

 AN INDIAN EXPRESS GROUP PUBLICATION

VOLUME NO.29, NO.5, PAGES 12, MAY, 2018, ₹75

EXPRESS COMPUTER

7 | FEATURE

Digital, an important contributor to having one of the Industry's lowest expense ratio for ICICI Pru Life



8 | FEATURE

'Designing GSTN was like building a ship while its sailing'



6 | FEATURE

Andhra Pradesh takes pole position in developing a fintech ecosystem



6 | FEATURE

How Punjab is curbing unauthorised constructions through GIS-based app



10 | EVENT

Smart Infrastructure Symposium: Charting the path ahead



LEARNINGS FROM INDIA'S BEST E-GOVERNANCE PROJECTS

Express Computer presents a snapshot of India's most innovative e-Governance projects that involve interesting usage of technology to solve some of India's most pressing issues from Right to Education to curbing revenue leakages

**EXPRESS
COMPUTER**

Vol 29, No. 5, May, 2018

Chairman of the Board

Viveck Goenka

Sr Vice President - BPD

Neil Viegas

Editor

Srikanth RP*

Delhi

Mohd Ujaley, Sandhya Michu

Mumbai

Nivedan Prakash, Abhishek Raval, Mohit

Rathod

Bengaluru

Rachana Jha

DESIGN

National Design Editor

Bivash Barua

Asst. Art Director

Pravin Temble

Chief Designer

Prasad Tate

Senior Graphic Designer

Rekha Bisht

Graphic Designer

Gauri Deorukhkar

Layout

Vinayak Mestry

Photo Editor

Sandeep Patil

DIGITALTEAM

Head of Internet

Viraj Mehta

Web Developer

Dhaval Das

MARKETING

National Head

Harit Mohanty

Regional Heads

Prabhas Jha - North

Durga Prasad - South

Debnarayan Dutta - East

Ravindranath Nair - West

Marketing Team

Shankar Advaiyar, Ajanta Sengupta

Navneet Negi, Aparna Tawade

Circulation

Mohan Varadkar

Scheduling

Santosh Lokare

PRODUCTION

General Manager

B R Tipnis

Manager

Bhadresh Valia

IMPORTANT

Whilst care is taken prior to acceptance of advertising copy, it is not possible to verify its contents. The Indian Express (P) Ltd. cannot be held responsible for such contents, nor for any loss or damages incurred as a result of transactions with companies, associations or individuals advertising in its newspapers or publications. We therefore recommend that readers make necessary inquiries before sending any monies or entering into any agreements with advertisers or otherwise acting on an advertisement in any manner whatsoever.

Express Computer®
Regd.No.REGD.NO.MCS/066/
2018-20. RNI Regn.No.49926/90.

Printed and Published by Vaidehi Thakar on behalf of The Indian Express (P) Limited and Printed at Indigo Press (India) Pvt.Ltd., Plot No.IC/716, Off. Dadoji Konddeo Cross Road, Byculla (East), Mumbai 400027 and Published at 1st floor, Express Towers, Nariman Point, Mumbai 400021.
Editor: Srikanth RP *

* Responsible for selection of news under the PRB Act. (Editorial & Administrative Offices: Express Towers, 1st floor, Nariman Point, Mumbai 400021) Copyright © 2017. The Indian Express (P) Ltd. All rights reserved throughout the world. Reproduction in any manner, electronic or otherwise, in whole or in part, without prior written permission is prohibited.



Government leaders use emerging technologies for raising the bar for e-governance



The Indian government's push towards building a comprehensive digital ecosystem is reaping rich dividends. Recently, press reports mentioned that the government's think-tank, Niti Aayog, was coming up with a national policy on Artificial Intelligence (AI). Niti Aayog is also working on a strategy paper for Blockchain in India, which will look at practical use cases and areas where the impact of the technology can be significant. The change is visible, and one can see government

a fraud detection framework that has been useful for identifying the list of probable evaders and criminals. Today, due to analytics tools being used, the state can reduce revenue leakages and increase the tax base. The state of Andhra Pradesh is another pioneering state with respect to usage of analytics. The state has built a real-time governance dashboard that measures the effectiveness of the services delivered.

In Telengana, the Commissioner and Director, Municipal Administration has embarked on the task to map all properties in urban areas along with government properties using GIS. The linking of geo-spatial data along with the picture of the property to the existing database of municipal administration has enabled hassle-free transactions to the citizens. Again, in the state of Andhra Pradesh, the Andhra Pradesh Road Transport Department has re-engineered 83 citizen services so that citizens can access and do transactions online using the internet. This has taken efficiencies to a different level. For example, consider new vehicle registration. Today, a buyer does not need to carry document proofs. All he or she needs to give is an Aadhaar number, fingerprint and PAN card. The vehicle data is pulled from the manufacturer's database. A buyer takes the vehicle home from the dealer premises without even visiting the RTA office, and does all statutory payments through the e-payment gateway. This eliminates agents and middlemen. Earlier, the same activity took two months to complete the process. Now it happens within two days. Another pioneering step is being taken by the Pune Municipal Corporation, which is giving SLA backed services to citizens.

As the above examples show, India is truly in the midst of a huge digital transformation exercise, which is driven not only by private enterprises, but also from state owned government enterprises who are now not afraid to do pilots on AI or Blockchain. As more successful use cases emerge in different sectors, expect this trickle to become a flood soon!

India is truly in the midst of a huge digital transformation exercise, which is driven not only by private enterprises, but also from state owned government enterprises who are now not afraid to do pilots on AI or Blockchain

departments actively using emerging technologies to bring about real transformation. Andhra Pradesh, for example, is using Blockchain to prevent tampering of land records, while the state of Rajasthan is using Blockchain to ensure security of electronic health records.

From our research, we have found several interesting use cases that showcase how government departments are using emerging technologies to solve some of India's most pressing issues. For instance, the issue of revenue leakage, which is a perennial problem for most state governments. To tackle this issue, the Rajasthan government has built

MORE INSIDE

COVER STORY

3 | Learnings from India's best E-governance projects



INTERVIEW

7 | Stanimira Koleva, Senior Vice President and MD, Asia Pacific and Japan, Citrix



FEATURE

6 | Andhra Pradesh takes pole position in developing a fintech ecosystem

How Punjab is curbing unauthorised constructions through GIS-based app

7 | Digital, an important contributor to having one of the Industry's lowest expense ratio for ICICI Pru Life

8 | 'Designing GSTN was like building a ship while its sailing'

CERT-In is committed to make banks and digital payments more secure

11 | BSE's India INX takes lead over global exchanges by adopting open source

HDFC Bank takes conversational banking to the next level

EVENT

9 | We need to create tomorrow, today with blockchain

Odisha banks on GeM to transform government procurements

10 | Smart Infrastructure Symposium : Charting the path ahead



MUMBAI
Shankar Advaiyar/Ravi Nair/ Aparna Tawade
The Indian Express (P) Ltd.
Business Publication Division
1st Floor, Express Tower,
Nariman Point, Mumbai- 400 021
Board line: 022- 67440000 Ext. 527
Mobile: +91 9323998881
Email: shankar.advaiyar@expressindia.com

Ravi Nair
Mobile No. +91 9820955602,
Email: ravindrannath.nair@expressindia.com

Branch Offices
NEW DELHI
Prabhas Jha, Navneet Negi
The Indian Express (P) Ltd.
Business Publication Division,

Express Building,
B-1/B Sector 10, Noida 201 301,
Dist. Gautam Budh Nagar (U.P.) India.
Board No : 0120 6651 500,
Ext:270
Direct No : 0120 665 1270
Fax No : 0120 4367 933

Prabhas Jha
Mobile : +91 9899707440
Email id: prabhas.jha@expressindia.com

Navneet Negi
Mobile No. +91 8800523285
Email: navneet.negi@expressindia.com

CHENNAI
Durga Prasad
The Indian Express (P) Ltd.
Business Publication Division,

8th Floor, East Wing,
Sreyas Chamiers Towers
New No.37/26 (Old No.23 & 24/26)
Chamiers Road,
Teynampet, Chennai - 600 018

Durga Prasad
Mobile: +91 9900566513
Email: durga.prasad@expressindia.com

BENGALURU
Durga Prasad
The Indian Express (P) Ltd.
Business Publication Division
502, 5th Floor, Devatha Plaza,
Residency road, Bengaluru- 560025

Durga Prasad
Mobile: +91 9900566513
Email: durga.prasad@expressindia.com

HYDERABAD
Durga Prasad
The Indian Express (P) Ltd.
Business Publication Division
6-3-885/7/B, Ground Floor,
VV Mansion, Somaji Guda,
Hyderabad - 500 082

Durga Prasad
Mobile: +91 9900566513
Email: durga.prasad@expressindia.com

KOLKATA
Debnarayan Dutta, Ajanta Sengupta
The Indian Express (P) Ltd.
Business Publication Division,
JL No. 29 & 30, NH-6,
Mouza- Prasastha & Ankurhati,
Vill & PO- Ankurhati, P.S.- Domjur

(Nr. Ankurhati Check Bus Stop),
Dist. Howrah- 711 409

Debnarayan Dutta
Mobile No. +91 9051150480,
Email: debnarayan.dutta@expressindia.com

Ajanta Sengupta
Mobile: +91 9831182580
Email : ajanta.sengupta@expressindia.com

AHMEDABAD
Nirav Mistry
The Indian Express (P) Ltd.
3rd Floor, Sambhav House,
Near Judges Bungalows,
Bodakdev, Ahmedabad - 380 015,
Mobile No. +91 8866874517
Email: nirav.mistry@expressindia.com

LEARNINGS FROM INDIA'S BEST E-GOVERNANCE PROJECTS

Express Computer presents a snapshot of India's most innovative e-Governance projects that involve interesting usage of technology to solve some of India's most pressing issues from Right to Education to curbing revenue leakages

By Srikanth RP



Rajasthan's Fraud Detection Framework aims at reducing revenue leakages

THE GOVERNMENT OF Rajasthan has developed a fraud detection framework that has been useful for identifying the list of probable evaders and criminals



Project Head:
Akhil Arora, Principal Secretary, Information Technology, Department of Information Technology & Communication, Government of Rajasthan

The Department of Information Technology & Communication, Government of Rajasthan is a pioneer in unleashing the potential of data based intelligence as one of the drivers to achieve the vision of the state of Rajasthan. Some of

the focus areas is increasing the state revenue by detection of potential revenue leakages, identifying the fraudulent activities and improvement in compliance through analytics based methods. This has driven the department to implement analytics as a

process to increase efficiency, effectiveness and resource potential of key state government departments using advanced analytical software tools.

This project was spearheaded by Akhil Arora, Principal Secretary,

Information Technology Department of Information Technology & Communication, Government of Rajasthan, and five key revenue earning departments were selected for this project. Data from these departments has been taken for analytics which is further

analysed using functional/business rules, integrated intelligence and advanced analytical modelling techniques. Some of the key departments selected are the Commercial Taxes Department, Mining Department, Transport Department, Excise Department and the Registration and Stamps Department.

The state wanted to use analytics to track revenue leakages. Accordingly, the state developed evasion scenarios. The cases for revenue evasion/revenue leakages were identified using business rules of respective departments. Data from multiple departments was integrated in order to identify advanced cross functional business cases. Initially, cases were developed as 'Proof of Concept' taking a portion of actual data. These cases were further validated from concerned department's nodal officer. Upon validation, cases were developed on real time transactional data and potential revenue leakage was

identified. A set of visual statistical presentations were made for the end users and stakeholders of departments.

Due to analytics tools being used, the state could reduce the revenue leakages and increase the tax base. The state could now identify tax evasion by showing sales at a lower tax rate. The state could even do a trend analysis on liquor sale and revenue or do an analysis of vehicle registration data and corresponding revenues. The state has also integrated data from five departments on the basis of a primary key such as PAN or TIN number.

Today, thanks to the fraud detection framework, the state is able to identify potential defaulters based on business rules and realise uncrossed revenues. It has also helped in establishing the mechanism to track the status of required/pending actions on the respective departments, along with revenue recovery.

Andhra Pradesh shows the power of real-time governance

THE ANDHRA PRADESH

government has taken a lead by creating a real-time dashboard that measures the effectiveness of the services delivered



Project Head:

Babu A.
CEO, Andhra Pradesh State FiberNet

One of the major issues of governance in India is the increasing inefficiency in delivery of public services in the face of rising expectations from the public. India's experience since the independence has shown that due to expansion of opportunities both social and economical, removal of poverty will only result in good governance. However India has been in the backseat in many a development indicators like illiteracy, infant and maternal mortality, per capita income, employment, infrastructure, etc. The emphasis therefore comes to the major ailing factors in good governance viz. inefficient public service delivery, corruption, delay in

services, random and skewed welfare distribution due to lack of proper data/information.

There is hence, a need of an integrated system where services are devised keeping the citizen at the centre. The Andhra Pradesh government has taken a lead by creating a real-time dashboard that measures the effectiveness of the services delivered. The dashboard is an attempt by the government to improve delivery of services in an agile and responsive manner through data analytics, beneficiary feedback, project monitoring and process re-engineering of welfare provisions such that a minimum of 80 per cent public satisfaction is achieved in all government programmes.

The framework

Real Time Governance (RTG) is a new institutional framework devised by Government of Andhra

Pradesh - to bring in positive 'disruptive' changes in governance, public administration and management leveraging the tools of e-Governance, technology and electronic communication. The RTG system utilises the tools of e-Governance to develop an institutional mechanism for developing 'good governance' practices and effective provisioning of public services.

The Government of Andhra Pradesh has established an institutional framework through RTGS - Parishakara Vedika to achieve transparency, accountability, and to make public service delivery efficient. RTGS is utilising all technological applications of e-governance for real time grievance redressal.

The major thematic areas of operation of RTG include: Grievance management (through a call centre called

Parishakara Vedika), beneficiary feedback (on service delivery of social welfare benefits, pensions, public distribution system, scholarships and other government programmes and perception analysis on flagship schemes of the government), data mining and analytics (for independent performance measurement system at state level focusing on programme outcomes and dispensing feedback to officials at multiple administrative levels), coordination and crowd sourcing (application of Big Data for designing welfare projects in the state). Andhra Pradesh has developed the People Hub - e-Pragathi, the state enterprise architecture wherein which all applications in the state are unified into a single platform. This includes - public welfare delivery services like food rations, social security pensions, fintech, health,

transport, agriculture, etc), Forecasting and Early Warning System (to monitor weather events like rainfall to provide real time agro-advisories to farmers at village level. Establishing communication channels for disaster prevention and mitigation for preventing loss of lives and property during cyclonic events, flood and other calamities), projects monitoring (monitoring of high end infrastructure projects in the state in real time through drone applications. Already National Polavaram Irrigation project is being monitored through this application), innovation and incubation (to promote Andhra Pradesh as a knowledge hub and fostering an enabling ecosystem to nurturing start-ups), and Social Media (to broadcast information to the public on important governmental activities and programs; along with exploring the potential of various social media in citizen engagement and interaction in grievance redressal, trust building and enhancing participation)

Through an integrated call centre and workforce of upto 1,750 (in three shifts), grievances are collected from the general public across the state. The call centre has a capacity of 1.5 million outbound calls per day. Citizens who might have come across issues of bribe and corruption can lodge their complaints to 1100 which shall in turn escalate the complaints to the appellate authority of respective departments including the Chief Minister's Office. RTGS leverages

e-Governance tools to institutionalise and devise key performance indicators along with their monitoring in real-time for effective and efficient public delivery.

RTG operates from State Command and Communication Centre with data input from CC cameras, drones, biometric augmented technology and virtual reality, machine learning technology, Internet of Things (IoT), etc, adopting the most advanced technology of international standards for governance. Real Time Governance envisages participatory governance with citizens as partners of institutions, ascertain their felt needs. RTGS collectivises the efforts of all departments through better coordination, enhancing decision support systems, institutionalising key performance indicators (KPIs) - leveraging ICT, innovation, crowd sourcing calls for bringing rapid and exemplary shift in governance.

Real Time Governance employs several latest technologies for data mining, data analytics and visualisation. Events can be visualised as they occur both centrally and remotely (device agnostic) and measure the effectiveness of security policies. High priority infrastructure projects are monitored with the help of drones from RTG. In addition, machine learning tools are employed for amplifying the efficiency in grievance redressal, beneficiary feedback, etc.

RTGS has a Weather Forecasting and Early Disaster Warning System

wherein weather forecasting models like ECMWF, FORTRAN, GrADS, FERRET, Shell scripting for short, medium and long term weather forecasts, sea state forecasts are employed. Agro-Meteorology Modelling like Dssat (Decision Support System for Agrotechnology Transfer), AgMIP (The Agricultural Model Intercomparison and Improvement Project), SWAT (Soil and Water Assessment Tool), Python are being used for crop yield forecasting whereas ArcGIS 10.5, R program, MATLAB and Grads are used for weather data analytics.

The power of real-time governance

Grievance redressal on a real time basis has helped in resolving 1.39 crore grievances out of 1.49 crore received, which translates into a 93 per cent redressal rate. This has been achieved in a period of just eight months. Now a single window grievances registering platform is available to citizens. One major real time application by the project is the Praja Sadhikara Survey (PSS) - People Empowerment Survey in English, which is a solution architecture for devising all future welfare programmes in the state based on data. The survey was able to profile 1.4 crore households in the state covering almost 4.3 crore population. Through creation of dashboards, the government is able to monitor performances of flagship programs in real time along with validation through beneficiary feedback.

GIS-based property tax collection raises bar for efficiency

INTEGRATING THE GEO-REFERENCED

property information with property tax data available with Urban Local Body (ULBs) has helped in improving collections and transparency



Project Head:

Dr T K Sreedevi,
Commissioner & Director
Municipal Administration,
Telangana

One of the most crucial sources of revenue for Urban Local Bodies in India is property tax. However, every ULB faces issues in accessing detailed information related to property - location, encumbrance, property tax details and disputes. In most cases, the property tax information is never integrated with the property information like encumbrance, disputes since there was not convergence with the information with the registration department. Seeking information about the property is a time-consuming process.

To resolve this issue, the

Commissioner & Director, Municipal Administration, Telangana, embarked on the task to map all properties in urban areas along with government properties using GIS. This project was done in consultation with 72 urban local bodies and Indian Space Research Organisation's (ISRO) National Remote Sensing Centre (NRSC). The C&DMA in partnership with the ISRO's NRSC, Hyderabad customised a special mobile application on the Android platform to geo-tag all the properties with the help of 'Bhuvan', the online platform which provides images and map visualisation.

The main objective was to integrate the geo-referenced property information with property tax data available with ULBs, which provides the details of owner of the property, address, property details, tax details with

property image and geographical location and this is integrated with Registration Department Data consisting of details of encumbrances, prohibited properties, prohibited property details and dispute properties. Thus complete details of, tax dues, addresses, encumbrance, disputes if any along picture (time stamped) is available for easy access through the Commissioner and Director, Municipal Administration (C&DMA) website, ULB website.

The application developed by NRSC is user-friendly mobile and server based solution which enables a data collector to systematically record generated assets with spatial position (longitude, latitude and attribute the status), time stamped with geo-tagged photograph. This mobile app provides a platform to build a spatial database on the Bhuvan Geo-

platform. All precautions were taken that the output of the exercise of geo-tagging of properties stand the test of scrutiny. In order to ensure this, the area allocated to each surveyor or bill collectors was geo-fenced and the data was integrated with their individual mobile.

The geo-tagged properties are linked to property data base 'e-savidha' of C&DMA and ULB viz, name of the owner, property tax details, building measurement details and other details i.e, encumbrance, prohibited properties and disputed properties provided by the Registration Department.

The progress of the survey was monitored through the dashboard of the C&DMA and reviewed on a daily basis. The geo-spatial survey is entirely carried out by the in-house personnel i.e, the bill collectors in the urban local bodies in economical way by

using smart phones with Android applications. The NRSC has trained 1,498 bill collectors to carry out the survey and has extended the technical support. The entire process was carried out in just a period of three months and all the existing 12.5 lakh assessments were mapped with error percentage of less than 0.01.

Linking of geo-spatial data along with the picture of the property to the existing database of Municipal Administration and Registration Department data is a pioneering step as this huge exercise has led to development of land registry which has multiple uses to the citizens as well as the departments and agencies. It has enabled hassle-free transactions to the citizens, saving time and resources with quicker disposal of service request and improved citizen satisfaction of ULB services.

The geo-tagged properties are linked to property data base of the ULB which provides all information on the property viz, name of the owner, tax details, building details, encumbrance, prohibited properties details and disputed properties to the citizen or buyer. Other than tax details such as encumbrance, prohibited properties and disputed properties are captured with due integration of data base of registration department.

The user/citizen has to just login to ULB website or C&DMA website using the property tax assessment number or house number to search for the property

information. The entire process took three months period and all the existing 12.5 lakh assessments are mapped with 18000 new/un-assessed properties are also tagged in.

Earlier, no such spatial database was available in the ULBs on the properties. Access to any information related to property i.e, location, encumbrance, property tax details, disputes was cumbersome and time-consuming process. The property tax information was never integrated with the property information like encumbrance, disputes since there was not convergence with the information with the registration department. Seeking information about the property was a time-consuming process.

Benefits

The introduction of property mapping along with the integration of property information has helped the citizens and they are able to view the property details at click of a button like name of the owner, property tax, mutation, disputes, encumbrance. The initiative has resulted in easy access of information at a click of button to the citizens about the property led to a reform that is also mandated under the Ease of Doing Business. This would reduce the transaction time for business or individual to seek relevant information related to a property transaction. The user can access the ULB website or C&DMA website using the property tax assessment number or house number to search for the

property information. The data base can be used development of digital door numbering for all the properties.

The property mapping is very useful database and could be utilised for several urban initiatives like Revenue Augmentation and Service Delivery. Urban Local Bodies can utilize the integrated database of spatial and non-spatial information for property tax, mutations, and providing other utilities services with respect to property information.

Today, 12.5 lakh properties in the 72 ULBs have been mapped using this process. The geo-spatial database of properties is available on the public domain and the citizens can view detailed information of the property online without visiting the ULB office. The database can now be used to identify the under-assessed or un-assessed properties which would augment the revenue in terms of property tax by identifying the under assessed and un-assessed properties.

The property mapping is very useful database as it integrates the Geo-spatial information with the MIS data base and could be utilised for several urban initiatives like access to detailed property information revenue augmentation, improving service levels. It enables hassle-free transactions to the citizens, saving time and resources with quicker disposal of service request and improved citizen satisfaction of ULB services.

Andhra Pradesh Road Transport Department shows the power of digital transformation

THE DEPARTMENT HAS been quick to undertake and re-engineer all its 83 citizen services so that citizens can access and do transactions online using the internet



Project Head:
Ramashree L S M,
Joint Transport Commissioner,
Andhra Pradesh Transport
Department

To improve efficiencies, the Andhra Pradesh Road Transport Department wanted to use technology so that citizens would not be asked to produce paper documents to establish their identity, prove their insurance validity, confirm their tax payments or confirm the finances of their vehicles.

Keeping citizens at the centre, the department went on a big digital transformation drive and created a 'transport framework'. This was aimed at improving performance, controlling revenue leakages and measuring and monitoring road safety and traffic patterns. As part of this digital drive, approximately 85 business processes are re-engineered and implemented. All services are rendered using Aadhaar as primary authentication. In a first, the department is also using machine learning enabled Microsoft Bots for answering user queries in real-time.

All digital payments are digitally verified. Technology interventions are done with technologies like Blockchain, ICR (intelligent character recognition) for vehicle and eKYC documents verification, and usage of Microsoft bots for

citizen and officer assistance.

The usage of digital technologies have helped the department take efficiencies to a different level. For example, consider new vehicle registration. Today, a buyer does not need to carry document proofs. All he or she needs to give is an Aadhaar number, fingerprint and PAN card. The vehicle data is pulled from manufacturer's database. A buyer takes the vehicle home from the dealer premises without even visiting the RTA office, and does all statutory payments through the e-payment gateway. This eliminates agents and middlemen. Earlier, the same activity took two months to complete the process. Now it happens within two days.

In case of transfer or ownership, earlier, a buyer had to send a cheque and his driver to collect the keys from the seller. Now, they can transact business with the RTA through the software application. Both buyer and seller authenticate themselves through Aadhaar and complete the business without visiting the RTA.

As a result of these digital initiatives, the cost of providing a service to the citizen is greatly reduced to the government. No paper based documents are asked from the citizens to establish their identity, prove their insurance validity, confirm their tax payments or confirm the finances of their vehicles. All the RTA documents are delivered to the citizen digitally in their e-mail box.

National Scholarship Portal, a catalyst for ensuring education for all

THE PORTAL IS a one-stop solution through which various services starting from student application, application receipt, processing, sanction and disbursement of various scholarships to students, are enabled

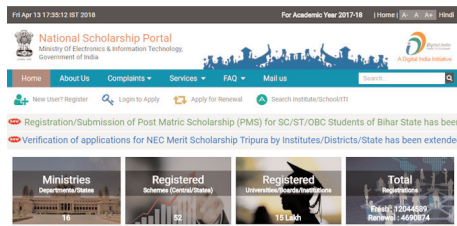
Project Head:
S B Singh,
Deputy Director General, National Informatics Centre, Ministry of Electronics and Information Technology

While initiatives like Digital India, Skill India and Make in India have undoubtedly captured a lot of attention, the focus on education is one of the most important ones, as it can help in accelerating the growth of the nation.

This is critical as almost half of India's population drops out of schools by the age of 13 and only one in 10 people receive some form of job training. In order to effectively implement 'Education for all' based on the principle of Right to Education, government has initiated many schemes on scholarships which help meritorious students to go a step forward towards education. Towards this mission of 'Right to Education', The National Scholarship Portal Version 2.0 (NSP-2.0) (<http://scholarships.gov.in/>) has been designed and developed by National Informatics Centre (NIC). This is a unique and simplified platform based on GRP (Government Resource Planning) mediated by software and technology created for countrywide students to avail benefits of educational scholarships in an efficient and transparent manner.

It operates as an integrated system in near real-time with common database supporting nationwide wide range of scholarships in different categories having a consistent look and feel across all modules.

Today, the higher education is more expensive than ever before, making it difficult for many students to afford basic education, courses



and colleges of their choices. Talented Indian students face financial challenges and hardship to afford costly education, therefore the Government of India provides them with financial support by giving them scholarships.

Earlier, the process of availing benefits under various educational scholarship schemes was a difficult task for students due to lengthy paperwork. The manual system of processing scholarship applications had serious issues in terms of handling huge papers, processing them error-free, corrections, safe storage and disbursement of scholarships.

There was dependency on huge manpower for processing these applications. Applications moving from place to place, person to person get torn, damaged or stained. Damaged documents are hard to read, making processing more difficult and time consuming.

One stop solution
NSP-2.0 is one-stop solution through which various services, starting from student application, application receipt, processing, sanction and disbursement of various scholarships to students are enabled. National Scholarships Portal is taken as Mission Mode Project (MMP) under National e-Governance Plan (NeGP). This initiative aims at providing a Simplified, Mission-oriented, Accountable, Responsive and Transparent 'SMART' System for faster and effective disposal of scholarship applications and delivery of funds directly into beneficiaries' account through Direct Fund Transfer (DFT) without any leakages. National Scholarship Portal was launched by MeitY on July 1, 2016.

The vision behind the National Scholarship Portal Version 2.0 (NSP-2.0) is to create a unique, simplified and user-friendly platform for students to help them avail benefits of educational scholarships in an efficient and transparent manner.

National Scholarship Portal works through the seamless integration of the activities of diverse entities: the students, colleges, departments, IT service providers, banks and treasury and seven ministries/departments. The portal is a single stop solution for end-to-end scholarship process right from submission of student application, verification, sanction and disbursement to beneficiaries for all categories of scholarships provided by the Government of India and states as well. It encompasses various scholarships schemes launched by the Union Government, state governments and union territories across the country.

Using the portal, students can register and submit their application online (for applying for central/state sponsored scholarship schemes), from anywhere. Students can view/track the status of their own application with user ID and password generated by the system. Students can upload documents in support of their claims (such as income, mark sheets, bank account details, category, caste certificate etc) for easy verification and transparency.

With deployment of ICT based solution as NSP 2.0, the system automatically inherited the benefits that are inbuilt with any computerised system besides fulfillment of the prime objectives such as ensuring timely disbursement of scholarships to students in a very simple manner ensuring the transparency of processing criteria.

The portal has succeeded in creating a transparent database of students' scholarships and institutes. The complex processes from application submission to processing and disbursement of scholarships to meritorious and deserving students are done through a simplified and transparent manner through adoption of adequate Government Business Process Reengineering (GBPR) in NSP 2.0. The in-built Business Intelligence

(BI) in NSP 2.0 while filling the application automatically decides the eligibility of applicants against available scholarship schemes. When applications are in crores, there is bound to have duplications of applications, but in NSP 2.0 duplication of applications are reduced drastically with induction of Aadhaar numbers of applicants.

All India level master databases of institutions and courses are available at one place centrally. NSP 2.0 has helped in formalising the application format, work-flow based reporting structure, processing standards, and disbursement of scholarships to eligible applicants flawlessly.

At the apex level of management, NSP 2.0 has also served as a decision support system (DSS) for ministries/departments. For the academic year 2016-17, 24 schemes of eight ministries/departments were onboarded on NSP 2.0. For these schemes, 1.20 crore students applied for scholarship, out of which 53.59 lakh fresh and renewal students received scholarship amounting to ₹ 1,607 crore that was transferred directly to the bank accounts of students through DFT.

The portal is emerging as a primary channel for application of scholarships by students in fulfilment of the challenge of ensuring all children including differently-abled children to enjoy equal access to education and educational institutions under the 12th Plan.

Currently more than 14 ministries/departments/states, 32 schemes (central/states), 14.5 lakh universities/boards/institutions are onboarded in NSP 2.0. Under the central schemes there are 22 schemes belonging to MoHRD, MoMA, Department of Empowerment of Persons and Disabilities, Ministry of Social Justice and Empowerment, Ministry of Labour and Employment Ministry of Tribal Affairs, Department of School Education and Literacy, Department of Higher Education, WARB, Ministry of Home Affairs, RPF/RPSF, Ministry of Railways, 23 schemes under the UGC which belong to MoHRD, UGC, Department of Higher Education, UGC, Indian Statistical Institute, Ministry of Statistics and Programme Implementation, four schemes under AICTE Schemes of MoHRD, and 21 schemes which belong to various states like Uttarakhand, Tripura, Karnataka, Meghalaya and Arunachal Pradesh.

Pune Municipal Corporation gives SLA backed services to citizens

PMC CARE AIMS at providing a multi-channel single window delivery mechanism to provide assistance and response in a more efficient way than ever before



Project Head:
Rahul Jagtap,
Head-IT, Pune Municipal Corporation

As a municipality, the Pune Municipal Corporation (PMC) is responsible to take care of all the major civic services for the city of Pune. As is evident in any Indian city, the citizens of Pune too had common problems in the fields of solid waste management,

encroachment, water supply, roads, water logging etc. To get these issues resolved, citizens had to personally visit the nearest PMC ward office or the PMC head office.

Most of the times, citizens had to wait for weeks or even months only to get an appointment from the concerned officer. On the other hand PMC officers too were bogged down by the number of complaints they received from the citizens on a daily basis. Moreover there was no set process to resolve

these complaints neither were there any SLAs that ensured timely redressal of the issues. There were very limited channels that the citizens could use to ensure that their complaints are being resolved as they should be. Absence of a digital platform made it even more difficult for PMC to analyze the data and to take informed decisions. This often led PMC departments to lose track of the complaint being solved. These issues and challenges demanded that PMC came up with a solution

that could take care of its citizen's grievances in a streamlined and effective way. And as a result PMC came up with the concept of PMC CARE - CARE stands Citizen, Assistance, Response and Engagement. PMC CARE is a 360-degree framework to extend various delivery channels to its citizens for effective and responsive governance. CARE stands for Citizen Assistance Response and Engagement. A digitally driven, citizen-centric initiative, PMC CARE has been conceived keeping various segments of civic society in mind.

PMC CARE aims at providing a multi-channel single window delivery mechanism to provide assistance and response in a more efficient way than ever before. The objectives of CARE are being achieved by various IT interventions. PMC's mobile app PuneConnect integrates all its services like Grievance

registering, Property Tax Payment, Water Bill payment Contacts Directory, Tender Information etc. All the processes involved in this service are IT enabled. Once the citizen raises a complaint he/she gets a token number for the complaint raised. The token number is used as a reference by the Citizen, Call Center team, FMC team and PMC Officers for the complaint being raised. All further communications are made with reference to this token number. The CARE system also has a comprehensive dashboard that helps fetch reports across multiple parameters over a specified duration.

PMC's dedicated call centre enhances CARE's experience and citizen's grievance redressal is just a click away. PMC's websites are a central repository of all civic services information that citizens seek. Its Social Media Platform ensures CARE's outreach to masses. For citizens who prefer to text

rather than call, PMC has introduced SMS and Whatsapp services. PMC's Feedback Management Cell ensures that citizens get faster resolution to their problems, suggesting citizen's feedback to concerned authorities. All the platforms like Grievance System, Call Centre, and Social Media were designed and implemented in a way that they could interact with each other seamlessly. Service Level Agreements (SLAs) have been defined at each level of the grievance redressal process. The complaint once registered gets assigned to respective officers of PMC. There are different employees as per hierarchy mapped in the system and the severity level is named L1, L2 and L3 in the increasing order.

Post deployment of this solution the grievance redressal process has been streamlined seamlessly. Citizens were no more required to visit PMC offices to lodge their grievances. It was

possible for the citizens to track the status of their complaints. The complaints were taken care of on priority as per their SLAs and specified timelines. Citizens could not only lodge their grievances but a few select citizens also came forward and provided their valuable suggestions and advice to better the current process even further. A brief look at numbers will speak volumes about PMC CARE's success. Till date more than 40,000 complaints have been launched by citizens through this portal, 97% of these complaints have been successfully resolved with an average citizen rating of 2.8 out of 5.

The complaint portal becomes a central platform where citizen may contact PMC and PMC may contact its citizen to provide better services. This project has truly considered a 360 degree perspective while developing a mechanism to redress the grievances of citizens in the most effective manner.

Andhra Pradesh takes pole position in developing a fintech ecosystem

THE 5M STRATEGY of providing quality manpower, money, market access, mentoring and meetup events has worked well. Most of the office inventory in Vizag is occupied. Over 16 companies have already set shops and more will join soon

companies, which will be borne by the AP state government. The real estate developers were hesitant in building more space because of doubts about rental payments. The government in response provides the rental guarantee for built up office space. Result: The AP government is looking for more areas to build office space due to further spike in demand.

The Acurban Infocity has signed an MoU to build a ₹ 3220 crore integrated innovation campus in Vizag, which will be a pull to global technology giants to build Centres of Excellence to develop new age technologies like cloud computing, artificial intelligence (AI), Blockchain, Internet of Things (IoT), etc.

There are three companies which have signed projects with the AP government to develop residential complexes, office space and other social infrastructure on a Build Operate Transfer (BOT) basis.

The thought process of the AP state government to team up with multiple stakeholders to have a focused fin-tech ecosystem in Vizag and a few other cities has worked.

Abhishek Ravai
abhishek.ravai@expressindia

N Chandrababu Naidu, wants to repeat the transformation he did in Hyderabad and Secunderabad, when he was the Chief Minister of the united Andhra Pradesh (AP). After the bifurcation of AP, which gave birth to Telangana, Naidu has set sights on Vizag and a few other cities to be the focus of AP's transformation.

The entire office space in the fintech tower at the Rushikonda Hills in Vizag, which overlooks the Bay of Bengal, has been sold. The demand has outstripped supply. The real estate developers were not sure about the business acquisition, which made AP to come up with an accommodative Designated Technology Parks policy (DTP) 2017-20. The policy has an arrangement to provide 50 per cent subsidy to the IT

fin-tech ecosystem with a focus on Blockchain

Fintech Valley Vizag is a convergence of financial service companies, investors, academic institutions, startups, technology providers, which provides an ecosystem for the fin-tech industry, growing more than 26 per cent annually. "We thought rather than the conventional way of encouraging the fin-tech opportunity, which is getting highly digitised, why not solve the problem by providing an environment, which has a place for all the stakeholders," explains J A Chowdhary, Special Chief Secretary & IT Advisor, Chief Minister, Government of AP. The fin-tech industry is growing at a fast pace and compared to other industries, it leads in the way it is getting



"We thought rather than the conventional way of encouraging the fin-tech opportunity, which is getting highly digitised, why not solve the problem by providing an environment, which has a place for all the stakeholders."

J A Chowdhary, Special Chief Secretary & IT Advisor, Chief Minister, Government of AP

technology enabled. Banks are turning into fintech companies.

Andhra Pradesh has partnered with ConsenSys. An MoU was signed in the last Blockchain Summit organised in AP. ConsenSys is a Blockchain technology company founded by Joseph Lubin who co-founded Ethereum, a decentralised cryptocurrency platform. The company will invest in setting up a Blockchain training academy. ConsenSys is also willing to contribute in applying Blockchain in the e-governance initiative of the AP government - e-pragati and also for managing land records.

The faculty will include the respective experts who have already implemented Blockchain in other countries. The syllabus and the academy will be run by them. The manpower developed at the university will man the blockchain development centre in Fintech Valley Vizag.

AP signed an MoU with a silicon valley based US\$ 2 billion venture fund, Covalent Fund. The Ram Yellamanchili

led fund will invest US\$ 10 million in establishing the India Stack for Blockchain in AP. Currently, the Blockchain platform is on open source, so in order for it to be secure, a greenfield Blockchain platform is being designed. The company runs the platform on the Velugu protocol. According to a news report, Yellamanchili described Velugu as "the largest, open and cryptographically secure ledger of information on a blockchain protocol designed in compliance with the Indian regulatory framework."

The MoU also mentions the setting up of a Blockchain university. There is tremendous shortage of talent in the area of Blockchain. The demand for the use of this technology has shot up suddenly and the paucity of skilled manpower will hurt widespread adoption.

A NASDAQ listed startup Black Cactus has bought a huge space in Fintech Tower in Fintech Valley. It has the expertise to use Blockchain in the healthcare space. Another AI and analytics powered startup viz. Kishit, has bought space in the tower: The company offers interest free loans upto one lakh. The company offers interest free loans upto one lakh. The company has acquired 5,000 customers thus far. There are four startups from Bengaluru, who will soon buy space at the tower to set up their development centres, because they see attractive market opportunities and the tower to be a magnet for world's best companies to set shops.

The Chief Minister of AP, Chandrababu Naidu has launched a project, AP Blockchain 2019. The objective is to wrap and ring fence all the digital assets of the state and the information related to the 50 million population using Blockchain. Currently the CM is using the real time governance centre in order to track the implementation of the government schemes and do grievance redressal of

5M STRATEGY FOR FINTECH VALLEY VIZAG

Manpower	For Entry level
	A new digital University, one-of-its-kind in India, International Institute of Digital Technology (IIDT). The first batch has got 100 per cent placement. Given the tremendous results, many senior employees from Amazon, Cognizant etc have joined IIDT; although the institute is primarily meant for freshers.
	For Research Level
	New York based Broadridge Financial's CoE for Blockchain in Fintech Valley Vizag to fill the gap of bringing in research related expertise
	An Israeli startup company Forty Two Labs has set up a research lab for cyber security at the Fintech Valley
	Fintech Valley to soon partner with Indian Statistical Institute's R. C. Bose Centre for Cryptology and Security to establish a crypto technology lab
Money	To issue a 500 crore fund to attract startups from across the globe. With a Seed fund of 100 crore.
	US\$ 1 million global fintech challenge award after shortlisting startups by organising challenges in nine cities globally, which will culminate at the Demo day in the Fintech Valley Vizag's annual festival in September every year
Market access	AP government has partnered with 20 blue chip companies, who will share their problem statement, which we will run as a fintech challenge across the Globe - 117 concrete use cases have already been created
Meetup events	Startups in the early stage with less money cannot afford to attend big events. AP invites them at their multi city events

citizens. Most of the data has been digitised, which will be further put on Blockchain to ensure data security.

In order to take targeted and correct policy decisions, AP has reached an advanced stage of collecting citizen data through the Prajasadhikara survey or the smart pulse survey. It involves government functionaries visiting every home with a tablet and collecting exhaustive data of the citizen- socio economic data, which includes health related information too. The Ethereum Blockchain can prove to be an effective platform to keep the data secure. The plan is to complete the project by 2019.

Every financial service institution wants to invest and grow in the following four areas: Cyber security, Robotic Process Automation (RPA), AI and Machine Learning and Analytics. The Fintech Valley Vizag is addressing these areas through the 5M strategy.

Partnerships with corporates

The fin-tech accelerator at the valley has many partners who provide a three month cohort to the fin-tech companies, who are given problem statements by the partners along with appropriate funding. The first batch of cohorts got completed recently. Two companies were awarded with extensive funding and the rest of them were offered business opportunities in AP. "Looking at the success of cohorts model, many corporates are joining us," says Chowdhary. The next cohort will be driven by Bajaj Finserv, while the first cohort was hosted by ICICI Bank and Mahindra Finance. Bajaj Finserv, inside the group, has four startups, which will also be a part of the cohort.

Franklin Templeton has bought a 40-acre space in the valley to build a development centre for designing new age

technology based financial products. The Chief Minister has signed an MoU with Ashok Venuri, CEO, Conduent, a US\$ 6 billion MNC BPO company, for setting up a 5,000-seater facility in the valley. More than 30 fin-tech institutions, big and small have showed interest in buying space at the Fintech Valley Vizag. Some of them have already committed while the rest are in various stages of the purchase process. More than 30 companies have shown interest in making investments. Paytm, Visa, Mastercard, Franklin Templeton, Broadridge Financial Solutions, Black Cactus have already committed investments.

Singapore based 10 fin-tech companies will soon kick off operations at the valley according to the MoU signed with the Monetary Authority of Singapore. They see a huge opportunity in India with respect to the market access provided by AP.

How Punjab is curbing unauthorised constructions through GIS-based app

HAVING THE FIRST-OF-ITS-KIND mobile application on Unauthorised Constructions and Illegal Colonies, Punjab Govt has set a unique example in curbing the menace of illegal constructions

Constructions and Illegal Colonies (UCIC) mobile application to monitor the unauthorised construction of illegal projects.

"We have found that many illegal constructions are happening everyday. With the directions of our additional Chief Secretary and Chief Administrator, we have undertaken this initiative. Under this application, all the masterplans are revenue based. All the various authorities of different districts have separate jurisdictions, under which the regulatory component falls. The officers of these regulatory bodies monitor unauthorised constructions. Previously it was very difficult to track such constructions; however, a photograph of an unauthorised construction can be uploaded on the app. This captures details of the particular site along with its longitude and latitude information," informs Parmod Kalia, GM (IT&C), Punjab Urban Planning & Development Authority (PUDA).

Additionally, the app is also based on revenue based map,

which enables indication of revenue parameters of a particular land. Through this, the concerned Junior Engineer (JE) can be informed about the unauthorised construction along with its details. When

Another interesting component of this app is that access is provided to citizens as well, wherein they can record any illegal construction activities

the Junior Engineer uploads a photograph, an SMS is sent by the Chief Administrator to the concerned JE - this way they can monitor any illegal construction. Furthermore, an action report is also sent and recorded, in knowledge of competent authorities at appropriate levels.

Another interesting component of this app is that access is provided to citizens as well, wherein they can

record any illegal construction activities. Similarly, they can also upload the photographs; an SMS is then sent to them notifying that the complaint is recorded. Once the complaint is recorded, the concerned JE checks the genuinity of it and the action taken on the complaint is also communicated to the citizen.

"This app was launched by the Punjab Chief Minister in November 2017, and we have been getting a very good response. It started as a pilot project in certain areas, but now it has been further extended across the state from an urban point of view. Notably, the most important component of this initiative is that it's imposed on masterplans as well as revenue records. This enables capturing of GPS information along with the revenue details," he says.

Developed by the state's IT team along with private players, the app can be further extended to other departments as well, based on customisation. "Alongside this app, we have also introduced another concept on attendance. Similarly, we already have Haryana Urban Development Authority

(HUDA) app which provides all the details about the allottee such as the allotment status, property and transaction details; we also have a built-in grievances and employee module," explains Kalia.

The UCIC app also features another interesting component of 'Selfie Attendance', wherein an employee can upload his photograph with longitude and latitude details - this is particularly more relevant for the field staff, enabling them to mark their attendance even from the site.

"We have also extended E-CLU for change of land-use. With this development, people in the state can get E-CLU approval for their lands, without visiting our office. For

example, a person can go to this portal with some of the information of his land, after which, he can check all the details of the land and its respective purpose of use," he states.

Under the ICUC app, PUDA has been able to register about 400 cases; and over 120 cases have been reported by citizens.

Commenting on the focus in the near future, Kalia adds, "Many people are now becoming aware about the application. The digitization of all the masterplans is being done in Punjab, wherein all the major towns will have GIS based masterplans; this is being done by Punjab Remote Sensing Centre in Ludhiana. It is important to make information available to

the user. Earlier the focus was more on web portals, which is now shifting to mobile, thereby facilitating ease of operations and use. We are also integrating our telephone directory into the mobile app. In near future, we will also move our focus to emerging technologies such as artificial intelligence (AI)."

Mohit Rathod
mohit.rathod@indianexpress.com

The Government of Punjab has initiated certain IT projects, particularly for the urban development department. These initiatives are aimed at providing benefits to the department as well as the citizens. One of the major initiatives of the state government, which is unique in India, is the Unauthorised

Earlier the focus was more on web portals, which is now shifting to mobile, thereby facilitating ease of operations and use. We are also integrating our telephone directory into the mobile app. In near future, we will also move our focus to emerging technologies such as artificial intelligence (AI)

Parmod Kalia, General Manager (IC&T), Punjab Urban Planning, Development Authority (PUDA)



‘We want to have more CIO conversations to increase our relevance among key decision makers’

IN AN INTERACTION with EC’s Nivedan Prakash, **Stanimira Koleva**, Senior Vice President and MD, Asia Pacific and Japan, Citrix, talks about the significance of the India market and the various initiatives being taken to tap the burgeoning market opportunities

How significant is India as a market for Citrix?

In India, our own teams, partners, as well as customers are always thinking of something new. It is one of the most technology savvy markets and fastest growing regions for Citrix. The country has been delivering very positive indications, especially around the government’s policies. Recently, I met the CIO of one of the largest manufacturing companies here in India and came to know that they’ve been looking at Blockchain to enable new ways of providing leasing and finance to their dealer channel as well as customers. It’s very impressive to see how fast they figured out the usage of Blockchain. What brings me here is the opportunity, as India is a critical market in the context of Citrix. We have major R&D setup here and it is one of the largest locations worldwide.

When you interact with the customers here in India vis-à-vis other markets, do you see any similarities in the way they approach a problem? Do you come across any common challenges being faced by

them or it varies from market to market?

There are a few similarities that I can share along with flavours of how they pan out or manifest themselves. All the customers, for example, know that they need to adopt cloud and migrate to certain services and workloads. However, it happens very differently in various markets and that too at different speeds. Like in APJ, Australia and New Zealand, we see the most aggressive adoption of cloud – nine out of 10 customers that I speak with follow ‘cloud first’ strategy in whatever new service they adopt.

In the APJ region, India is second after Australia in terms of cloud adoption. The environment of the players in the market is evolving rapidly because you not only have all the big public cloud players like Microsoft, AWS and Google, but also a good and healthy local ecosystem of players. Besides, the country is leading the way in mobility solutions’ adoption.

On the other hand, the conservative markets like Japan or some markets in South East Asia, which are dominated by highly regulated industries, we see slower

adoption of cloud. But, everyone is thinking in terms of how they are going to get there. However, across the regions, large enterprise will continue to live in a hybrid environment for years to come.

The other thing is everyone’s attention towards cyber security, which has become a prominent trend across the region. Even in India, enterprises are aware about vulnerabilities and how critical it is for them to protect their business environment. We want to play a role here by taking the multi-layered approach.

Another trend has been in the area of workspace transformation. In India, people see it as a key pivot for maintaining competitiveness in the business and growing productivity. In some countries like Japan, it is all regulatory driven. The government in Japan actually published rules of what workstyle innovation looks like. We see very different ways of them driving workspace transformation and they are now more aggressively looking at mobility, which India had been embarking on for years.



“We will continue to look at geo expansion and take initiatives to acquire new customers or maybe breaking into new mid-market and SME segments

Is there any particular initiative that has been taken to tap the opportunities, which have come up as part of India’s digitisation drive?

We are looking at a couple of initiatives to beef up our capabilities to deliver extended services around mobility. We can work with

large organisations for the deployment of mobility solutions or may be moving to cloud. Secondly, we are making an investment for geographical expansion in the country. We want to go beyond the metro areas, which is so far fairly well covered, and expand our footprint in Tier 2 and Tier 3 cities. These cities

will be covered by our distribution network.

Since cyber security is one of the key focus areas for Citrix, are you going to engage with specialised partners in this domain?

Keeping cyber security in mind, we need to tap the specialised skill sets among the channel partners. We have started working with a few consulting organisations and service providers around security. We have to also look beyond how our actual channels are changing in terms of cloud versus on-premise capabilities. We may actually need to work with some new players around cloud and hyper convergence. Hyper convergence is very relevant to our business because it removes some of the complexity and upfront investment in spending on new services.

Going forward, what will be the key priorities for the company?

Apart from the technology priorities that have been mentioned above, we want to have more CIO conversations. Since more than 70 per cent of our business comes from large enterprises, it is imperative

for us to increase our relevance among key decision makers. Besides, we are also looking to scale up our services portfolio. There is a lot of R&D effort being made towards integrating virtualisation with our networking portfolio; and we want to make sure that we offer more parts of our portfolio into the existing base.

As far as cloud is concerned, we don’t just see it as a new way of delivering IT. We need to make changes in the way we support customers in cloud. Cloud adoption services are becoming much more critical. From the investment point of view, it’s not all about convincing a customer to buy or testing it and figuring out if it works, but also being with them on the entire journey. In the cloud domain, we are ready to change our model of interacting with partners and customers.

Lastly, we will continue to look at geo expansion and take initiatives to acquire new customers or maybe breaking into new mid-market and SME segments. We are also looking to revisit expansion of use cases in our large enterprise customers.

FEATURE

Digital, an important contributor to having one of the Industry’s lowest expense ratio for ICICI Pru Life

ICICI PRUDENTIAL HAS taken a slew of digital initiatives in the areas of customer onboarding, RPA, Big data, which have been a major contributor to lower its expense ratio

digital strategy has enabled ICICI Prudential Life to improve its efficiency across processes and product segments, and achieve one of the lowest expense ratios in the life insurance industry.

The digital approach is in line with MD and CEO Sandeep Bakhshi’s avowed intent — “We want to be a technology company selling insurance” — which is indicative of the company’s thrust on IT in all its business operations.

Technology is not just helping ICICI Prudential Life to become a leaner, efficient and profitable enterprise; it is also enabling the company to simplify insurance as an protection and investment tool, clear misgivings about insurance, make it easier and convenient for customers to navigate through the labyrinth of products, and buy the right policies to fulfil their financial goals. Tech-savvy customers, especially the Millennials and Gen-Next, are already using both online and digital platforms to buy insurance products at the click of a mouse.

Thus, technology has formed the core of business operations at ICICI Prudential Life, where the employees across verticals understand technology as well as any CIO.

The first major technology initiative was to make the eKYC process simpler for the customers and the company. “Our systems were connected with the Permanent Account Number (PAN) database so that we could check online whether it actually belonged to the person. The Aadhaar platform is used to pre-



“In AI, the company is beyond the PoC stage and by next quarter, the initiative will be live. The PoC has been done in the area of underwriting, claims management and customer query management. AI will provide a more granular understanding, which Chatbots are not capable of providing

V. V. Balaji, Chief - IT & Operations, ICICI Prudential Life Insurance

populate customer information in the application form. This has two benefits: customer authentication and 70 per cent auto-population of the application form,” Balaji explains. “One must note that it is a tedious exercise for the customer to fill the form because of the multiple fields. eKYC has become critical as, historically, the KYC process has been the subject of many frauds both in India and globally.”

The eNACH initiative by ICICI Prudential Life allows customers to give standing

instructions for making direct debit payments for premiums or any other purpose. This is one more step towards paperless transactions.

The company is also using technology to make customer engagement easy for its sales force. The total number of staff working directly and indirectly with ICICI Prudential Life is in the thousands. These include agents, bank partners, brokers and proprietary sales force among others. They need to be kept up to speed on the various changes in the product specifications, introduced from time to time to ensure correct information exchange between the seller and buyer.

For example, a system has been put in place to provide real-time updated information to the sellers on their devices. This data is provided in as many as 12 languages. The mobile device also serves as a virtual “sales office” where the seller can send alerts and service the customer in many ways.

“We maintain complete transparency while discussing the policy with the customer. The backend rule engine, as per the threshold set, tells us whether medical checks are required and when the policy would be issued. The result: Employee productivity, which was at Rs 42.6 lakh per employee in FY15, increased 30% to Rs 55.5 lakh per employee in FY17,” says Balaji.

Robotic Process Automation (RPA)

More than 500 backend processes have been RPA-enabled, particularly in areas such as HR, services, new

BENEFITS FROM DIGITAL INITIATIVES

Employee Productivity	Employee productivity was at ₹ 42.6 lakh per employee in FY15 which increased by 30% to ₹ 55.5 lakh per employee in FY17.
Customer Grievance Ratio	Customer grievance ratio was at 185 for every 10,000 new policies sold in FY15 which fell to 95 for every 10,000 new policies sold in FY17
Claim Settlement Ratio	Claim settlement ratio was at 93.8% in FY15 which increased to 96.9% in FY17.
Average Turnaround Time to Settle Claims*	Average turnaround time to settle claims came down from 5.59 days in FY15 to 3.05 days in FY17.

business, payouts, IT back jobs, investment operations etc. Different kinds of RPA are in use, one of which is rule engine based. RPA is also used to fetch data from one system, process it and use it in another system. It is also used to connect different systems to the policy administration system. RPA also facilitates reconciliation with regard to customer bank statements, debit and credit card payments, and other data.

ICICI Prudential Life has bought IBM’s chatbot platform for internal purposes. It will be recalibrated and launched for the benefit of customers.

Big data to keep fraudsters at bay

Some 75-80 per cent of frauds are committed by people associated with the primary policy holder. The solution to this problem lies in identifying the culprit at the underwriting stage. The company is using data analytics tools to pick up the wrongdoers. Balaji explains, “If a doctor in some area wrongly diagnosed a person five years ago and then he

issues a death certificate for a fraudulent customer, the tool will instantly identify him as one and the same doctor, and a repeat offender.”

In addition to big data, other instruments such as eKYC, Aadhaar and databases also help to keep fraudulent customers out of the system, automatically improving the claims settlement ratio.

“Our claim settlement ratio was 93.8 per cent in FY15, which increased to 96.9 per cent in FY17. The average turnaround time to settle claims came down from 5.59 days in FY15 to 3.05 days in FY17,” Balaji reveals.

Blockchain

Fifteen insurance companies have joined hands to form a Blockchain Proof-of-Concept (PoC) to share data and prevent fraudulent claims across the insurance sector. Imposters usually operate through multiple insurers which often results in claims being paid to the fraudsters and casting suspicion on genuine policyholders. It is here that the PoC helps to expose the culprit and bring him to

justice before he buys a policy for raising a fraudulent claim or files a wrong claim.

The Blockchain PoC is a big help particularly during customer onboarding; for instance, a company can use the Blockchain to access a customer’s medical records and prevent him or her from repeating medical tests while applying for multiple policies.

The initiatives under the Blockchain concept, which initially took off on WhatsApp groups, are expected to go live by Q3 FY19.

In the current financial year, ICICI Prudential Life’s focus will be on expanding the use of APIs (application programming interface), especially in internal operations. Chatbots and Artificial Intelligence.

“For AI, the company is beyond the PoC stage and by next quarter, the initiative will be live. The PoC has been done in the area of underwriting, claims management and customer query management. AI will provide a more granular understanding, which Chatbots are not capable of providing,” V.V. Balaji concludes.

Abhishek Raval
abhishek.raval@expressindia

ICICI Prudential Life has employed the digital platform effectively to lower its expense ratio, the portion of premium used to pay the cost of acquiring, underwriting and servicing insurance, reinsurance and other overheads.

According to Balaji, the

'Designing GSTN was like building a ship while its sailing'

THE GSTN CEO, Prakash Kumar discusses the challenges and learnings in building the world's largest tax platform



Abhishek Raval
abhishek.raval@expressindia

Although, it hasn't been even a year since the GSTN was launched, the journey seems to be long and tortuous. The continuous changes in law, design changes, uncertainty over state-centre dialogue, it was an arduous task to come up with a stable IT platform. Except for the first few days, the glitches in the IT platform continued, post the launch of GSTN in July. Now, the e-way bill has also been launched, which widens the scope of the system. In this backdrop, it's interesting to know the GSTN was over designed and it did prove to serve a purpose. The anticipation made by the team on designing the network for more number of users than it

was initially estimated for proved right because the actual number of users have overshot the number of users estimated.

The GSTN rollout was divided into three phases with the first, second and the third phase logically divided into external, internal and analytics components respectively. Even though GSTN had provided the rollout plan to the government, the challenge on the way was to submit the final form with the required changes in, for example, August, which was provided to the GSTN in July.

GSTN - Challenges for the taxpayer

The biggest challenge and change in management came in the form of the reconciliatory nature of Goods and Services Tax Returns

(GSTR) 1,2,3 invoice filing and finalising; until the transaction is tallied by the parties on both sides of the transaction - the receiver and the supplier.

The sales data is uploaded by the seller, whose purchase data is automatically taken by the system based on the data uploaded by the suppliers. In case there are any changes, the seller edits the data, which is relayed back again to the buyer for reconciliation. This has to be done in a short time window due to which the industry (taxpayer and tax consultants etc) could not cope and it's kept on hold. The committee has been set up to do a rethink on this process, to make it more acceptable.

"Hitherto the data had to be submitted and the system did the matching. However, the process has been changed to

invoice based matching wherein acceptance/rejection is done at a very large scale between the buyer and the seller," says Prakash Kumar, CEO, GSTN.

Moreover, GSTN brought a paradigm shift in the working of the taxpayers. Earlier, when only a few states followed the business to business (B2B) tax invoices, GSTN mandated all the taxpayers do a B2B tax invoicing. All on the electronic mode and completely paperless, which was in the past, paper + electronic.

GSTN - Internal challenges

The biggest task for GSTN was to rally support and team up with the multiple stakeholders like tax authorities, accounting authorities, banks and RBI, business,

industry and also negotiate with the 29 states including the union territories for various provisions in the GST. The second biggest challenge was the uncertainty about the GST rollout date



The biggest learning is to always overdesign and over deliver. According to an internal estimate, the total number of taxpayers were expected to be 65 lakhs, at an annual growth of 8%. Yet the system was designed for 1.5 crore users

Prakash Kumar,
CEO, GSTN

because of the lengthy evolution of the process. Until October 2016, there was no clarity on the GST rollout date. "The development team was always curious about the final date for them to decide on how should they approach the work to be done," says Kumar.

Training was a mammoth task and so was change management. More than 60,000 tax officers and the related staff had to be apprised of the working of the GST.

Given the requirements to keep the GSTN flexible, scalable, it was like building a ship, while the ship has started sailing. "On the scalability side, we noticed that businesses tend to file the returns on the last few days. No system is designed to handle crores of requests

on the same day," says Kumar. The government has agreed to follow a system where the return filing will be staggered following which different businesses will have different final dates to file returns. The same applies to indirect taxes. The deadline for filing different kinds of taxes will be separate.

Learnings

The biggest learning is to always overdesign and over deliver. According to an internal estimate, the total number of taxpayers were expected to be 65 lakhs, at an annual growth of eight per cent. Yet the system was designed for 1.5 crore users. The assumption was more and more users will come onboard as people are mandated to report their invoices. "This stand of ours has turned out to be true. The number of users currently has crossed one crore already," says Kumar.

A big learning from the GSTN rollout is the implementation of the scale and size of such a big law and reform should be gradual. A big bang approach is not recommended. Recently in an interaction with the Indian Express, Prakash Kumar said that they will need time to prepare the software network to support the revisions. "We would need time. How much time will be required depends on how much change is there. Software is like building a house, if you need only small things changed, then it needs less time. But if you want to remove doors and windows and increase the area of balcony, then it will take time. So, it all depends on what the

new structure is going to be. How different it's going to be from GSTR-3B and GSTR-1," informs Kumar.

It's important to anticipate how the users will take the newly introduced features. A big takeaway has been to have a dialogue with the users, take their advice and accordingly make changes. Based on the previous suggestions, again anticipate the demands of the users.

GSTN in stats - So far

One crore two lakh taxpayers have been registered since July 1, 2017. A total of 7.25 crore has been filed on the platform with 219 crore B2B invoices. Close to 4.65 lakh crore has been paid through the portal excluding IGBT on imports with over 2.55 crore payment transactions.

On 20 November, on a single day, 17.8 lakh returns were filed, with a server utilisation of just 27 per cent. On the payment side, on a single day, the highest number of payment transactions have been over eight lakhs. In June, 2016, almost a year before the Go-Live, the first draft of the model GST law was finalised and made available before the publication of the rules for registration, returns, payment invoice and refund was released in September 2016. Two months later, in November 2016, the revised draft GST was released. This constant change in the rules and forms on the GSTN led to the team having to do a complete rework of the software designed earlier with little time to prepare for the next set of changes.

CERT-In is committed to make banks and digital payments more secure

INDIAN COMPUTER EMERGENCY

Response Team (CERT) has been proactively working for promoting and pushing the cybersecurity in the financial sector



Sandhya Michu
sandhya.michu@expressindia

The government is working to set up a financial CERT to tackle a rise in cyber threats to India's financial institutions, knowing the fact that the banking sector in India has rapidly adopted newer technologies and digital channels. Even the customer preferences shift towards digital platforms. There is a perception, though, that the adoption of advanced cyber security practices has not kept pace with the rate of evolution of core business-enabling technology. While in comparison to several other sectors, banks are definitely

seen to be more proactive in investing and improving security practice, such measures may still be inadequate considering the challenges with the traditional approach to IT security.

Efforts for making financial sectors secure

CERT-In has been involved in various awareness, training efforts and is working closely with the Reserve Bank of India (RBI) and the Institute for Development & Research in Banking Technology (IDRBT) to secure the financial sector from the growing menace of cyber attacks. The national agency feels with more technological advancements like robotics, Blockchain, Internet of Things (IoT),

analytics, and chatbots are getting used to making the digital payment services faster, mobile first, affordable and secure. This sector poses to come under massive cyber attacks, believes CERT-In Director General, Sanjay Bahl.

For CERT-In, the last two years have been very rigorous. Although, the agency secures other sectors, but for the financial sector, it has been carrying out one after another security audits, drills and awareness programmes for 38 commercial banks. "It has been quite a stretch on our resources as its a massive exercise for the size of this country. Doing this for an European country and doing it for India is different. People should appreciate the scale

we are trying to secure and are carrying out this exercise," informs Bahl.

With joint efforts of CERT-In, ISPs and 38 participating banks have seen 84 per cent reduction in malware attacks and 84.3 per cent reduction in vulnerable services, which are opened, but not being used, which could have been exploited by the hackers. "Our services are free for any bank, we are looking for more industry collaboration in fin-tech sector. We have also seen the reporting of breach incidents have increased among banks and financial institutions," he says.

Digital payments: Tech vs process

Digital payment systems

and financial services have grown exponentially over the last three decades. It is becoming part of the technology-based globalised economy and promoting cashless transactions and converting India into the less cashless society. Various modes of digital payments are available today. The fin-tech landscape in India is striving to make financial services more simple, available, affordable, secure mobile and fast.

Bahl also highlights, "There is a need to understand the technology and process risk together in the technology-based globalised economy. As the sophistication of threats is increasing, Ransomware and Trojans have become so common that various incidents which are occurring can be attributed to these phishing emails. There is a need to see a holistic view. With organisations undergoing a digital transformation, there is a need to automate the process and understand the digital ecosystem and its challenges first. Lack of process automation is also becoming the cause of the increase in cyber attacks."

Fire brigade for banks

In last one year, CERT-In has published 27 advisories for end-users and organisations on how to safeguard their organisations. Today, CERT-In has 69 empaneled security auditors who are supporting

the financial sector. Moreover, CERT-In is regularly conducting cyber security training for IT professionals including CISOs. In addition, it also conducts training and workshops on security audits in digital payments for banks, ISVs, and KPI, covering over 100 participants. It has trained and sensitised 38 CISOs of banks on threats, trends, and scenarios.

"We work like the fire-brigade, carrying out mock drills; it helps the organisations to assess their preparedness for cyber attacks. It helps in improving the security postures of the information infrastructure and training of manpower to handle such incidents. We also issued roles and responsibility guidelines for CISOs and there is a crisis management plan in place. We initiated the national cyber coordination centre to generate messages and situational awareness of the cyber threats and launched Botnet Clinic and malware analysis centres, which are now running for one year. Over seven lakh downloads of free tools, which we are provided through Cyber Swachhita Kendras, have been provided to end users," he continues.

For the first time, CERT-In has contributed to Drill Scenario Planning and inject development for APCERT Drill 2018. CERT-In has also served as a member of Exercise Control (EXCON) operations during the Drill for



Some of the top challenges include ensuring that organisations remain resilient. We have put in place a cyber crisis management plan to solve that. There is also a challenge of continuing to build the trust of citizens in the secure usage of ICT and the internet

Sanjay Bahl,
Director General, CERT-In

coordinating the injects. CERT-In participated in the APCERT drill 2018 for the 12th consecutive year and was able to complete each task successfully within the designated time.

Talking about the challenges before the agency, Bahl informs, "Some of the top challenges include ensuring that organisations remain resilient. We have put in place a cyber crisis management plan to solve that. There is also a challenge of continuing to build the trust of citizens in the secure usage of ICT and the internet."

We need to create tomorrow, today with blockchain

AMIDST A SLEW of focused efforts in the India market, such as opening up of Microsoft Garage, adoption of AI among partners, the technology major is bullish on blockchain's increasing adoption in the country

"In recent interactions with our customer and partners, we have observed that many of them have put blockchain teams in place. From an enterprise perspective, blockchain is helping businesses streamline a number of processes. As part of Microsoft's global efforts, last year the company built an opensource solution set for high speed transactions for enterprise customers, which will continue to expand. Blockchain can also help the social sector in numerous areas, one of which is identification. Billions of people around the world have no recorded identification – largely women and children – keeping them out of social benefits and the economy. This is a tricky area, but blockchain can be a great tool in this space," stated Johnson.

In terms of security aspects of blockchain, Microsoft has been engaging with enterprises, regulators and policy makers in an endeavor to deepen the cybersecurity policy dialogue. It recently engaged with the Chamber of Digital Commerce, the world's leading trade association representing the digital asset and blockchain industry, to publish a whitepaper on Advancing Blockchain Cybersecurity: Technical and Policy Considerations for the Financial Services Industry. The whitepaper offers several policy recommendations applicable to both blockchain users and their regulators. By providing recommendations for industry as well as government, Microsoft reinforces the notion that cybersecurity is a shared responsibility, that technology users have a role to play alongside government bodies,

Mohit Rathod
mohit.rathod@expressindia.com

Technology giant Microsoft, identified the significance of blockchain in the enterprise and social sectors very early, and has been strengthening its focus on the technology globally. On March 26 in Mumbai, at a blockchain conference titled, "Creating tomorrow today with blockchain", in association with Express Computer, Peggy Johnson, Executive Vice President, Business Development, Microsoft, said, "Blockchain gained visibility in 2008 due to Bitcoin. I was intrigued by the technology that powered it. Today, it has become a global phenomenon with multiple use cases across multiple industry sectors."



particularly with regard to cyber risk management.

Additionally, Microsoft also engaged with GS1 in the supply chain space, wherein blockchain is said to play a critical role. "For instance, we did a project with a US-based shipping line recently. The shipping industry spends around US\$30 billion on insurance, wherein settlement can consume weeks and months. We worked with Ernst & Young and came up with a solution to streamline this," she said.

The conference also featured a panel discussion on blockchain's applications, wherein key IT decision makers from the BFSI and manufacturing industries elaborated on the use cases of blockchain and the ongoing

deployment of blockchain at their respective organizations. Pratap Garge, Executive President and CIO, Bajaj Electricals, informed, "We started our implementation of blockchain for making payments to our suppliers; the supply space is small scale in nature and capital is important for them, thereby creating a need for faster payments. Our first phase of blockchain implementation is already live and we are planning to introduce bill-to-bill transaction in the second phase."

According to Sudin Baraokar, Advisor – Innovation, State Bank of India, "This year there has been a significant shift to business-driven and outcome-based use cases. We are working on getting the entire bank

guarantee on blockchain, alongside we are also working with Microsoft and Intel on bad loan exchange – there is around Rs 10 lakh crore worth of bad loans in India," he said, adding that last year SBI evaluated 17 fabrics and developed over 10 pilots to check these solutions. SBI has over 450 million customers and 55 million accounts.

Admitting that there has been a lot of hype around blockchain solutions, the panel reiterated the need to identify relevant use cases for its adoption. Sudip Banerjee, Group CTO, Reliance Capital said there are multiple use cases in the insurance space; for example, blockchain can significantly simplify the claim process. Another use case is that of auto claims, wherein a

lot of things can be done, thereby cutting down costs and eliminating possibilities of frauds.

Sharing his perspective, Rohas Nagpal, CEO and Chief Architect of a blockchain startup Primechain, said, "What attracted me towards blockchain was its immutable database. We need to understand that there is too much of hype around the technology; blockchain can't do everything, but the areas it can cater to capture 90 per cent of everything. We have to identify the relevant use cases such as KYC and exchange for stressed assets. Blockchain is a fairly young technology; furthermore the negativity around Bitcoin may also affect its adoption."

BankChain, a platform for banks for implementing

blockchain software initiated by SBI last year, currently has 33 members, primarily from India and the Middle East, but we are looking to expand it, added Nagpal.

Addressing the challenges, Akhil Handa, Head, Fintech and New Business Initiatives, and Advisor to MD and CEO, Bank of Baroda commented that there is a lack of production-ready use cases. He elaborated, "One of the major challenges is adoption. Many institutions still don't have their core systems in place. The challenge is to get every officer to start putting every record on blockchain."

At another session at the conference, Mohammed Nasiruddin, senior program manager, Microsoft India, highlighted how to start the transition to blockchain. Echoing the panelists, Nasiruddin said that blockchain can help to solve certain problems, but it is not a magical solution. He said, "The factors determining blockchain's appropriateness include scenarios wherein businesses cross boundaries, multiple parties manipulate data, intermediaries control the single source of truth and process involves manual verification steps."

The common thread amongst all the participants was that there are immense opportunities for further engagement with the blockchain community and regulators across sectors to improve understanding of blockchain security, identify intersections between regulatory concerns and blockchain's security capabilities, and optimize cybersecurity policies to support continued growth and innovation in this exciting area.

Odisha banks on GeM to transform government procurements

TO CREATE AWARENESS about Government eMarketplace (GeM), Express Computer magazine, in partnership with technology giant Dell EMC, organized a GeM conference in Bhubaneswar



Mohd Ujaley
mohd.ujaley@expressindia.com

With an aim to promote greater understanding of Government eMarketplace (GeM), the Bhubaneswar edition of Dell EMC GeM event was organized by Express Computer magazine in partnership with technology giant Dell EMC. Senior government officers, policy makers and IT leaders from the state came together to discuss and debate on the great potential that Odisha offers and how the new platforms such as GeM could be used for the benefit of

government departments. While emphasizing the importance of platforms like GeM, Mohd Ujaley, Principal Correspondent, Express Computer, in his opening note said that GeM was a bold initiative of Prime Minister Narendra Modi's government, as the government was trying to set up a platform like Amazon and Flipkart for government departments, which will change the way government departments buy and enterprises sell to the government.

While giving the welcome address, Arvind Bhardwaj, Marketing Head, Vertical Business, Dell EMC India

explained the benefits of GeM and how it is transforming the way government procures goods. He said, "It has already improved service delivery, transparency and ease of procuring goods for the government departments." Bhardwaj spoke in detail about the impact of a platform like GeM. With the help of presentation, he showcased some of the futuristic works done by Dell EMC in this area.

Delivering his keynote address, Vidur Sehgal, National Head, GeM Business, Dell EMC India, shared his views on the significance of GeM. He gave a detailed presentation explaining the

different functionalities of GeM 2 and upcoming GeM 3 versions. He said, "While GeM has already been rolled out in pilot phase, the full potential of GeM is yet to be realized due to its low awareness. For government departments, GeM can bring about significant benefits in terms of cost saving, quality of services and time taken to procure."

During his presentation, Sehgal explained how government departments can leverage rich listing of products and services to buy the exact products or service they need? How they can improve efficiency of procurement process by leverage the easy

order placement and payment processing offered by GeM platform? On the challenge of adoption of GeM, he was of the view that it is a noble effort of the government and all the states will start using it gradually. "The architecture is simple and once the new version gets implemented, the speed of the system will also go leading to better user's experience."

In addition to Bhardwaj and Sehgal, senior Dell EMC officers Sankar Lingam, CSG Specialist, Dell EMC India; Avig Roy, System Consultant, ISG, Dell EMC India and Shiv Rathi, MIT Specialist, Dell EMC India were also present to

explain the suite of solutions and actionable insight that Dell EMC offers which can help government departments deliver fullest benefit.

During his presentation, Lingam gave a broad overview of laptops, computers and other devices that Dell EMC offers for government. He explained the benefits and key features of these devices. He also informed about the best practices of buying goods. He said, "It is important that you know what technology is prevalent and what is going to be phased out before you place an order. If you buy something that has old configuration, the life of devices will be shorter,

leading to extra cost."

Like him, his colleague Avig Roy who is an expert on servers, storage systems and data protection technologies, focused on the evolution of storage and how the capacity has improved over the years. Roy with the help of presentation explained the difference between generation of storage and server technologies and their capabilities.

Participating in the event, Shiv Rathi talked about the Dell EMC servers offering. He explained about different benefits of various servers and how government department could use it.

Smart Infrastructure Symposium: Charting the path ahead

THE THIRD EDITION

of the Smart Infrastructure Symposium saw participation of over 100 senior functionaries from municipal corporations, smart cities & tech companies. Smart Infrastructure Innovation Awards were also presented to innovative IT enabled projects of smart cities

Bringing to the fore the various forces behind the government's ambitious Smart City initiative, the third edition of Smart Infrastructure Symposium (SIS), organised by Express Computer in Pune from March 8 to 9, reiterated its position as a platform for numerous stakeholders in building India's smart cities for tomorrow. This year, SIS was jointly hosted by Jal Sabha, a debut event by the Indian Express Group's newly launched magazine Express Water; this complemented SIS with water management solutions for the urban regions. The keynote address from Rajendra Jagtap, CEO, Pune Smart City (PSC) covered in depth, the smart city initiatives which are completed, being piloted and are at various stages of completion. The city has adopted the twin approach of Pan city initiatives and Area Based Development (ADB) under which, small areas are developed but keeping in mind international benchmarks. They become the lighthouse for other areas too.

PSC has been awarded for the best usage of funds. The city started with a seed fund of ₹ 1,000 crore. There are 53 projects underway in the city in areas like water supply, sanitation, transport, skill development, startup hubs and e-connectivity.

Knowledge stage

As part of its various knowledge sessions, Smart Infrastructure Symposium 2018 organised a panel discussion on 'Making cities livable'. The focus was on two aspects - role of ICT to provide citizen services, importance of data security and privacy. A total of 119 cities have been identified for the Livable Cities Index. It includes 79 parameters, of which, physical infrastructure and governance are identified as major factors for governing livability.

Nilkant Poman, Additional CEO, Pimpri Chinchwad Municipal Corporation (PCMC) spoke about initiatives taken by PCMC to use ICT to deliver a number of citizen services. "PCMC will deploy 100 Common Service Centres (CSCs) to provide multiple citizen services - 21 in the first phase and 44 in the second. The municipal corporation has also launched a 24x7 call centre to relay the required information to the citizens and



also manage the grievance handling process," he informed.

A number of emerging technologies can also play an active role in making cities livable. "Artificial intelligence (AI), Internet of Things (IoT), blockchain etc will be crucial to amplify the effectiveness with which citizen service will be delivered," said Parmod Kalia, General Manager, Punjab Urban Planning and Development Authority (PUDA). One of the major initiatives of the Punjab Government, which is unique in India, is the Unauthorised Constructions and Illegal Colonies (UCIC) mobile application to monitor the unauthorised construction of illegal projects. Under the UCIC app, PUDA has been able to register about 400 cases; and over 120 cases have been reported by citizens.

Application of technology tools for water management can result in better water distribution and tracking. "GIS can be used for better management of water resources in the city," opined Dr Sanjay Dahasra, Founder and Member, Maharashtra Jivan Pradhikaran.

Another panel discussion on the Command and Control Centres (CCC) discussed important areas on the applicability of cloud enabled CCCs and the importance of security in CCC. Participants in the panel included Abhay Gupta, Additional CEO, Gwalior Smart City; Manojit Bose, Chief Knowledge Officer, Pune Smart City; CS Yogesh Khakre, Company Secretary, Bhopal Smart City Development Corporation; and Anurag Walia, Vice President - Partnership and Alliances, Tata Communications.

Speaking at a session titled, 'Learnings from Vadodara's open Wi-Fi and intelligent poles project, Manish Bhatt, Director - IT,

Vadodara Municipal Corporation, informed, "Our Chief Minister inaugurated this project, whose objective is to public Wi-Fi services, setup intelligent poles across the city and create a shared infrastructure. This project is based completely on public-private partnership (PPP) model. Alongside public free public Wi-Fi, intelligent poles are used for installation of smart elements which are connected to command and control centre."

Under the PPP model, the revenue commitment of the vendor - Indus Tower - is ₹ 22.41 crore across 15 years, whereas the total project cost in ₹ 200 crore. As part of the project Vadodara Municipal Corporation is going to install 450 intelligent poles at strategic locations. Bhatt further added that this model ensures that there is no financial burden on smart cities, thereby serving as a reference model for other smart cities in the country.

With the adoption of new and emerging technologies such as IoT, blockchain, AI; and the increasing significance of command and control centres, it has become crucial to analyse the cyber threats that may come from these technologies. A panel discussion on 'Smart cyber security for smarter cities' elaborated on this area. Moderated by Srikanth RP, Editor, Express Computer and panel discussion was participated by G S Cylsh, Deputy General Manager - IT, Bangalore Metro Rail Corporation; Sheshadri T, IT Advisor, Bruhat Bengaluru Mahanagara Palike; Ramnath Subramanian, ED - Strategic Planning, Nagpur Metro Rail Corporation; and Bhavin Gandhi, Senior Technical Consultant, Trend Micro India.

Cylsh said, "Security is important, but it is not a deterrent for adoption of new

technologies. From our project's perspective, we have designed our network is the security parameters - everything in place such as end-point security, firewalls etc. Following this, we have also done a security audit. Security audit is the most important in every organisation, including smart city projects. In cases of ransomware, I feel there should be some manual solutions too; everything should not become automated."

Commenting what's a major concern area, Sheshadri T, said, "We have a huge data mine, and securing this data is very important; it is also a huge challenge for us. As a government organisation, it is difficult to follow the numerous processes to secure the data."

Industry stakeholders

Security threats are inherent in using advanced ICT tools. The ULBs and smart cities have to partner with security vendors to protect the IT infrastructure. Trend Micro gave a presentation on how solutions from the company can help the technology reliant smart cities to securely serve the citizens. With IT running as a common layer across various departments in the municipality, they are closely knit together. "The critical sectors in a smart city are deeply connected - IP cameras, transportation, street lighting, water distribution etc. Compromise of one of these may result in others getting compromised too," said Gurpreet Singh, Technical Specialist, Trend Micro. Trend Micro has a solution to protect the command and control centre, which is the heart of running the aforementioned citizen services. Other solutions include Next Gen IPS, Deep discovery advanced threat

protection, zero day initiative, cloud server security, endpoint context aware security, Network APT solution etc.

Trend Micro also hosted a power discussion with the attendees. Bhavin Gandhi, Senior Technical Consultant, Trend Micro advised to protect the last line of defense - the server and database and also adopt a layered approach to security. He said this in response to a challenge shared by one of the participants in the discussion about what can be done to prevent data sharing by the internal and external users. Answering a question on the information about a dedicated IPS offering from Trend Micro, Gandhi said, "More and more technology vendors on the Gartner security quadrant have integrated security offerings, where point products talk to each other". He also spoke about Trend Micro's insistence with the SIs to be ideal in their approach even if certain best practices are not mentioned in the SLAs.

Another insightful power discussion at the two-day event focused on the various challenges of IT infrastructure faced by smart cities and how they can be addressed by the right technology. Conducted by Tata Communications, the power discussion witnessed the audience's interest in learning about the unique solutions that Tata Communication offers. Anurag Walia, Amit Singh, Deputy GM, Tata Communications, along with their team, addressed various topics such as connectivity challenges, cloud, PPP model and more.

"Tata Communications has approximately 10,000 employees. The company's revenue in 2017 was US\$ 2.9 billion (₹18,913 crore). We have invested in networks in most of the cities and we are able to connect most locations. IoT is a technology which is already being

adopted; we don't see it as a future technology, because we are already working on IoT," said Walia.

In a recent development, Tata Communications has announced it will deploy 5,000 IoT-enabled smart gas metres for natural gas distribution company Mahanagar Gas in Mumbai.

One of the partners sessions, "Transforming cities with analytics and IoT", by Vikas Hooda, Country Lead - Smart Solutions, HPE India, provided insights into the growing significance and adoption of IoT and analytics solutions for Indian smart cities. Hooda also explained how is HPE positioned to cater to this demand through its various solutions. He said, "Our vision is to manage city operations efficiently by bringing citizens to the centre. Every city has its own set of challenges and requirements, which defines the key focus areas for the city. Smartness doesn't emerge merely from IT infrastructure; it is about the relevance of solutions that are deployed."

"The concept of smart cities doesn't sound much complex and it aimed at making the lives of people easier. However, all the stakeholders who work behind this mission realise the complexities behind the initiative. We are here as an enabler for smart cities, and we look at the various aspects of it such as healthcare, governance, education, transport, communication and value added propositions. The definition of smart cities varies from country to country; even the conceptualisation is different between different countries. The platforms that bring all the parameters of smart cities include the Internet of Things (IoT), cloud and data centres, network infrastructure, alongside security solutions. The economic impact of smart cities will have a 15 per cent

increase in employment, and increased percentage of GDP share from smart cities among other," said Sanjiv Jaitly, Vice President, Tata Communications, while conducting a session themed 'Smart City initiative - Building the Future'.

Recognising innovation

Smart Infrastructure Innovation Awards were presented to urban local bodies, municipal corporations, and special purpose vehicles (SPVs) of smart cities that demonstrated innovative use of a particular technology or a combination of technologies for efficient delivery of citizen services. This includes deploying a completely new solution or an innovative use of an existing technology to gain a competitive edge, improve operations and become more responsive to citizens and partners.

The award recipients

Include: Organisation Name Project Category Vadodara Municipal Corporation Open Wifi and Intelligent Poles IoT Pune Municipal Corporation 'Sewage Treatment Plant Mobile App' Enterprise Pune Municipal Corporation 'Digital Analytics Enterprise Dashboard' Analytics/Big Data Surat Smart City Development Limited (SSCL) ITMS Enterprise Apps Ahmedabad Smart City Common City Payment System Enterprise Apps Bhopal Smart City Development Corporation ICCO Cloud Navi Mumbai Municipal Transport (NMMT) Analytics driven approach for transport Analytics/Big Data Greater Hyderabad Municipal Corporation (GHMC) Digital Road Survey Cloud Maharashtra State Road Transport Corporation 'Wi-Fi Entertainment Platform' Wireless.

BSE's India INX takes lead over global exchanges by adopting open source

RUNNING A TRADING system on a proprietary software costs \$12-13 million dollars. This is just the cost of running the system. Now, with open source, India INX is running the systems at a cost of \$2mn. This results into savings of 80 per cent



India INX is in the process of building a digital financial infrastructure – in the form of a cloud offering – for the investors to invest in the products of their choice on the medium of their choice

Balasubramaniam Venkataramani,
MD & CEO, India International Exchange (India INX)

Abhishek Raval
abhishek.raval@expressindia

BSE's India INX was launched by PM Narendra Modi in January 2017. It's India's first International Financial Services Centre (IFSC), similar to the IFSCs of London, Singapore, Hong Kong, Dubai and New York. The technology platform is the fulcrum of any IFSC or exchange. India INX has already taken lead in the trade matching and response time of four microseconds, which is the world's fastest and way ahead than the second fastest of the Singapore stock exchange at 50-60 microseconds. Secondly, the trades can be done by the investors at far lower costs than global exchanges, sometimes 70 per cent lower when compared to the cost of global exchanges; and technology allows India INX to take this lead. The adoption of an open source platform provides the cutting edge in this case.

Before we delve into the role of technology, let's touch upon the importance of setting up an international financial centre in India. Global financial centres like London, Singapore, Hong Kong, Dubai or New York are buzzing with business volumes being exported from large growing emerging economies like India – in terms of both services bought by Indian companies as well Indians working in these financial centres. Today more than \$50 billion is spent by Indian companies on charges for buying services from other global financial centres. More than 50 per cent of trade in Indian currency happens outside India. This is not just true of financial services. India's consumption of gold is 25 per cent of global physical gold consumption per annum. Yet, our importers

hedge their gold prices abroad with 97 per cent of exchange traded gold volume being traded overseas. However now, with India having its own IFSC, these investments can be done from India. Interestingly, India INX achieved a major milestone recently, when the daily trading turnover of its derivatives segment peaked at about ₹ 3,287 crore (₹506.68 million).

The trading turnover on the India INX 32-troy ounce Gold Futures contract reached ₹ 1,895 crore, constituting about 68 per cent of the turnover of the equivalent Gold Futures traded in the domestic markets.

Why open source?

More and more traders in India and globally, are using automated trading in the form of algorithmic and high frequency trading. This requires high throughput and a strong system to do the matching anonymously, with low latency. This is the key characteristic of any exchange globally – to be high throughput and low latency. The India INX has exactly set up such a platform. The system can scale up to any number of trades to be processed per second. India INX's parent, BSE has configured the system to process 500,000 orders per second. India INX has set the system to do 50,000 orders per second, but the Linux based new trading architecture adopted by INX can accept pizza box servers and correspondingly keep adding processing capacity at will. There are redundancies placed, making it a failover system.

In terms of latency, India INX is the world's fastest exchange. "The latency of order confirmation at India INX is four micro seconds, at 95 percentile," claims

Balasubramaniam Venkataramani, MD and CEO, India International Exchange. An acknowledgement is also given back to the investor that the order has been accepted by the system. The usage of open source tools keeps the cost of transactions very low. Running a trading system on a proprietary software costs \$12-13 million. "Now, with open source, India INX is running the systems at a cost of \$2 million - an 80 per cent cost saving," informs Venkataramani.

The proprietary systems are expensive, as are being used by BSE and NSE. It includes heavy license fees. A robust security architecture has also been put in place at all the required layers – be it network, devices and finally at the system level. "We have a Tier 3 data centre, wherein security has been provided at all these levels," says Venkataramani. The system has to be very robust by fault because Indian INX has been listed as the core infrastructure by the National Critical Information Infrastructure Protection Centre (NCIIPC). Moreover, the exchange uses the Red Hat Linux version, which is fully compatible with all the fixes. It is important to note that exchanges like NASDAQ and Singapore Stock Exchange takes about 50-60 micro seconds. They take more time, because of legacy systems. Indian INX, which was launched in January 2017 is using open source. "Earlier, at BSE, while using the proprietary system TANDEM, the response time was in milliseconds," says Venkataramani.

The trading software has been licensed from a German company, Deutsche Börse Xetra. It has spent over \$2 billion on building the product. "We have improved on this product on many aspects

including latency. Compared to when we started in 2017, we are much faster in response times," says Venkataramani.

Security and risk management

The risk management has been built into the system. In the aftermath of the flash crash in the USA and some incidents in India, proper controls have been designed. In case of any outage, the system gets auto cleaned up and the entire system is not affected. Even the victim's system gets cleaned up allaying any worries about pending orders. Secondly, there are rules around order to trade ratios; there are multiple levels of pre-trade filters including both pre-trade and post trade checks. As a pre-trade check, self

trades are not allowed.

AI is being used in the surveillance systems to keep tabs on the brokers and traders, because of the heavy usage of AI tools used by them. The algo trading tools are AI enabled and they learn on the fly, virtually simulating the behaviour of the manual trader. These tools can even be efficient beyond the human intelligence at much greater speed and efficiency. "It's important that to police these actions, we need equally powerful systems, which are AI enabled. Thus our surveillance systems are heavily laden with AI. The BSE's online surveillance system not only checks the internal systems but also the social media to check the abusive practices like frontrunning, insider trading etc," says

Venkataramani. For surveillance alone, over 10 software vendors are hired for all the BSE group companies. BSE has committed close to \$5-6 million for investing in security technologies in order to be up to the speed with the emerging cyber threat scenario.

An ethical hacking team has been employed, which keeps the attack onslaught on a daily basis. BSE's Security Operations Centre (SoC) is also being leveraged by India INX. It has been built in partnership with IBM with a five year contract. India INX has also been covered in the contract.

Building a universal exchange coupled with a digital financial infrastructure

India INX is building a supermarket for the investors to invest in the financial instrument of their choice.

With one membership and billing for all investments. "Usually, the investors have to separately invest for commodities in commodity exchanges; separate equities market, debt, equity derivatives, currency derivatives, fixed income derivatives market, etc," says Venkataramani.

It provides for economies of scale for the exchange. The broker or the investor can trade in any product with a single entry ticket.

India INX is also in the process of building a digital financial infrastructure – in the form of a cloud offering – for the investors to invest in the products of their choice on the medium of their choice. A Direct Market Access (DMA) will be provided wherein the participants can place their own system at the exchange for faster market access. For manual users, the exchange has tied up with an API provider, which is BSE's group

company viz., Marketplace technologies. They have a BOLT on web software. It's basically a cloud offering. A partnership with Thomson Reuters has been made for their cloud offering, which customers can avail.

Free APIs are also provided to enable customers to build their individual systems. In addition, the digital financial structure also includes getting feeds from international markets. This has been materialised through partnering with the network gateways. The exchange has also listed international software firms, who are offering readymade solutions, which can trade in any other international exchange and can also connect to India INX. Similarly, INX India has tied up with international network vendors who have tie ups with local telcos and operators. In addition, the exchange has a Tier 3 data centre.

The GIFT city, where the exchange is located, is covered with a fibre ring. This empowers anybody to link to the exchange from any building in GIFT premises. It's like residential property prebuilt with Wi-Fi facility. The home owner needs to configure and start using the services.

Task cut out for the CIO

Availability, reliability and scalability of the system is extremely important. "Availability and reliability is a KRA for the CIO. Downtime at the exchange becomes national news, and has to be avoided at any cost," says Venkataramani. The exchanges are highly regulated, yet they cannot be laggards in adopting new technologies. "I ask the CIO to keep looking at emerging tech in the exchange and other areas. To test the technology if required and also look for use cases," says Venkataramani.

INDIA INX- IT IN A NUTSHELL

Function	IT
Overall IT support	Provided by Marketplace Technologies, a BSE group company
New trading and order matching engine	TCS
India INX's trading software	Licensed from a German company, Deutsche Börse Xetra. They have spent over €2 bn on building the product
Data centre (built and managed)	HPE
Cyber security	IBM and E&Y
Total IT staff (not all are fulltime)	Close to 500
Money committed for security and risk management for the next few years	\$5-6 mn
Cost saving after using open source	Running a trading system on a proprietary software costs \$12-13 mn dollars. Just the cost of running the system. Now, with open source, India INX is running the systems at a cost of \$2mn. This translates into savings of 80 percent

HDFC Bank takes conversational banking to the next level

Srikanth RP
srikanth.rp@expressindia

Customer Experience is the single most differentiator in a highly competitive market, and banks like HDFC Bank are making sure that they understand their customer perfectly with the right messaging and information. As social media websites and apps are among the most used platforms, it makes perfect sense for a bank to be part of the same

platform that users are familiar with. For example, HDFC Bank analysed that more than 200 million users in India were spending more than two hours daily on social media platforms. A major part of this user base belonged to the age group of 18 to 25 years. The bank believed that there was a need to become part of the lifestyle of these users by being present on the social media platforms. HDFC Bank observed that consumers often had to

download separate apps for daily requirements like cab bookings, bill payments and other services. This had led to a cluttered mobile screen, which did not translate into a user-friendly experience. The bank started looking at options, and decided that Facebook Messenger was a perfect tool that consumers could use for accessing the bank's services, without the need for downloading an additional app. Looking at these needs, the bank developed 'HDFC Bank



OnChat', an AI based conversational platform on Facebook Messenger. The Messenger chatbot was integrated with HDFC Bank OnChat Facebook page and hosted on Facebook Developers platform. The platform uses Natural Language Processing (NLP) to understand a user's intent based on free text input. A user just needs to chat with HDFC Bank OnChat to do any transaction. Nitin Chugh, Country Head - Digital Banking, HDFC

Bank, said, "We have seen a huge month-on-month growth in terms of the transaction value. With this platform, the ability to personalise a transaction is huge and we can offer a differentiated experience." A customer can recharge, pay utility bills, book a cab or book events and bus tickets directly from Facebook Messenger. The overall objective was to build a social banking channel that is based on conversational banking, free from any of the

complicated menu based interface and provides its users with comprehensive set of services like e-commerce, banking, customer service etc. The bank has developed the messaging bot with Nikl.ai. The bot also facilitates bill payments for utility, postpaid, prepaid mobile plans. Till date, more than 300,000 consumers have interacted with HDFC Bank OnChat and the value of transactions is close to ₹ 2.5 crore.

spreading out the wings of transformation

*Scaling higher with
new benchmarks of excellence*

Gartner

Sify named a 'Challenger'
in Gartner Magic Quadrant 2017
for Managed Hybrid Cloud
Hosting – Asia Pacific*.



Data Center Transformation &
Network Transformation

A winning note brings a huge wave of inspiration for us at Sify.
Something that celebrates our incessant efforts at triggering
innovation, and further keeping you ahead with breakthroughs
in integrated technology transformation.

Agility | Flexibility | Choices



marketing@sifycorp.com
www.sifytechnologies.com
+ 91 8750442233

*Gartner, Magic Quadrant for Managed Hybrid Cloud Hosting, Asia/Pacific, To Chee Eng | Kenshi Tazaki | Arup Roy, 31 October 2017
Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors
with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed
as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for
a particular purpose.