.

Lessons learnt from Technology choices and implementation strategy adopted

There are several lessons learnt during the implementation phase. Summarizing them as below:

- 1) A completely Centralised architecture would have been a better choice subject to availability of network connectivity at all PAO locations. However, we had to adopt a hybrid architecture because of the unavailability of sufficient bandwidth and redundancy connecting the Pay and Accounts Offices on the Intra-CGA VPN.
- 2) However, it was felt, within the available infrastructure available, the choice of technology and architecture

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adopted is the best way to move forward. The centralised architecture running GePG is available to Principal Accounts Offices of Ministries and Agency Banks while the Pay and Accounts Offices running COMPACT are connected through batch mode with the GePG application.

- 3) The Digital Signature Certificates of Pay and Accounts Offices are mandated to be issued from the CCA-India Licensed Certifying Authorities as doing so helped in checking validity of certificates with respect to root certificates and checking against certificate revocation lists.

10. **New Models of Service Delivery** (Give details about type of partnership model use, Links to/Supported by Public/Private Organization Links provided to relevant websites etc. #)

The Services and support utilized are completely in-house, provided by the Accounts Informatics Division of the National Informatics Centre for the development and maintenance of the application with technology support from Microsoft. The Data centre services are provided by the National Data Centres of the National Informatics Centre at Hyderabad and Pune.

The roll out, capacity building and implementation support is provided by the Office of the Controller General of Accounts, along with the Accounts Informatics Division (National Informatics Centre) and Institute of Government Accounts and Finance (INGAF) and its Regional Training Centres.

Interface available to government payment recipients through a one time password using their registered mobile numbers. All other stake holders have access to the application through a userid and password authentication.

11. **Efficiency Enhancement** (Give specific details about the following #)

(iii) Volume of transactions processed

Volume of transactions processed

- Registration of Digital Certificates of signatories through a workflow in COMPACT and GePG (*over 6129 signatories registered – 1725 activated and 4404 deactivated*)
- Registration of participating Banks in GePG (**22 banks along with its Nodal officers**)
- Processing of bills pertaining to e-payments to beneficiaries which include retired and employed government employees, vendors, contractors and others receiving government funds, through an end-to-end workflow in COMPACT. (**26,35,412 bills, 76,38,242 transactions, totalling ₹ (INR) 8,82,740.79 Crores**)
- Generation of digitally signed e-payment advices (**over 2,55,025 advices containing 76,38,242 transactions**) and pushed into GePG for payments.
- Over **76,00,893** successful transactions reported by participating banks
- Reissue of **37,021** transactions which had failed.
- About **76 Lakh Cheques** eliminated from the system so far (savings of ₹ **11.4** Crores to the public exchequer)
- SMS alerts are generated for Bank Nodal Officer when PAO pushes e-payment advices to GePG and SMS alerts are sent to beneficiaries when bank submits scroll (payment response) into GePG. Over **2,55,218 SMSes sent to Bank Nodal Officers** and over **25,02,572 SMSes sent to beneficiary** informing them of credit/failed payments made into their accounts.

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e-Payments through GePG touched INR ₹ **8,82,740.79** Crores as on **28-Aug-2014** with over **76,38,242** successful e-payment Authorisations from **410** Pay and Accounts Offices and **47** Cheque Drawing DDOs of **54** Ministries and Departments made through **22** Public Sector and Private Sector Banks.

The Payment Life Cycle has shrunk to **4.15 days** during September, 2013 from the Bill preparation Date to Beneficiary Account Credit date as against the average of **20.07 days** in the Cheque based mode of payments before the introduction of e-payments.

SMS Alerts are generated for Banks when PAOs submits e-payment advices on GePG and SMS alerts to beneficiaries when credit information is uploaded by accredited banks.

Volume of e-payment Transactions (Amount in Crores)											
Apr, 2012		June, 2012		Aug, 2012		Oct, 2012		Dec, 2012		Feb, 2013	
(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹
52.79	9,563	55.53	26,860	78.15	29,040	87.75	22,798	78.11	23,773	70.50	17,590
April, 2013		June, 2013		Aug, 2013		Oct, 2013		Dec, 2014		Feb, 2014	
(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹
57.47	25,088	65.18	41,171	92.94	34,843	94.87	31,602	93.04	24,983	93.17	24,027

(iv) Coping with transaction volume growth

Efforts to ensure sustainability of the e-Governance initiative

The project is envisaged to run perpetually but, may need to be augmented from time to time to meet scalability requirements as more ministries / State Governments join the system. Steps are already being carried out to augment scalability at both the National Data Centres at Hyderabad and Pune where the GePG application is hosted. The system is also being tuned for enabling Aadhaar based payments and NECS in addition to the existing modes.

The COMPACT – GePG application is also being modified to handle –

- Remittance of Subscription of New pension Scheme (NPS) of employees to trustee bank through GePG.
- Facilitating e-payments in the PAOs of Ministry of Space, Atomic Energy and Union Territories.
- Introducing e-payments in over 278 CPWD Divisions (47 divisions already on board) for all Vendor payments and 2500 Cheque Drawing DDOs.
- Vendor payments of DGS&D for the Department of Supply, Ministry of Commerce.
- Implementing e-payments in the treasuries of Govt. of Mizoram and Govt. of Delhi.
- Implementation of e-payments in payment units of Indian Railways.
- Take up low value transactions less than ₹25,000/- and salary payments which are currently not mandatory for e-payments.
- All inter-govt. advices for transfer to States to be routed through this e-payment gateway.

Already **Department of Telecommunications** has joined this initiative. The CGA is also considering making all direct subsidy payments with respect to Fertilizers, Kerosene, LPG, etc. through the e-payment gateway. Inclusion of Ministry of Defence, Railways, Atomic Energy, Space, Posts and Telecommunications and the Union Territories are also in the anvil.

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The Government e-Payment Systems are already being scaled up to meet the following key load indicators –

Key Load Indicators

Data Transfer Process			
1	Expected number of records to be received from COMPACT and Banks per day	Peak Load	10,00,000
		Average Load	1,00,000
2	Size of the file to be transferred	Peak Load	30 MB in worst case (Limited to 50,000 records per file)
		Average Load	Same as above
3	Number of files to be transferred	Peak Load	80
		Average Load	8
4	Number of Principal Offices	110	
5	Number of PAOs + Spending Units	3,000	
6	Number of Bank users	42	
Data Load Process			
1	Expected number of files to be processed per day (Payments and Scrolls)	Peak Load	40
		Average Load	4
2	Expected number of records to be processed per day (Payments and Scrolls)	Peak Load	20,00,000
		Average Load	2,00,000
3	Expected number of records per file	50,000	
4	Number of database transactions per record	25	
Data Processing Logic			
1	Average Number of calculations per record	5	
2	Average Number of lookups per record	10	
MIS / Reporting Load			
1	Total number of online users accessing reports	16,787	Principal Officers = 110
			PAO = 912
			DDO = 15,723
			Banks = 42
2	Number of concurrent users	8,394	50% concurrency

(v) Time taken to process transactions,

The business processes that were reengineered to make the system more efficient resulted in huge efficiencies in the payment and accounting processes. The payment life cycle saw a 3.85 times savings in time and settlement cycle for e-payment saw a 9.5 fold savings in crediting beneficiary accounts. There was no room for corrupt practices as the process for crediting beneficiary's account is automated and the entire process traceable. The table below illustrates the point:

E-PAYMENT VS. PHYSICAL PAYMENT BILL LIFE CYCLE REPORT (Amount in ₹ Crores)			
E-Payment (1 st Sep, 2013 – 30 th Sep, 2013)		Cheque Payment (Prior to e-payment – April, 2012)	
Bills	Timeline Analysis (Days)	Bills	Timeline Analysis (Days)

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

No. of Bills	Amount (₹)	Avg. Bill Date - Token Date	Avg. Token Date -e- Pay Date	Avg. e-Pay Date - e- Scroll Date	Total No. of Days	No. of Bills	Amount (₹)	Avg. Bill Date - Token Date	Avg. Token Date - Cheque Date	Avg. Cheque Date-Scroll Date	Total No. of Days
31,781	17,571	1.43	2.02	0.70	4.15	1,73,257	24,252	6.87	5.18	8.02	20.07

11.46 Times increase in efficiency in crediting beneficiary accounts by Banks

4.84 Times increase in efficiency in Bill Life Cycle

The Cheque based Bill life cycle process which was a 13 stage process has now been reduced to only a 5 stage process with e-payments.

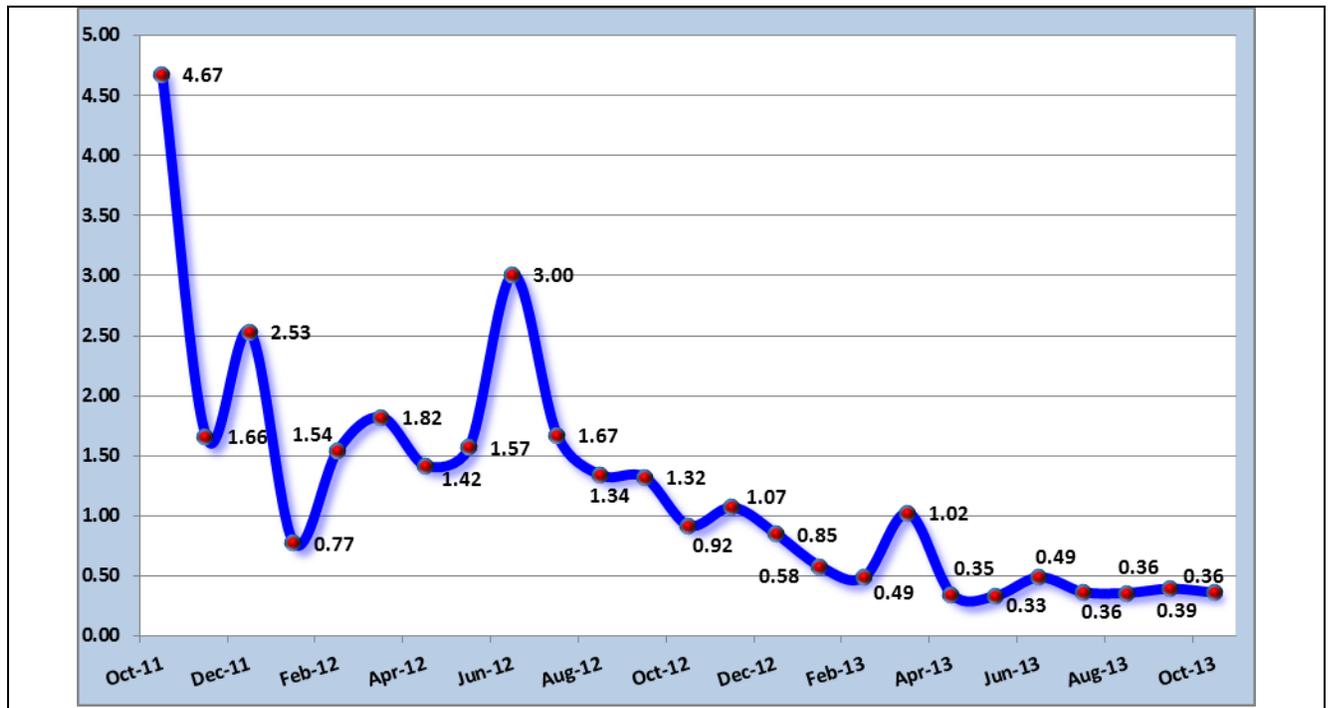
Beneficiary Credit Life Cycle						
E-Payment						Cheque Payment
Apr, 2012	May, 2012	June, 2012	July, 2012	Aug, 2012	Sep, 2012	April, 2012
1.47	1.38	1.69	1.69	1.62	1.35	8.02
Oct, 2012	Nov, 2012	Dec 2012	Jan 2013	Feb 2013	Mar 2013	
1.65	1.73	2.19	1.81	1.37	0.84	

(vi) Accuracy of output,

The e-payment initiative has a high success rate, because the beneficiary details are updated into the beneficiary database after receiving a mandate duly signed by the beneficiary and authenticated by his/her banker about the validity of the account and KYC details. Very few transactions have failed, and that too because of lack of adequate care being taken in updating the beneficiary database. The accuracy of payments and transactions is also due to the following:

- Automated Banking Systems – Reduced requirements of branch offices to transact Govt. business – saving on manpower and resources at Agency Banks.
- Improves efficiency of payment system by facilitating faster payments, quicker receipt of scrolls and hassle free transaction wise reconciliation.
- The reduction of failed transactions from 4.67% to 0.36% can also be noted from the following chart:

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(vii) Number of delays in service delivery

There are no delays observed in the delivery of payment services except in the following cases.

- 1) Due to an incorrect mandate given by the beneficiary with respect to the account no provided by him/her, the e-payment would fail. Following which, the PAO needs to get a correct mandate from the beneficiary through the DDO for reinitiating such payments. In some cases the delay in reissue of failed transactions has been found to be about 15 days. However, the percentage of failure is less than 0.27% and is not such a worrying factor. Besides once corrected and a successful payment is made, the beneficiary database is updated and such a failure on account of invalid account number would never happen again.

12. User convenience (Give specific details about the followings #)

(i) Service delivery channels (Web, email, SMS etc.)

- Web based access for tracking of successful payments and failed transactions is available to Drawing and Disbursing Offices for checking of status of bills sent to the Paying Units (PAOs/CDDOs).
- Web based access for tracking of payments is available to Paying Units for tracking successful payments and failed transactions using various filter criteria.
- SMS Alerts are generated for registered Bank Nodal Officer and concerned DDOs when PAOs submits e-payment advices on GePG for payments and SMS alerts to beneficiaries are sent when successful credit or failure information is submitted by accredited banks.
- Paying Units gets SMS alerts when participating banks submits scrolls (*response files*) on GePG.
- Beneficiary (*Vendors / Employees / Pensioners / Institutions / Citizens*) also have access to “**Know your Payments**” on GePG home page to track status of their payments through their registered mobile numbers and OTP (*One Time Password*).
- E-mail alerts are also sent to banks and users for status of transactions as well as for resetting of passwords in the GePG application.

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(ii) Completeness of information provided to the users

- Beneficiaries getting Govt. of India payments receives complete information with respect to their payments or Failed payments which includes the nature of payment, transaction ID/UTR No. date of payment and amount credited or reason for failure as the case may be.
- DDOs get information with respect to their bills, token date and time, payment issue date and time, credit date and time including transaction ID/UTR No. or failed transaction details as the case may be.
- PAOs get information relating to all payments made by them. They can track the status of each and every authorisation issued by them until the credit is effected into the beneficiary's account.
- Accredited Banks get information about upload of e-payment advices on GePG by paying units.
- The CGA's Office management team gets all necessary MIS to manage and monitor payment and credit cycles.

(iii) Accessibility (Time Window)

GePG is available on the web and services are available 24 hours through a browser interface.

(iv) Distance required to travel to Access Points

Since GePG is available on the web and through a browser interface, access to all stakeholders is available through an internet enabled browser or mobile device.

(v) Facility for online/offline download and online submission of forms

Online/Offline download and upload facility available for Paying Units and Banks where connectivity is not adequate.

(vi) status tracking

- Web based access for tracking of successful payments and failed transactions is available to Drawing and Disbursing Offices for checking of status of bills sent to the Paying Units (PAOs/CDDOs).
- Web based access for tracking of payments is available to Paying Units for tracking successful payments and failed transactions using various filter criteria.
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- Paying Units gets SMS alerts when participating banks submits scrolls (*response files*) on GePG.
- Beneficiary (*Vendors / Employees / Pensioners / Institutions / Citizens*) also have access to "**Know your Payments**" on GePG home page to track status of their payments through their registered mobile numbers and OTP (*One Time Password*).

13. **Sustainability** (Give details about sustainability w.r.t. technology (technology used, user privacy, security of information shared – Digital Encryption etc. #), Organization (hiring trained staff, training etc. #), financial (Scope for revenue generation etc. #))

Special efforts to ensure sustainability of the e-Governance initiative

The project is envisaged to run perpetually but, may need to be augmented from time to time to meet scalability requirements as more ministries / State Governments join the system. Steps are already being carried out to augment scalability at both the National Data Centres at Hyderabad and Pune where the GePG application is hosted. The system is also being tuned for enabling Adhar based payments and NECS in addition to the existing modes.

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

The COMPACT – GePG application is also being modified to handle –

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- Introducing e-payments in over 273 CPWD Divisions for all Vendor payments and 2500 Cheque Drawing DDOs.
- Vendor payments of DGS&D for the Department of Supply, Ministry of Commerce.
- Implementing e-payments in the treasuries of Govt. of Mizoram.
- Take up low value transactions less than ₹25,000/- and salary payments which are currently not mandatory for e-payments.
- All inter-govt. advices for transfer to States to be routed through this e-payment gateway.

Already **Department of Telecommunications** has joined this initiative. Inclusion of Ministry of Defence, Railways, Atomic Energy, Space, Posts and Telecommunications and the Union Territories are also in the anvil. Binging in all Cheque Drawing DDOs into the ambit of e-payments is underway. 278 CPWD Divisions (47 Divisions are already on board) are to be on boarded by the end of this year.

The Government e-Payment Systems is being scaled up to meet the following key load indicators –

Key Load Indicators

Data Transfer Process			
1	Expected number of records to be received from COMPACT and Banks per day	Peak Load	10,00,000
		Average Load	1,00,000
2	Size of the file to be transferred	Peak Load	30 MB in worst case (Limited to 50,000 records per file)
		Average Load	Same as above
3	Number of files to be transferred	Peak Load	80
		Average Load	8
4	Number of Principal Offices	110	
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6	Number of Bank users	42	
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1	Expected number of files to be processed per day (Payments and Scrolls)	Peak Load	40
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2	Expected number of records to be processed per day (Payments and Scrolls)	Peak Load	20,00,000
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3	Expected number of records per file	50,000	
4	Number of database transactions per record	25	
Data Processing Logic			
1	Average Number of calculations per record	5	
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MIS / Reporting Load			
1	Total number of online users accessing reports	16,787	Principal Officers = 110
			PAO = 912
			DDO = 15,723
			Banks = 42
2	Number of concurrent users	8,394	50% concurrency

AWARDS SCHEME FOR EXEMPLARY IMPLEMENTATION OF e-GOVERNANCE INITIATIVES

1. Capacity Building and Status

Training programs have been conducted by the Institute of Government Accounts and Finance (INGAF), New Delhi and its Regional Training Centres at Kolkata, Chennai and Mumbai. In all around 30 programs have been conducted so far to train 350 Pay and Accounts Offices and their staff.

4. Workshops on COMPACT – Lekha best practices and e-Payment Sensitization.
5. Training Videos of e-payment processes distributed to all Stake holders.
6. Series of trainings on e-payments were conducted details of which are as follows:

TRAININGS CONDUCTED ON THE GOVERNMENT e-PAYMENT SYSTEMS						
Type	From Date	To Date	INGAF Delhi		RTC, Kolkata, Mumbai and Chennai	
			PAO	Persons Trained	PAO	Persons Trained
Basic Trainings	07-02-2012	28-02-2012	67	134	53	106
	05-03-2012	22-03-2012	30	60	69	138
	29-01-2013	08-03-2013	26	52	72	144
	28-05-2013	20-06-2013	20	40	47	94
Refresher Workshops and feedback	07-10-2013	16-12-2013	143	286	241	482

2. Hardware and Software Procurement and Costs Incurred

- Necessary Servers and Client Systems and associated system and RDBMS software at PAOs was procured by individual ministries.
- Data Centre hardware and infrastructure at NDC, Hyderabad as well as at Disaster recovery site was set up.
- Procurement of the Digital signature certificates for Pay and Accounts Offices on USB I-Key tokens.

The Financial impact was diffused and staggered over time. Respective ministries / departments provided necessary budget for procurement of hardware and software at their Pay and Accounts Offices. The source of funds for the Data Centre and Disaster Recovery Centre was provided by the Office of the Controller General of Accounts from its own budget. Data Centre Infrastructure, Support and Trainings were conducted in-house and with the assistance of the National Informatics Centre and cannot be quantified. The figures shown below are approximate.

1. Total cost of implementing the project: ₹ 18.04 Crores
2. Total cost of hardware that was used for this project: ₹ 11.94 Crores
3. Total cost of software that was used for this project: ₹ 5.81 Crores
4. Total cost of consultancy charges: Not Applicable
5. Total cost of services and manpower: ₹ 28.8 Lakhs
6. Recurring cost of project: ₹ 14.4 Lakhs per annum

3. Cost effectiveness

Government e-Payment Systems in itself is a Paperless environment friendly initiative – a big leap towards green banking and is expected to remove 2 crore cheques annually from the system which not only gives a savings of ₹ 10 crores per year, but also helps in reducing huge amounts of paper. Besides the system also eliminates paper based bank scrolls which was earlier the norm, to digitally signed e-scrolls which again not only reduces huge amounts of paper from the system but also provides a clean environment in the Pay and Accounts Offices as they do not have to store these paper based documents. Already since its inception the system has helped reduce 50 lakh cheques and about 1.5 Lakh paper scrolls from the system. The system also facilitates electronic bills (invoices) into COMPACT for making payments which will further reduce the usage of paper. Monitoring and MIS for different stake holder's viz. DDO, PAO, PrAO are also available online and will further reduce huge amounts of paper used for transacting Govt.

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business.

Compliance of the Technology adopted with e-Government standards

- Information Technology Act 2000 Compliant. Section 5 of the Act gives legal recognition to digital signatures based on asymmetric cryptosystems. The digital signatures are now accepted at par with the handwritten signatures and the electronic documents that have been digitally signed are treated at par with the paper based documents.
- Compliance with Guidelines for Usage of Digital Signatures in e-Governance Version 1.0 (December 2010) with e-Government standards notified / recommended by the GOI.

14. Result Achieved/ Value Delivered to the beneficiary of the project-(share the results, matrices, key learning's, feedback and stakeholders statements that show a positive difference is being made etc.):

(i) To organization

Value Delivered from these services

The Government e-Payment System has been implemented in over 400 Pay and Accounts Offices of different civil ministries / departments of the Govt. of India spread over 80 locations all over India. e-Payments through GePG touched INR ₹ **8,82,740.79** Crores as on **28-Aug-2014** with over **76,38,242** successful e-payment advices from **410** Pay and Accounts Offices and **47** Cheque Drawing DDOs of **54** Ministries and Departments made through **22** Public Sector and Private Sector Banks. Significant benefits have been achieved with the introduction of e-payments. Primary among them are as follows:

- Saving in time and efforts due to online fund transfer using digitally signed unique e-authorization ID. Payment life cycle shrunk from 20.07 days in the Cheque era to 5.21 days now.
- Secured mode of payment. Digital signature based payment system is security compliant
- Transparency in payment procedures. A tool for good governance and reduction of corruption
- Elimination of physical cheques and their manual processing. Helps environmental protection by eliminating paper based physical payment instruments and scrolls. Can eliminate almost 2 crores cheques which would bring in a saving of ₹ (INR) 10 crores per year.
- Elimination of constraints of manual deposit of cheque by the payee into his bank account. Reduces the beneficiary's dependency on Government and its employees to receive their dues / payments.
- Enhancement of overall payment processing efficiency.
- Online auto-reconciliation of payments. Improves efficiency of payment system by facilitating faster payments, quicker receipt of scrolls and hassle free reconciliation.
- Efficient compilation of accounts.
- Complete audit trail of transactions at all levels.

(ii) To citizen

Govt. payment recipients viz. Employees, Vendors, etc. (**currently over 7,69,617 beneficiaries**) covered by the system. Beneficiaries have access to know the status of their payments through their registered mobile number using an OTP (*one time password*). The application reduces the beneficiary's dependency on the Government and Government employees to receive their dues/payments.

(iii) Other stakeholders

Private Sector and Public Sector Banks (**currently 22 debit branches and 47,490 recipient branches**) have been able

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to provide Government payment services promptly owing to automating e-payment systems through their Nodal branches effecting e-payments. Automated Banking Systems – Reduced requirements of branch offices to transact Govt. business – saving on manpower and resources.

15. Extent to which the Objective of the Project is fulfilled-(benefit to the target audience i.e.G2G, G2C, G2B, G2E or any other, size and category of population/stakeholder benefited etc.):

This electronic payment system ushers in a less-cash society in India and effects payments and settlements in a safe, efficient, interoperable, authorised, accessible, and inclusive and in a way which is compliant with international standards. This system has expedited direct payments from central paying units relating to existing and retired Government employees, contractors and other entities receiving payments. The digitally signed e-advice is pushed by the PAOs on GePG, which are then consumed by the concerned banks to credit the beneficiaries' accounts through CBS/NEFT/RTGS/APB. The e-payment system effects payments without involving conventional payment instruments such as cash, cheques and demand drafts, and thus save time and constraints of manual deposit. The system facilitates online reconciliation of transactions and efficient compilation of payment accounts. By this initiative, the Controller General of Accounts expects to bring about increased transparency and promote good governance in the public sector. One of the declared objectives of the Government is to make e-payments mandatory for all payments above ₹ 25,000/- . E-Payments through COMPACT and GePG has achieved almost 90-93% of the total Government payments as indicated in the table below.

Volume of e-payment Transactions (Amount in Crores)											
Apr, 2012		June, 2012		Aug, 2012		Oct, 2012		Dec, 2012		Feb, 2013	
(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹
52.79	9,563	55.53	26,860	78.15	29,040	87.75	22,798	78.11	23,773	70.50	17,590
April, 2013		June, 2013		Aug, 2013		Oct, 2013		Dec, 2014		Feb, 2014	
(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹	(%)	(INR) ₹
57.47	25,088	65.18	41,171	92.94	34,843	94.87	31,602	93.04	24,983	93.17	24,027

16. Comparative Analysis of earlier Vs new system with respect to the BPR, Change Management, Outcome/benefit, change in legal system, rules and regulations

Efficiency and Improvement Over Earlier Systems

Some of the major Time and Cost efficiency improvements are as listed below:

- The Payment Life Cycle has shrunk to 5.21 days (March, 2013) from the Bill preparation Date to Beneficiary Account Credit date as against the average of 20.07 days in the Cheque based mode of payments before the introduction of e-payments. The chart below shows ministries where Savings > 10 days in the Bill Life Cycle during August, 2013:
- Paperless environment friendly payments – towards green banking. Lower transaction cost. About 76 Lakh Cheques eliminated from the system so far (savings of ₹ 11.4 Crores to the public exchequer). Can eliminate almost 2 crores cheques which would bring in a saving of ₹ (INR) 10 crores per year.
- Payment through Cheque has to go through a 13 stage time consuming process. PAO now issues e-payment advices after only a 5-Stage process, which is a 8 stage reduction in the payment process.

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- Automated Banking Systems – Reduced requirements of branch offices to transact Govt. business – saving on manpower and resources at Agency Banks.
- A tool for good governance and reduction of corruption. Process Efficiency – free of discretion and bureaucratic delays.
- Improves efficiency of payment system by facilitating faster payments, quicker receipt of scrolls and hassle free transaction wise reconciliation.

Innovative ideas implemented in e-Governance area and their impact on services

The Controller General of Accounts (CGA) wanted to improve efficiency of its payment systems to bring in greater transparency and faster processing. Typically a bill payment life cycle is about 20-22 days in the cheque based manual system. There are instances where high value bills have been kept pending much beyond 20 days due to corrupt practices. This E-Payment project aims to shrink the payment lifecycle, add transparency to Government Payment and Accounting Processes. The system has shrunk the payment life cycle from about 20 days to just 5 days. Apart from faster payment processing, multiple payment options offers a complete and transparent accounting processes. The objectives of better governance and improved efficiency are also met. Within one year, of its launch, the e-payments system via the new Government e-Payment Gateway (GePG) crossed U.S.\$ 78.5 billion approximately (INR ₹ 4,95,001.66 crore) to almost 2.8 million beneficiaries across 50 ministries through 22 public sector and private sector banks. With GePG, the office of the CGA is seeing significant improvement in efficiency of payment procedure, lowering of transaction costs, and just in time availability of funds. The system developed is a completely secure, web-based electronic payment service that brings transparency to government financial transactions. With over 1,00,000 bank branches currently enabled for e-payments, it has become feasible to transact electronically for government payments cutting across geographic divides. GePG improves efficiency of payment system by facilitating faster payments, quicker receipt of scrolls, and hassle free reconciliation. The result is enhancement of overall payment processing efficiency. Previously, payments were made through manual cheques. The writing, signing, issue, and dispatch of cheques were all manual. Now GePG ensures online fund transfer using digitally signed unique e-authorization ID. Earlier vendors and beneficiaries had no way of knowing when they will receive their payments. They had to regularly visit the department to find out at which stage their payment was stuck. GePG ensures complete transparency of the accounting process. The application reduces the beneficiary's dependency on the Government and Government employees to receive their dues/payments. GePG informs beneficiaries via SMS alerts with the payment details. Overall, GePG offers transparency, improved payment efficiency, and good governance. GePG could be geared to make Fertilizer, kerosene, LPG subsidy directly to beneficiaries.

17. Other distinctive features/ accomplishments of the project:

AWARDS AND ACCOLADES

AWARD	DESCRIPTION
	Awarded the Xth PCQuest – Best IT Implementation of the Year 2013 – Project with Maximum Scale
	Finalist in the e-INDIA e-Governance Initiative of the Year at the e-INDIA Governance Summit 2013
	SKOCH PLATINUM AWARD for being rated amongst "THE HIGHEST SCORING PROJECTS IN INDIA DURING 2013" at the 33 rd SKOCH Summit – Practices for Smart Governance
	SKOCH Order of Merit - India's Best – 2013 at the 33 rd SKOCH Summit – Practices for Smart Governance

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 <p>CSI-Nihilent e-Governance Awards Recognizing eGov initiatives Since 2003</p>	Award of Excellence, CSI Nihilent e-Governance Awards 2012-13 as part of 48th Annual Convention of Computer Society of India (CSI-2013)
 <p>elets CloudGov 2014</p>	Winner of elets - CloudGov 2014 Awards in the category "Best Cloud Usage for Business Efficiency".

This is just an indicative list of indicators. Applicant can add on more information based on suitability of the project nominated.