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IT TRENDS IN 2017



LESS CASH ECONOMY: OPPORTUNITIES AND CHALLENGES

Rajesh Aggarwal

DEMONETIZATION: EXPERIENCES FROM GROUND ZERO

While the demonetization drive has thrown up huge challenges, Indian CXOs have risen to the challenge by acting quickly





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DEMONETIZATION AND THE RISE OF THE DIGITAL ECONOMY



GOING FORWARD, WE WILL SEE THE RISE OF NEW BUSINESS MODELS, AND EXISTING BUSINESS MODELS DISRUPTED BY NEW PLAYERS

The Central Government has already announced a slew of incentives and measures for promotion of a cashless economy in India. To strengthen digital infrastructure, the Central Government has through NABARD extended financial support to enable banks for deployment of PoS devices in one lakh villages. In addition, the government has also recently directed banks to install ten lakh new PoS terminals by March 31 2017. Further, in an effort to bring smaller merchants to be part of the digital ecosystem, the government has asked public sector banks to not charge more than ₹100 per month as monthly rental for PoS terminals or micro-ATMs. Already, 6.5 lakh machines by public sector banks have been issued to merchants. This can further spur adoption, as no service tax will be charged on digital transaction charges upto ₹2000 per transaction.

For a country like India, this can be the right moment to leapfrog into a digital cashless economy, as the base infrastructure enabled by Aadhaar is in place and the demographics work in India's favor. India also has one of the largest user base of people accessing the internet through their smartphones. This combination can work wonders as can be seen from the growth of users for Airtel Payments Bank. The payments bank, which became the first in India to go live, succeeded in opening over one lakh savings accounts in less than two weeks of rolling out pilot services in Rajasthan. What is more heartening is the fact that close to 70% of the over one lakh accounts opened with the bank was in rural areas, highlighting the massive opportunity. The other advantage for telco-backed payments banks, is the fact that they can leverage the reach of their massive retail network to deliver banking services to the doorsteps of customers.

Going forward, we will see the rise of new business models, and existing business models disrupted by new players. For example, Indian company, Trupay, is creating an Indian alternative to Visa and Mastercard, by allowing banks to directly communicate with each other by using the Unified Payment Interface (UPI). Trupay is seeing massive adoption from Tier-3 and Tier-4 areas, who use the app to directly transfer money among themselves. Another startup, ToneTag, uses sound waves to enable offline contactless payments - a feature that can be extremely useful in rural markets, and in merchant outlets. These are just some examples of the massive innovation taking place in the Fintech startup ecosystem in India. If the policy changes succeed in creating the right digital infrastructure, India definitely can see many more innovative business models in the days to come.

For the green shoots which are just beginning in the Indian landscape, demonetization may turn out be the right fertilizer for the Indian Fintech startup community to bloom to greater heights!

srikanth.rp@expressindia.com

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While the demonetization drive has thrown up huge challenges, Indian CXOs have risen to the challenge by acting quickly. EC spoke to a few CXOs on how they prepared their organizations once the landmark announcement was made by Prime Minister Narendra Modi

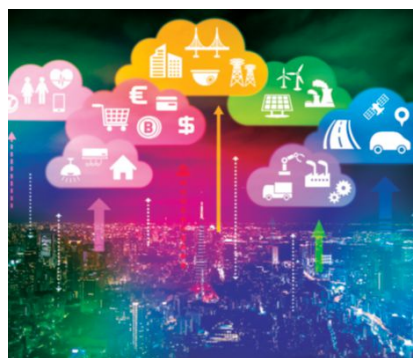


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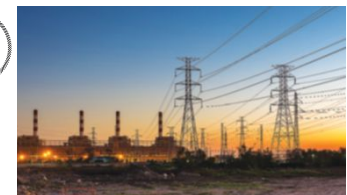
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BRIJESH DIXIT
Managing Director, NMRCL

An aerial photograph of a large group of skydivers in freefall over a vast, hazy landscape. The skydivers are scattered across the frame, with a dense cluster on the right side. The ground below is a mix of dark and light patches, possibly a forest or a field, with a winding path or road visible. The overall tone is warm and golden, suggesting a sunset or sunrise.

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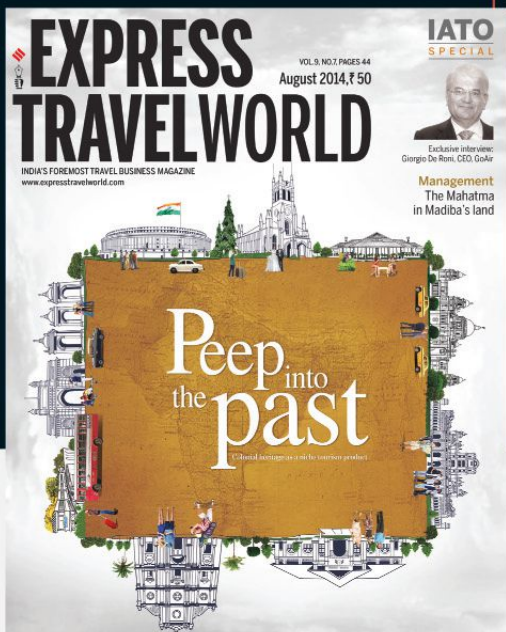
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DEMONETIZATION: EXPERIENCE FROM GROUND ZERO



While the demonetization drive has thrown up huge challenges, Indian CXOs have risen to the challenge by acting quickly. EC spoke to a few CXOs on how they they prepared their organizations once the landmark announcement was made by Prime Minister Narendra Modi

SANJAY NARKAR

HEAD- TECHNOLOGY, IDFC BANK



Demonetisation is a huge opportunity for pushing cashless, as it will be difficult to replace invalid currency in a short span of time. This is particularly true for IDFC Bank, since our aim right since inception has been to make everything cashless. As a part of the initiative, we are trying to reach people with our micro-ATM strategy. It is very convenient for people to transact. It gives almost equivalent amount of services that a normal branch would give. Through a tablet, the micro-ATM connects to our CBS, and through it, one can operate the account. The communication is online and real-time all the time. It is a tablet and a POS machine which also has a biometric authentication. It also works on swipe of a card, and it has a small printer attached to it for giving receipts. Customers have to go an agent who travels from village to

village and has this micro-ATM with him. We have a BC network and official agents who work on behalf of the bank and we also have the micro-ATM, which can give all kinds of banking services including opening of an account. It is linked to the Aadhaar account of the customer. Currently, there are 1200 micro-ATMs deployed. We will be deploying an additional 3,000 micro-ATMs in the next three months. We will be increasing our point of presence through these micro-ATMs.

Behind the scenario of demonetisation

In midst of the demonetization process, all circulars come from RBI as far as operational restrictions are concerned. These are required to be configured on the system on a daily basis. Be it the limit, ATM withdrawal, cash withdrawal on the

branch, cash withdrawal per day or per week — these are changes that are required to be managed at a software level. This is important as a customer can operate his account from anywhere and anytime, and this needs to be controlled as per the daily norms.

Everyday we need to change our configuration, as per norms that RBI gives every evening. Secondly, the currency management was a challenge. When the new currency started coming in the vault, we were also getting the old currency which we were giving back to RBI. Thus, we needed to track the old currency in terms of which account it came from, the account number, and which customer it came from. These details had to be captured. In the vault, we were required to have the bifurcation of the new cash and the old cash, denomination wise. There was a facility

to exchange notes which was between customers and non-customers. It was required by RBI that not only should the details of the person be clear, but also how the person can be made to avoid taking advantage of the facility for the second time.

Thirdly, when the customer is giving his recording, from an IT perspective, we have to make sure that all branches are having cameras in the right places as his duplication should be avoided. That was another software control which was required to be put in place. We had to do certain software changes for the new currency and old currency denomination and the note management. Once we did the software changes, we had to manage it through configuration on a daily basis as per guidelines from RBI. Reporting is far more stringent. We are supposed to report to RBI across all branches on a daily basis.

The very first day when it was declared, we had an immediate meeting to find out the impact of the announcement. We gauged impact both from IT and operational perspective as well as from a branch management perspective. We planned and assessed the impact that requires to be managed at customer and non-customer level, as well as branch level. From an IT and CTO perspective, the impact was in terms of changing the software and making those changes available very quickly, and at the sametime reporting to the RBI. We actually started working overnight from that day. The software changes made had to be tested as well.

Adjusting to the new era

Recalibration of ATM for new currency was the biggest challenge. That was another focus area that the CTO's office had. Since the dimensions of notes were different this was a huge task. We had to calibrate the ATM overnight in terms of cassettes to accommodate the size of the notes. And then the counting and disbursement of the note was done. All of

this process had to be tested as well. In two days time which the RBI had given where ATMs would not be open to the public, we had to calibrate the ATMs. The testing itself took 2 ½ to 3 days. The most important thing was that the same night at 12 am, we had to disable the ATM, because machines could not be giving out illegal tenders.

One advantage was that the CBS we are using is BaNCS from TCS, where accounts of our customers are maintained. This is very flexible from a point of view of managing all these configurations. We had to write some codes, because the limits were different for saving and current accounts. Every night, a reconfiguration was required.

Demonetisation has created an opportunity for us, in the area of mobile apps and wallet. We were trying to educate our customers about it. We will continue to push this initiative. We are also certified under UPI. These will be our focus area in 2017, in terms of how do we socialise our apps and track people to go for cashless. We have seen an increase in the usage of wallets. The acceptability of wallet in economy is still at a nascent stage. There are lot of pay settings which may not be seen as easy to a common person. For instance, when it comes to electronic money transfer, the person who has to receive also needs to be ready. Enquiries are definitely increasing. UPI will be a very big initiative which we will pushing hard in 2017.

As quality of data network increases and mobile penetration increases, the volume of cashless transactions will increase. One cannot do away with cash. So micro-ATMs will be there. We will be expanding and increasing our point of presence through agents like micro-ATM. For asset related kind of products, our branches will be equipped to handle queries. We are also looking at AI and IoT usage for improving customer service. As a new bank, our focus is on how to make customer service more convenient and easy.

RAJIV ANAND

EXECUTIVE DIRECTOR (RETAIL BANKING), AXIS BANK



Axis Bank has set up micro-ATMs to provide easy access of cash withdrawals and other basic banking services to employees of the airport, CISF, airline employees, travelers and patients. They can access the services by using their Aadhaar card number and fingerprint as an identity proof.

We have also partnered with merchants to allow customers to withdraw cash at POS terminals. The bank has enabled the local kirana stores, autorickshaws, vegetable and milk vendors and other small ticket size vendors to accept payment digitally through QR code. We will also leverage our contactless technology at POS terminals for faster transactions.

Axis Bank has tried to facilitate the digitization journey of Patna Municipal Corporation by deploying 100 mPOS and 7 CDMs for tax collection. The bank will deploy 100 mPOS (mobile point of sale), dedicated wireless devices that will perform the functions of a cash register and electronic point of sale terminal for both debit and credit cards. The bank will also deploy and conduct maintenance of 7 Cash Deposit Machines (CDM), self-service terminals that will empower citizens to deposit and make payment transactions by cash.

We have also tied up with payments company, PayU, to allow our merchants to accept payments directly into their bank account through the Unified Payments Interface (UPI). In Jan 2017, we plan to integrate our mobile app with UPI.

ANAND NATARAJAN

HEAD OF STRATEGY AND BUSINESS EXECUTION, FULLERTON INDIA CREDIT COMPANY

The principle issue of demonetization is the immediacy aspect in terms of people not having sufficient cash to pay. From an operational aspect, we have two verticals: urban India and rural India vertical. In the urban India vertical, our collections and re-payments have not really been impacted. Our clearing of installments even in December has been in fact slightly better. We attribute that largely due to people retaining money over their bank accounts rather than being able to withdraw. We have seen a slowdown in demand in the market, simply because people are dealing with economic outcomes. The expediency in urban India has not been impacted at least in the short term. What we are seeing is people wanting to hold on to their cash and pay at the last moment. Return of cash in some manner into the system and maturing of alternate payment channels, should help in next couple of months.

In rural India, we have seen a bit of a slowdown in some parts of the country. It is beginning to improve as cash comes back into the system. However, one most important development that we have seen in rural areas is the willingness of people to use e-payments and alternate channels for payments. In a month from a base of zero, we have had 40,000 internet payment gateway transactions from rural areas. We have had 100,000 swipes for re-payments through POS machines. The adoption of digital payment ecosystem and use of a digital platform for re-payments is clearly seeing a shift in rural areas.

Some of the work that we have done over the last year has been to provide a range of complete re-payment option to our customers. We have internet banking, and we have collaborated with payment aggregators to collaborate on wallets and POS machines. Post demonetization people are using these alternate channels to make payments.

Enhancing digital capabilities

Our work around digitization and getting



digital delivery have been improved a lot. We have a variety of options for our customers. We have a fully adaptive website that easily allows customers to make payments. We have spent a fair amount of effort around implementing our collection infrastructure. We have improved the efficiency with which our collectors reach out to our customer in order to collect the overdue amount. We have a mobile app that sequences all field collections through geo-mapping exercise. It also provides the collector with Google maps. For example, it provides the best logistical route. It provides cash collection and POS swipe collection in some of our geographies, along with immediate electronic confirmation of collection. It significantly improves delinquent customer collectibility: both cash and non-cash, and we have seen migration to non-cash in the post demonetization period.

All channels that a customer can potentially use or wants to use is available for the customer. Over and above having infrastructure, it is around publishing the matter in a way that is relevant to the customer which makes it easier for the customer to utilize different channels. We have SMS, voice messages, emails that encourages them to use these

channels. We also continue to invest in analytics. What we have done over the last year, is build information and intelligence — both through traditional and non-traditional channels.

A big chunk to be able to participate in the market and our ability to lend is due to the analytics capability that we have built. The analytics team has built a whole range of acquisition and behavioral capability in understanding of the customer. We have fully developed an internal analytics team. In the rural area, our focus is in actually getting more unstructured data. There are 1.5 million customers in the rural area. Every time our person meets someone there, some kind of intelligence or data is gathered. We have now built a database of a variety of information. It will help us in giving much more nuanced and focused products, and identifying specific needs. We are also using our data to cross-sell some of our products. We can also take portfolio action quicker as it enables us to identify vulnerable segments before market forces do.

In terms of origination, we have an entire infrastructure which enables customers to reach us through various channels. We now have a tab-based platform, where our representatives can reach out to customers and can do income verification instantaneously through income documents, KYC verification, IRIS scan, income certificate through API integration whether it be bureau or Aadhaar or IRIS or through PAN for PAN verification. The entire process of scoring and approval can be done almost instantaneously. We have a customer service capability that is available on IVR, which is personalized. We have internet and mobility based self-service capability as well. All of this is backed by the analytics capability.

The primary focus in 2017 will be to leverage on our investments to make it more relevant. Our game will be to make borrowing more easier and relevant and need-based.

SWAPNIL JAMSANDEKAR

ASSOCIATE VP, e-BANKING, COSMOS BANK

With the demonetization drive, our IT team had to jump in to make the ATM configuration changes.

There were circulars related to restrictions of withdrawal for customers. Those changes had to be put into the system and we had to make sure that everyone complied to those restrictions. The IT team was involved in making those changes and making them live. We had to put restrictions into our Finacle Core Banking system, as well as for POS, debit card systems and ATMs.

We are working on biometric enabled systems, and have already started putting our ATMs which are biometric enabled. Only the integration needs to be done with NPCI, which would be done in the next two months. The topmost priority for the coming year would be getting ATMs enabled with Aadhaar and biometrics. UPI would also be another priority for the bank.

We are tying up with mobile application developers to build applications as a different kind of mindset is required for



application development using mobile. We are trying to make the applications AI enabled and we plan to use chatbots as well. Use cases for chatbots would be more around regular customer queries, for example, checking balance etc. Every application we will be developing will be PA DSS and PCI DSS compliant. That will be a measure to boost security.

We are also looking at how internet

banking can be used on mobile banking applications. A customer should have same kind of options on mobile banking that he gets on internet banking. Our focus would be to make internet banking website mobile friendly. For internal employees we are trying to make ethical training from security as well as a sales development perspective. It will be driven through e-learning initiatives.

SURESH SHANMUGHAM

HEAD-BITS, MAHINDRA & MAHINDRA FINANCIAL SERVICES



Demonetization will be a big catalyst for encouraging all our stakeholders to go cashless. Once the initiative was announced by the government, we had to ensure that our machines could identify the new ₹2000 notes. This is important as we are extremely active in the rural economy, and most of our transactions are in cash. We are encouraging all our stakeholders to go increasingly digital as it can lead to better efficiencies and lead to a win-win situation for everyone. We are encouraging usage of eKYC and Aadhaar, and are educating our customers that usage of digital mediums can lead to faster approval of loans as the quality of data can lead to better decision making.

- As told to Jasmine Desai

LESS CASH ECONOMY: OPPORTUNITIES AND CHALLENGES



Well known eGovernance champion and thought leader, Rajesh Aggarwal, shares an unofficial view on what India must do to truly boost digital awareness and adoption

After 8/11, we are on the plane with a one-way ticket to cashless destination. This informal and unofficial article crystallizes some basic ideas which I have been speaking at various conferences now for more than five years. In October this year, I gave a talk to about 380 officers of 2016 batch of various All India services in Mussoorie Academy where the underlying theme was about going

cashless. Just a few days before 8/11 when demonetization was announced, I gave a talk to about 150 MBA students in IIT Delhi, and mentioned that the country would be truly cashless when you can pay the barber and vegetable vendor by Paytm. Who knew that it won't take years or months but a few days for a big push in this direction.

Flipping the charges

First big thing to do is to flip the charges levied by banks and portals on cash v/s noncash transactions. Till today, cash transfers, deposits and withdrawals attract no commissions while electronic or non-cash (cheque, demand draft) attract hefty commissions. At Railway counter you pay only ₹ 200 cash for ticket costing ₹ 200 even though the cost to the Railways of maintaining that building, of the ticketing staff, and of cash handling may be ₹ 50 per transaction. On the other hand, on the IRCTC website where the actual transaction cost to Railways maybe less than one rupee, the ₹ 200 ticket may cost the customer ₹ 210 due to ₹ 10 convenience charges taken by the portal. Hence we need to totally flip the model.

1 Banks should levy charge for withdrawal of more than ₹ 5,000 (further limited to 4 times in a month) from bank counters, ATMs or microATMs. This could be flat 1%, to discourage cash in the system. In rural areas, this could be 0.5%. Same formula should apply when depositing the cash at a bank counter or cash deposit machine or the microATM. Same formula should apply on a cash based money transfer transaction, on mobile wallet recharge or cash-out and on some PPI card recharge by cash etc.

2 Presently people are talking about POS and microATM in interchangeable fashion. Actually there is big difference between the two. There are more than a million POS machines with merchants in the country, sponsored by some bank. Debit cards, or mobile based

virtual debit cards can be swiped/touched for a transaction. We should encourage merchants to allow cash-out of up to ₹ 5,000, with commission of 1% subject to min/max limits of ₹ 20/50 to the merchant as cash handling costs and extra 1% subject to similar limits to other stakeholders (sponsor bank, VISA etc.)

3 MicroATM carried by Bank Correspondent is similar looking to POS, but with a totally different purpose. It allows the BC to act as a mini, portable bank branch, enabled to open bank accounts, know/print mini-statement, make deposits and withdrawals etc. Like ATMs, some numbers of cash withdrawals, may be free of charge. RBI and IBA need to clarify the charges, free number of withdrawals, and upper limit of withdrawal, otherwise there is possibility of poor people being cheated.

4 Some non-cash non-electronic methods like Cheque, Demand Draft, Banker's Cheque, Pay Orders, etc., will remain in vogue, but they should also be subject to levies, maybe to 0.2% subject to a minimum of ₹ 5 because transaction cost (printing, issue, reconciliation, bouncing, disputes etc.) to the banking system is high.

5 Bank challans are one of the most inefficient tools of money collection, but many government departments (PDS Ration shops, transporters, admission or exam fees etc.) force citizens to go to banks, deposit cash, get three copies of bank challan, deposit two and keep one, and so on. It is high time that the bank challan system is scrapped.

6 Lot of government receipts comes by way of revenue stamps, court fee stamps, printed stamp paper or franking, etc. This is highly inefficient, easily faked, very high commissions to intermediaries (stamp vendors, SCHIL

etc.). Maharashtra Finance department and Stamp Registration department worked with several banks (notably IDBI, others joined later), for e-SBTR (Electronic Secure Bank and Treasury Receipt). This is printed like traditional stamp paper with almost currency note features at Nashik Currency Printing Press, issued to banks, and banks print transacting details and amount on this paper. It is online verifiable by any department or person getting this e-SBTR. This can save hundreds of crores of rupees paid to intermediaries, and many more hundreds of crores in eliminating fake stamps and fake stamped papers.

7 As cash movement is disincentivised, it is essential that electronic ways are incentivised. Presently charges are exorbitant – credit card charges can be 2-3%, debit cards and UPI charges are around 1%, wallet charges vary from 2-4%, etc. We need to dramatically lower these charges.

8 Fully electronic payment systems – NEFT, RTGS, IMPS, UPI, Mobile wallets, POS transactions, etc., cost very little to the banking system transaction wise. However, all the stakeholders do invest in hardware, software, manpower, dispute resolution mechanisms, etc. Hence some commission must be levied and it cannot be made totally free.

I propose that in the case of credit cards, there should be an upper cap of 1.5%, and it is for the merchant to decide whether to take the hit or pass it on to the customer. Law should make it clear that the customer will not crib if the merchant passes on this charge to the customer, as it is the latter who is benefitting by delaying his actual pay-out by about 50 days. I hope NPCI comes with RUPAY credit card soon, with 1% commission, to bring strong but not insane competition.

In case of debit cards or mobile wallets, or NEFT, RTGS, IMPS, UPI, etc, I propose that charges should be

maximum 0.2% subject to maximum ₹5 per transaction. Actual cost to the banks and other payment players is very little. I am sure NPCI RUPAY debit cards, SBI BUDDY wallet, etc. can immediately announce these rates without waiting for RBI notification.

9

The above para refers to merchant transactions. On various private or government portals, similar charges should apply for online payments. In fact, government utilities and departments should not pass on banking costs to citizens for online payments (except for credit cards), as they save huge money in avoiding setting up cash counters. Anyway, cash collections (by electricity board counters, or OPD charges at hospitals or wherever) will ultimately be deposited at bank counters who will charge 1% cash handling charges as indicated earlier. Thus, government departments and utilities should not pass on banking charges on electronic transactions to the citizens, but instead levy 2% cash handling charges if payments are by cash.

10

The movement of electronic money from a bank/wallet to another bank/wallet should also be at a very low cost, as mentioned in above para. These very low charges should apply regardless of the transaction being done over UPI (i.e. common interconnect platform) or otherwise.

Bank Correspondents

Instead of setting up Bank Branches and ATMs, many banks have appointed Bank Correspondents (BCs). They act as mini bank branch and as portable ATM. As the microATM connects to bank's CBS system, security of microATM hardware and software and network connection is important. I hope that RBI enforces this. One hears stories of BC business sold by the individual to some other individual. Hence it is important that RBI and IBA enforce a proper recruitment and training regime, and also enforce

Aadhaar based biometric eKYC login everyday into the bank CBS by the BC. This will reduce many malpractices.

RBI says that about 3 lakh BCs are functioning, but it is not based on any hard data. Many BCs functioning in urban areas are just opening bank accounts and/or doing money transfers. The rural BCs having proper micro ATMs (or desktop based solutions) are less than 1 lakh. Some BCs bring their micro ATMs to cities rather than operating in their villages. Hence GPS chip with geo-fencing may be mandated to force these BCs to operate in the villages allotted to them. IBA (Indian Banks Association) should have a real-time dashboard of what the BCs are doing.

RBI has rightly extended the date to June 2017 for banks to put biometric Aadhaar authentication system in acceptance infrastructure (that is, ATMs, microATMs, POS machines). Card+PIN or Aadhaar+finger can be used for authentication. Some banks store Aadhaar number in the card, which can be swiped coupled with biometric authentication. This saves the hassle of remembering 12 digit Aadhaar number and typing it on the machine (ATM or microATM or POS). More and more banks may like to do this as it is faster, less error-prone.

Banks spend at least ₹15,000 per month in capex/opex of an ATM but are unwilling to pay minimum ₹5000 per month to the BC. Banks insure the ATM money but do not provide any insurance to the money carried by BC. RBI has guidelines for this, but all banks should follow this. Each BC should be allowed to carry at least ₹50,000 on a day.

Banks need to allow interoperable transactions on microATMs (just like ATMs). This aspect needs to be ensured, as at present some banks are not fully committed to this. About one-third BCs are directly hired on contract by the banks, but two-thirds are hired through intermediary companies (FINO, Vakrangee, Zeromass, TCS, etc.)

Some BCs complain that one-time charges varying from ₹15 to 50,000 are

taken by these intermediaries, along with 30% of transaction commissions. This needs regulation, auditing and cleaning up. Not all intermediaries are bad – some do good branding of BC outlets, exercise good supervision, give good software and dashboards, and bring lot of value added services.

Connectivity Issues

Modern day banking works on online software, and no transaction can happen in a bank, or ATM, or POS, or by mobile if internet is not functioning. Even bank branches in metros sometimes suffer internet outages. Situation in smaller cities and villages is much worse. CBS (Core Banking Software) offered by software giants to our banks is bloated, heavy, bandwidth-guzzler. Very few banks have developed lite-weight versions with lesser functionality but less bandwidth hungry applications. One CMD of a private bank told me that her software in rural branches works well even with limited 64 kbps VSAT able to handle 7 terminals. All banks, especially our public-sector banks and rural cooperative banks need such lighter versions of CBS. Almost half our BCs suffer from unreliable internet, and more than 5000 have no internet connectivity. NABARD is operating ₹2000 crore Financial Inclusion Fund (FIF), from which solar power plus VSAT was planned. This is however not really taking off. VSAT is bulky, and BC locations are fuzzy due to almost 30% attrition rate per year. Now my friends in ISRO tell me that latest satellites allow very small sized, portable VSATs. Can our banking system deploy 50,000 rural BCs on branded motor-cycles with portable VSAT, microATM and printers? If this is done, expansion of ATMs and bank branches in our rural areas may not be needed.

Some banks like PNB are experimenting with hybrid application on smartphone, which works on data, but switches to basic functionality if internet conks off but SMS based connection is still available. Bangladesh is good example of use of USSD. Our *99#

function on basic feature phones has not taken off due to very high costs levied by Telecom companies (which TRAI has now forced them to reduce to 50 paise), and lack of commitment by many banks. NPCI also needs to devote more resources on polishing and simplifying this. Failure rate presently is high, due to confusing multiple menus, and due to unpolished banking interconnect with NPCI on *99#. In rural areas, where internet does not work, or where people don't have smartphones, this kind of SMS based banking can be very useful.

Many of us have used Octopus or similar cards when travelling outside. These work across public transport like trains, buses, boats or even at many other places. In India, many metro rail companies use prepaid cards which work in offline method. Wherever there are long queues like our trains, buses, toll booths, etc, using online authentication or use of debit/credit cards will take long and delay the long queues. Thus, prepaid cards which can work offline across multiple places, even shops, can really be useful. Hope Team NPCI introduces such cards without waiting for transport department or any other department. Build the road, the users will come. Our public transport, taxis, autos, vegetable vendors, many will lap it up. The acceptance infra and recharging infra will be low priced due to mass volumes. I strongly urge NPCI to launch such prepaid, offline cards.

Digital and financial imperialism and role of NPCI

USA has Microsoft, Apple, Google, Amazon, Facebook, Uber, Airbnb, VISA, Master, IBM, HP, Dell, etc., and China has Alibaba, ANT, Didi, Baidu, etc. Though Indians have always welcomed the best global companies and culture, but there is real danger of India getting a raw deal if we do not encourage our homegrown solutions in e-commerce and Fintech. We must hail NPCI (National Payment Corporation of India) which gave more than 25 crore RUPAY debit cards to Jan Dhan account holders. Bharat Payment System and UPI (United Payment



Interface) can be real game changers, bringing interoperability, and sane rates. I request the Government of India to allot minimum ₹100 crore grant to NPCI to enable them to expand their capacities and invest in R&D.

IAMAI and PCI are already lobbying for mobile wallets like Paytm, Mobiquik, Freecharge to be connected to the UPI platform. I strongly support the move, but subject to it being limited to KYC wallets. Otherwise, we may see money laundering and other malpractices. New Payment Banks (Airtel, Paytm, SBI-JIO) also need to be connected to UPI. Postal Network also needs to be plugged into UPI, without waiting for them to become payment bank (which may take 3-6 months).

I have already talked about very minimal charges when moving money electronically – so UPI will be real-time, high-volume, very low cost, very interoperable payment system. Perhaps NPCI is already working on a system to enable a merchant display just one QR

code, so that customer with any Debit/Credit card, or mobile banking app or mobile wallet can pay to the merchant. At present, merchants are being wooed by different players, and the systems are not interoperable. We hope that this will be non-issue by March 2017. With all this, NPCI should become the 'Heart and Brain' of our payment system. Presently, it only captures "heartbeat" of ATMs, checking if they are turned on. I have requested NPCI Team to think about capturing cash-status of ATMs, active status and location of microATMs and POS machines and maybe bank counters also. Imagine NPCI giving the public a real-time app indicating status of all these cash-out points and electronic payment locations on a GIS based mobile app.

We need MAKE IN INDIA in banking systems hardware, software and networking components. We need KEEP IN INDIA with respect to data. Perhaps it is time to ask all players (including VISA, Master, AMEX) to ensure that Indian KYC



and transaction data remains within India. The servers, storage, cloud management tools, everything needs to be India. Snowden leaks should have resulted in more awareness on these issues.

Government payment and receipts

The government has to lead by example in reducing its own usage of cash – both on receipt side and payment side. I have already discussed many government receipts – for utility bills, municipal taxes, other taxes, fees etc. Cash receipts, cheques, demand drafts, pay orders, bank challans and stamps needs to be discouraged, and various electronic payments like e-SBTR, GRAS, and payment gateways need to be encouraged. On cash receipts, 2% user charges should be imposed, while on all electronic payments, bank charges should be borne by the government. Many electricity boards in states are reducing their cash counters and involving Citizen Service

Centres (CSCs) as bill dispatch and bill collection centres. CSC operator collects cash from citizens but gives computerised receipts to citizens and deposits the cash into bank account of electricity board at the end of the day. In a prominent government hospital in Mumbai, when we computerized the cash counter collecting OPD and diagnostic tests fees, the daily collection increased 3 times. In Bengaluru, introduction of traffic challans on blackberries increased collection a great deal. Thus, in receipts, computerisation of cash collection points and enabling electronic payments must be done.

Government portals

My young friends in education start up codingninjas.in enabled payment gateway on their website in 4 hours flat using Razorpay! If a government department or a district collector wants to enable electronic receipts on its website, it may take years. Tenders have to be floated,

decision taken on who will take the hit on bank commission charges – department or citizen, and how to integrate the incoming payment into the correct “budget head and sub-head”. In Maharashtra, five years ago, Accounts and Treasury Department (I was Secretary) and NIC Pune launched Government Receipt Accounting System (GRAS) portal. Many departments and corporations in Maharashtra use this, and the system has been adopted in many other states. Paperless, electronic reconciliation with treasuries, budget-heads, RBI and CGA is an important aspect of GRAS. However, can we make GRAS as simple a plug-in as Razorpay or similar private gateways? Can all our government departments and corporations and municipalities which collect fees of some kind enable electronic payment gateways by March 2017?

On payments, out from government, we must force direct bank transfers to

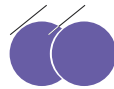
employees, contractors, citizens (beneficiaries of various schemes) and businesses (refund of taxes etc.). The cheque system is inefficient, fake-prone, corruption-prone. On payment side, cheques are as pernicious as cash and must be eliminated. All the cheque books in our treasuries, with Pay and Accounts Officers (PAOs), and with Drawing and Disbursing officers (DDOs) need to be destroyed and banned. Central government is encouraging DBT (preferably Aadhaar based). It has recently issued instructions that all payments above ₹ 5000 have to be electronic. The Imprest Money (petty cash) available with DDOs must also be moved into mostly electronic payments.

Mein Bhi Bharat

Let us not forget that majority of India still lives in villages and urban slums. As Jan Dhan Mission Director, one particular letter I will always remember is the one which said – “Our village has a bank branch, but please give us an ATM, because the ATM does not insult us, or make us feel small” – Massive sensitization of banking sector is needed. In urban slums, rural areas, and remote tribal areas, the issues are of lack of internet/mobile connectivity, illiteracy, lack of English knowledge, and lack of training/awareness. Many Indians may be illiterate or not know English, but they are extremely tech savvy, provided the tech is simple, like using Electronic Voting Machine (EVM), or like using mobile or even WhatsApp. So, our mobile apps and UPI must take care of this simplicity aspect. I am happy that SBI BUDDY is moving in this direction. It is available in 13 Indian languages.

It is not uncommon for people in remote tribal villages to walk 30 km to the nearest bank branch. There are no BC or ATM around, due to lack of viability and/or lack of internet. As mentioned earlier, we need 50,000 BCs on motorcycles with portable VSAT. Probably JIO will reach where BSNL has not. But again, many remote villages will still be left out.

I have earlier mentioned about lighter version of CBS software in rural



The government has to lead by example in reducing its own usage of cash – both on receipt side and payment side

branches, so that on low bandwidth or even on VSAT, the branches can function. RBI has mandated opening some percentage of branches as Rural branches. We see 10 different banks setting up branches in same village situated on Highway as it is convenient to staff. Other villages suffer. State Level Bankers Committees (SLBC) need to undertake a de-clustering drive so that there is fair spread of rural bank branches. Co-operative banks and Postal system will continue to play a very important part in rural economy. RBI, IBA and NPCI need to bring them on par with other commercial banks as far as payment system is concerned. Their ATMs and debit cards should be interoperable and they should be allowed to plug into UPI, subject to proper security audits.

Need to get out of bankers mindset

Due to a very strong banking system and a very strong central bank (RBI), with almost no lateral entry from eminent persons from other fields, new-age payment systems like telco-driven payments have been stymied. Career Bankers dominate RBI, IBA, NPCI, CERSAI etc. These organizations need fresh blood and talent from other sectors (especially IT) at highest levels. How many GM IT in banks have IT background? This banking mindset cuts much deeper, as points below will illustrate.

Traditional banking channels (RTGS, NEFT, remittances) are expensive and slow; telecom channels (mobile money, mPesa) faster and less expensive; internet based channels (bitcoins or blockchain

based digital currency zipping over internet, undiminished in value) much faster and almost zero cost. Some African countries like Kenya had great success with telecom driven mPesa. But our mobile wallet companies had tough time with banking regulations. Post 8/11, however, the scene has changed dramatically. New payment banks may provide world's best payment system, provided RBI gives them a light-weight regulation regime. Asking them to set up all regular banking systems minus credit would be a huge mistake. They need regulation from grounds-up, designed for new-age. We need to totally redefine and re-imagine – what is a bank, what is a branch, what is a passbook, what is a chequebook, what is KYC, what is a transaction. Why do we need a wet (ink) signature if the customer does not need a chequebook? In that case, the whole bank account opening procedure can be made paperless, using Aadhaar based biometric eKYC process. Luckily RBI has allowed payment banks to use eKYC. Reliance JIO has given more than 5 crore SIM cards based on eKYC. Hopefully, the payment banks like Airtel, Paytm, SBI-JIO will use only eKYC while opening new bank accounts, or shifting from telco/wallet to the bank.

Despite claims of CBS resulting in anywhere banking, most of the banks levy hidden charges on non-home branch. If I have a bank account in Mumbai, I should be able to walk into any branch of this bank anywhere in the country, without any additional charges. In reality, this is not so. Getting a cheque book, depositing cash in cash deposit machine or recycler, changing the address or some other details, closing the bank account – all this is difficult or expensive if you are in some other branch instead of your “Home branch” where you originally opened the bank account. Try to close your bank account in Mumbai after you get transferred to Delhi. It is a nightmare! And this is one major reason of individuals having multiple bank accounts, many of them dormant. Our Central Registry CERSAI is depending on existing KYC data with banks, rather than using Aadhaar number as the basic

de-duplicating factor. This will result in as bad a database as presently exists in banks. Even PAN number has too many not-so-reliable entries or multiple entries. It is high time that Aadhaar serves as KYC for banks, insurance, pension, investments in share market and land etc. Regulators (RBI, IRDA, PFRDA, SEBI, FMC etc.) all need to adopt eKYC as the sole reliable factor. In case a citizen does not opt for Aadhaar, we need to enforce a strict alternate mechanism for a very strong, rigorous, unique identity check.

Aadhaar can be financial address, though at the moment, it is riding on top of a bank account. More thought needs to go into this. White label ATMs and white label BCs are not really taking off as traditional banking mindset is at work. (How can non-banking companies do banking stuff?) Does our Payment and Settlement Systems Act give too much powers to RBI, many of which should be with the Executive (Government), and some with Legislature (Parliament)? Bitcoin use is increasing in India. Can RBI launch our own homegrown digital currency based on blockchain? The issue and movement of this currency may be allowed only to customers who have done Aadhaar based biometric eKYC. This digital currency can zip over internet without any kind of commissions.

Convenience versus security and cyber fraud issues

I have written more than six dozen judgments as Adjudicating Officer, Maharashtra under IT Act, which have got wide coverage in media. These pro-consumer and pro-privacy judgments against Banks and Telecom players are now often cited in cyber-jurisprudence discussions. Most of these judgments relate to net banking and ATM frauds. My judgment in Nagpur petrol pump case is about a rogue employee using dummy POS machine to clone the cards. Who will compensate the citizen – VISA or bank (but which bank?) or the Petrol Pump owner or the oil company? Santosh Jalukar v/s Bank of Baroda case judgment shows that net banking frauds reported are a tiny fraction of what actually occur. Police personnel in the cyber police stations are also not fully trained. Many



people simply don't come to know that a fraud has occurred. How many times in last one year have you scrutinized your passbook thoroughly and checked all the debit entries?

Many judgements, especially Sanjay Dhande judgment, show that behind many bank frauds is the role of fraudster obtaining duplicate SIM card of customer with incredible ease. DOT (Department of Telecom) and TRAI need to enforce strong SOP (Standard Operating Procedure) for issue of duplicate SIM card. Can they mandate Aadhaar based biometric eKYC before issue of duplicate SIM card? If your bank account is in Delhi, and you are in Mumbai when you start getting SMS alerts about your credit card being used by a fraudster for shopping in Hyderabad, where do you lodge an FIR? You will be made to go around and around. Even if you manage to lodge an FIR, is the police trained in investigating such frauds? Do they have proper tools (hardware and software)? Does your bank respond to you at all, and is their Fraud Investigation Unit mandated by RBI functional?

If the bank gives IP addresses used by fraudsters to the police, how long does it take the police to obtain location of the criminal? If money is withdrawn from ATM by the fraudster, is the ATM CCTV camera functional? Are our cyber forensic labs well equipped? It can take 4-5 years before the police receives forensic report. Special cyber fraud courts are needed. Are our civil court judges trained in handling cyber frauds? Are our adjudicating officers trained and are they hearing cases? How many of our State IT Secretaries know that

they have powers of Adjudicating Officer under the Information Technology Act 2000? Has MeiTY conducted a single workshop for Adjudicating Officers since 2000 when the IT Act was passed? For many years, the Cyber Appellate Tribunal is not functioning due to vacancy of chairman. While security and safety is paramount, we need to balance convenience with safety.

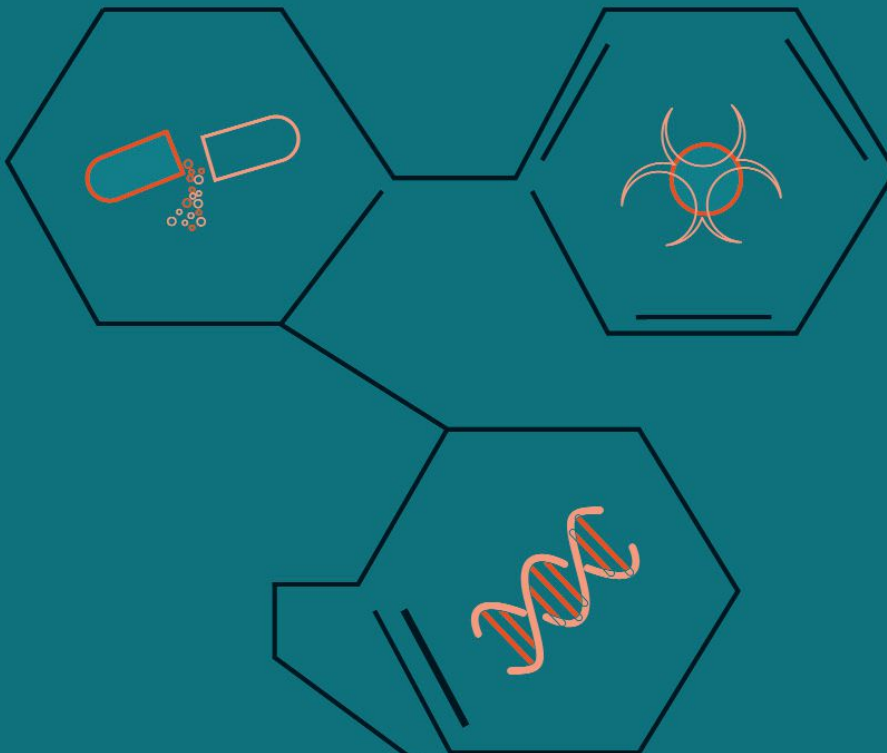
Many mobile wallets are easy to use as they use single factor authentication. That also introduces a weakness in safety. For many popular wallets, if a fraudster obtains your duplicate SIM card, he just has to use Forget Password feature on the Mobile Wallet App, get OTP on the duplicate SIM card, log into your account, and he can empty out your wallet. Perhaps we need to enforce 2-factor-auth for login, and change of password etc. I feel that 4 transactions up to 1000 rupees in a day may be allowed on mobile wallet and UPI with one-factor-auth, otherwise 2-factor-auth should be required. Aadhaar based biometric auth on mobile is a beauty – it is a single-click 2-factor-authentication! I hope that many mobile manufacturers will bring out in near future models having IRIS camera or Aadhaar compatible fingerprint sensor.

Our banks need to do real-time big-data analytics. Presently, even the most basic analysis of card transactions is not being done: for example, transactions like a debit card physically used in Delhi at 10 a.m. and two minutes later in Bihar or Russia are not flagged.

Financial literacy about safety aspects

I know many colleagues in IAS who give their debit cards and PIN numbers to peons to withdraw money from ATMs. Open the drawer of any CA in the country and you will see dozens of digital signature dongles wrapped in rubber band along with a slip of paper with username, password, PIN number of their customers for filing income tax returns. Obviously our rural people and illiterate people and elderly people can fall prey to fraudsters more easily. A big awareness drive is needed.

Welcome to the wild, exciting, efficient world of new-age cashless transactions!



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PAYTM PAYMENTS BANK: HOW PAYMENT BANKS CAN BE A BIG LEVELLER IN THE INDIAN PAYMENTS ECONOMY



Payment banks can help in extending the benefits of banking to a larger set of people, believes, **Shinjini Kumar, CEO, Paytm Payments Bank**

The whole concept of payment banks came up due to the issue of remittances. Money creates divisions in relationships, however when you think about payments, they unite people. For example, a rich person is very likely to get out of his Mercedes and buy a vada pav and his driver is very likely to go to shop in Big Bazaar. Thus, when you pay, it's not connected to the status of the people.

The best example of this is that an XYZ person hires four people, and he is never able to pay them on the first of every month. It could be due to various reasons like the employer is travelling or because he forgot to withdraw the cash from the ATM. The point to emphasize here is that

payments are made to different types of people. So, remittances are just one more P2P payment type. When I pay to the woman who works for me, that's a P2P payment. It's as big a social problem as her problem of not being able to send the money to her family members. Therefore, payments need to be thought about in a much more inclusive way.

The value of a digital credit history

In the case of remittance, we create a pipe of cash in and cash out, wherein the receiver of remittance receives money and transfers it in a digital mode. It reduces the friction for the worker to pay a visit to the bank branch and stand in a line. But it doesn't really solve the

ecosystem problem where the receiver sends the money to somebody who now has to encash it, so again the digital money gets converted into cash. For example, I have been paying the salary to my driver through a cheque for ten years now. However, he was denied a housing loan by the bank, because his money hasn't created any transaction history. He looks no different in the bank's record from another similar account holder. They all look the same in the database. But if the bank has a transaction history of the same customer that he transfers money to his wife and she regularly recharges her phone four times a month, she pays school fees, electricity bills etc, it can log in a good credit history, which can



be helpful to get her a loan and other bank products. So, remittance is a big problem but what is done with the same money when it is delivered is also a big one.

Since we have the opportunity and the government has taken a big bet of releasing multiple players into the system, different people will be doing different things. Someone may solve the P2P remittance problem in a way that is cash in and cash out through a payments bank. The idea of competition is highly exaggerated. There are more complementary angles in the ecosystem. Market should be allowed to play it out and we should be allowed to do different things.

Correcting wrong assumptions

Who is my customer here? If I can make payments to my employees on the first day of the month using Paytm, that is a customer. I am creating more customers by paying my customers and creating ability for them to pay to somebody. The problem is we assume that poor people do not how to use this channel, and middle class are digital centric people. In fact this payment channel diminishes that dichotomy. The idea is if someone is

using the wallet only to recharge his cell phone, how can I increase the value of wallet to him, so he can also have a savings bank account and can increase his transactions. It needs to create convenience for him as well.

Creating massive advantage with technology

Technology is of course a differentiator here. The core of our company is technology. The only way we can make it work is if the mobile and potential of mobile as a financial service provider is used to its optimal level. We are very committed to the single idea of empowering the person with mobile both for digital journey and access of financial services. India is such an incredibly large market of both payments and banking services that competition is not going to

kick in for quite sometime. We are not the first wallet company to launch, but we have the largest customer base.

Our app and integration is much better. We also have been able to scale up without having any issues.

Our APIs are available to the client, so it gives them the freedom to design their own ecosystem. The go-to market becomes available for them. We spawned ecosystem of partners more than a decade ago when the initial wave of banking happened. We decided to do both the skill development and knowledge sharing. With payments bank, it is the first tie-up.

Considering that India is a such a branch centric industry, the large banks have gone with the branch. The more prevalent model in India and South East Asia is based on customer accounts. It is very tangible. Sometimes customers have more than one account at the same time. The channel offering we have on internet banking or mobile is based on registered users. There is a diverse set of players that has been offered this license.

- As told to Abhishek Rawal and Jasmine Desai



IT INDUSTRY FORESEES STRONG BUSINESS OPPORTUNITIES IN 2017

The year 2016 has been a mix of business opportunities and challenges for India Inc, and some of the key decisions taken by the government such as Digital India and Smart City have brought in new opportunities

BY ANKUSH KUMAR

The year 2016 witnessed some of the key decisions taken by the Government has impacted consumers, business houses and the overall economy. As projects like Digital India and Smart City continue to bring newer opportunities for the corporates, state governments were not much far behind in luring MNCs to invest in their region.

Not surprisingly, IT spend in India, continues to grow at a good clip. DD Mishra, research director, Gartner,

states, "India is now amongst a few top countries in terms of IT spending in Asia Pacific (excluding Japan). The opportunities are being tapped by many global MNCs such as IBM, AWS, Oracle, MS and CISCO who have a long history of presence in India. We see initiatives by cloud providers to setup data centers in India and bring data centers closer to customers in India. The growing economy, digital transformation, e-commerce growth, demand for cloud, an emerging SMB sector, government

initiatives on digitalization brings opportunities for IT players provided they are able to cope with the requirements of price sensitive markets and deal with uncertainties."

To further get an exclusive insight about last year's performance and the planned activities for 2017, *Express Computer* spoke to some leading technology companies to understand their perspective on how the year 2016 was, and how they foresee 2017 to be.

SANJAY ROHATGI

SENIOR VICE PRESIDENT, ASIA PACIFIC & JAPAN SYMANTEC

2016 has been a significant year for Symantec in terms of momentous business updates, developments in our product portfolio and strengthening our capabilities at great length. We acquired Blue Coat earlier this year which now complements Symantec's innovative product portfolio, creating the industry's largest pure play cyber security company. The companies together have over 385,000 customers worldwide, sharing a mutual commitment to deliver innovation and drive customer success. The companies leverage more than nine trillion elements of security data, providing unparalleled visibility and protection for Symantec customers across their entire environments.

We recently introduced Symantec Endpoint Protection (SEP) Cloud - a new solution for small and mid-sized businesses (SMBs) to protect them from targeted attacks and ransomware. Another big launch was



the SEP 14, which is the industry's first solution to fuse essential endpoint technologies with next-generation innovations and is the only solution combining anti-malware, exploit prevention, EDR and next-generation technologies like advanced machine learning into one high-performance, lightweight agent. It is tightly integrated into the Blue Coat Proxy SG solution.

Our focus for 2017 and beyond will be to define the future of cybersecurity and provide best-in-class customer and partner experiences by; protecting customers against more cyber threats, helping enterprises securely embrace the cloud and powering a new wave of cyber innovation. We are bringing together a formidable scale of investment in cyber R&D and threat research. These investments span over 3,000 engineers and researchers, as well as nine Threat Response centers.

PRADEEP NAIR

MD, INDIA & SAARC, AUTODESK

What fundamentally has happened in 2016 is that Autodesk changed its business model. If you look at how we were selling software, we used to buy a software on a perpetual basis and so it was relatively expensive but you bought it and then you had access to the software for and every year, you used to update it. The significant change that we've done this year is that we moved everything to a subscription model so you don't buy upfront, you pay for the time that you use it. If you don't need it next year, you don't pay for it. You don't have to pay upfront. Hence, the cost of acquiring Autodesk software has gone down significantly leading to higher adoption in India.

For us transition of this business model has happened recently. So, we're just beginning to see how we can expand the number of people that we can serve, the e-store that we have. All these new capabilities that we have put in place, we can take advantage of those going into next year. And, you know, can we offer solutions that are fundamentally different. To give you an example, if you are talking as a designer and you start with an idea in your head about what something should look like and then you take that idea and convert that into reality. So, we have this guideline that says "Imagine, Design and then Create" and that shall be our focus going forward.



SURENDRA SINGH

COUNTRY DIRECTOR, FORCEPOINT



It's been a phenomenal year for Forcepoint. In the beginning of the year, we saw the emergence of Forcepoint by the coming together of Websense, Raytheon Cyber Products and Stonesoft NGFW. The purpose of combined entity is to provide organizations with an ability to protect its users, networks and intellectual property from cyber attacks anywhere – be it on premise, in the cloud or on the road.

Given the technology landscape is constantly evolving – cloud, mobility, Internet of Things (IoT) – it is important to not just defend against attacks but have an ability to detect suspicious activity sooner, give the context needed to decide what actions to take to remediate the attack and stop data theft.

The attacks are no longer coming from outside, they even come from inside an organization. 'Insider Threats' encompasses a number of threats which stem from internal vulnerabilities including by accidental leakage – whereby an innocent employee accidentally sends out sensitive data or leaves the sensitive data lying around in a USB stick, from social engineering – when an employee falls victim to a phishing scam, or a purposeful leakage – when an employee has a specific motive to steal sensitive data.

If you look at today's scenario, any organization would easily have 15-20 point security solutions that do not talk to each other. However, in the face of changing threat landscape, organisations require unified security solutions that will protect against threats from insiders and outsiders, rapidly detect breaches and minimize "dwell time" – the period between compromise and remediation – and stop data theft. Forcepoint does that by providing a unified platform that focuses on insider threat protection, cloud data protection and network security. It simplifies and strengthens security as part of a holistic strategy that includes people, process and technology and is far more compelling value proposition than a simple point solution.

The year 2017 is going to see new security challenges emerging. The digital transformation is now truly underway. From a cyber security perspective, there is integration of digital and physical into a new emerging world. This convergence will challenge cybersecurity professionals in ways that they never seen before.

Millennials are entering the workforce, they have elevated trust on technology and IT security teams will have to re-evaluate their existing security policies and tools in an environment where data security and data privacy are key. Similarly, with General Data Protection Regulation (GDPR) coming in force in May 2018, one would see increased investments into strengthening of data protection controls.

On the technology side, next year, we will increase in number of apps using voice-active AI platform. The rise of voice-activated AI to access Web, data and apps will open up creative new attack vectors and data privacy concerns. Also, the cloud is another expanding vector of attack. It is expected that hackers will increasingly target cloud service providers to disrupt businesses moving to the cloud. They will do so by exploiting underlying vulnerabilities in cloud infrastructure or launching DDOS attacks.

VISHAL AGRAWAL

MANAGING DIRECTOR (INDIA AND SAARC), AVAYA INDIA



This year has seen Avaya continue its successful transition into a software and services-led company, with 2016 being the most innovative year in Avaya's history, featuring 16 product and solution launches. We have managed the operational aspects of the business while investing for the future, today software and services account for over 74% of total revenues.

We shifted our focus on re-energizing and entering newer segments and have built an excellent portfolio for mid-market reach. Our on-premise solution IP Office Contact Center (IPOCC), which we have recently launched, is perfect for small and mid-size businesses. Also, government projects have been an important focus for us, 30% of our product revenue comes from these projects. We launched Emergency Response system in alliance with government of two states, Madhya Pradesh and Uttar Pradesh.

We started a DX project with dnata, one of the world's largest air services providers and a member of Emirates Group to transform its customer Experience. Our Avaya Private Cloud Services (APCS) is helping dnata to create a seamless, personalized experience for its customers and partners.

PREMKUMAR SESHADRI

EXECUTIVE VICE-CHAIRMAN & MANAGING DIRECTOR, HCL INFOSYSTEMS



HCL Infosystems is on a turnaround transformation journey. In 2016, we were in the middle of a 3 year plan that was started in Q1 of 2015. The turnaround journey was built around 6 strategic pillars.

The first pillar is internal change and focused on the company's most valuable

asset – its people. We had crafted a customized and intense employee engagement program to ultimately align our rewards & recognition to a full potential performance through a 52 week self appraisal tool. PULSE is our weekly self-evaluation tool, enabling each employee to gauge our level of

performance and ownership, full potential and ability to demand excellence (from colleagues). PULSE is mobile-enabled user friendly, and does not take more than 5 minutes to fill up.

The second pillar of the company's transformation journey is its focus on the enterprise business as it has rolled out Enterprise 360 go-to-market, which combines its extensive product portfolio of leading global brands with its comprehensive suite of IT services and solutions.

As parts of our Enterprise 360 go to market, digital and emerging services is a core focus. We strongly believe that in the emerging technology space our continued focus on SMAC plus IoT will create diverse and significant opportunities for us to play in multiple fast-growing value-enriched, high margin lines of business. For example in the emerging technology area we have developed multiple IoT pilot solutions for specific clients across diverse industries such as FMCG, Healthcare and Manufacturing. We believe that IoT applications can not only be a significant new line of business but can also enhance the value of some of our existing services such as Infrastructure Managed Services.

Globalization is the third pillar of HCLs transformation journey. We are gearing up to build our global business on the back of success in our Singapore & Middle East operations. We are building depth in these geographies and exploring new locations.

We have begun our planning for the next fiscal wherein global expansion is going to be a key focus area, across various geographies including APAC and MEA. In addition we are in the process of implementing a highly granular technology-enabled transformation spanning all our existing service offerings. As a part of this process we have set up and operationalized a state-of-the-art IT Operation Center (ITOC) at Puducherry.

MANISH CHOUDHARY

MANAGING DIRECTOR, INDIA OPERATIONS AND SENIOR VICE PRESIDENT, GLOBAL INNOVATION, PITNEY BOWES INC

Pitney Bowes has been a prominent player in the connected and borderless world of commerce technology. The company is reinventing its business by unlocking the vast potential of our digital commerce, shipping, mailing and payment capabilities that made the organisation an industry leader for more than 95 years via the Pitney Bowes Commerce Cloud, which has been launched earlier this year. The launch of Pitney Bowes Commerce Cloud effectively broadens our addressable market from the US \$4 billion mailing market into the growing US \$40 billion digital commerce and shipping market. It is a strategic milestone in the evolution of shipping, mailing and digital commerce

We have collaborated with leading cloud technology companies, including Amazon Web Services (AWS),



Salesforce.com, GE, Microsoft, Apigee, MongoDB and Okta, to deliver a reliable, modern digital client experience. We're building greater awareness about our solutions in software and in digital commerce, which are our growing

businesses that the world is not as aware of.

In a larger business context, we are seeing incredible growth in our digital commerce businesses, which enable commerce at the digital end of things. In the physical space, we still see great vitalization in things like mail and mailing communications, and we are also focused on re-asserting the value of mail, and sitting at the intersection as our clients do, between physical commerce and digital commerce."

The company is focusing on its cross-border commerce strategy as one of the growth areas.

India is home to Pitney Bowes' largest R&D center. We opened our eighth office in India last year and these investments are helping us to provide more client value and client focused innovation to key markets. We will continue to expand our R&D footprint in the region.

SANJAY KATKAR

MD & CTO, QUICK HEAL TECHNOLOGIES LIMITED

The most landmark achievement for Quick Heal in 2016 has been that of becoming a public company. Quick Heal is the first technology product company in India to go public. Our retail segment, which holds around 30 percent retail market share in India is a major contributor in our overall growth along with our enterprise & government and mobile segments which have also displayed strong growth in the previous year.

During 2016, the company also forayed into the cyber security consulting space by launching Seqrite Services. This vertical will provide managed security services including cyber audit and cyber forensic, security consulting and Security Operations Centre (SoC) to enterprises and government organizations.

In another move, the security company also launched Quick Heal Academy which aims to work in conjunction with universities, law enforcement agencies, and educational institutions to offer training in cyber security. With the aid of these two services, we aim to help businesses and organizations become more aware of cyber security threats, their landscape, and learn how to effectively mitigate the associated risks.

In 2017, we are focusing on tailored offerings for our SMB and enterprise customers and reach out more aggressively to BFSI, healthcare and manufacturing industries. Furthermore, we will develop and promote software-as-a-service model and free solutions for mobile devices. We are also working on several new technologies such as IoT and



home security automation. We will be further devising strategies to optimally leverage our two new verticals which were launched in 2016 – Seqrite Services and Quick Heal Academy."

CHANDRAHAS PANIGRAHI

SR. DIRECTOR AND CONSUMER BUSINESS HEAD, ACER

2016 has been a remarkable year for Acer. We were able to pull off a number of significant launches and associations. The company introduced two revolutionary products at IFA 2016; the world's thinnest laptop- ACER SWIFT 7 along with a curved screen gaming laptop - ACER PREDATOR 21X.

Similarly, Acer launched the Switch Alpha 12, a 2-in-1 Windows-10 laptop, following the footsteps of Microsoft Surface Pro 4 as it too has a newly designed liquid cooling system. It also features an inbuilt kickstand and comes with a bundled keyboard as well.

The year 2016 also saw the launch of the strategic "BeingWare" program to meet the needs of people in the cloud era with Acer's competitive edge in hardware, software and cloud services. "BeingWare" is a vertically integrated business model where they acquire and partner with other suppliers or



companies to achieve the goals of connecting intelligent devices.

As a part of the broad strategy, we have a plan chartered out for niche segments into IoT. In India, we have seen

some of the ecosystem partners reaching out to us. As of now we are evaluating them and intend to take this forward in India. In the next 10 years, this industry will be all about content, hardware, services and software all packaged into one. That's where our strategy of being there in IoT comes in very handy. The year 2017 will be undeniably an action packed year with the advent of new innovations in both hardware and software space. The IT landscape has been constantly evolving and changing; many new trends are expected to emerge and some of them like IoT, Virtual Reality, and Artificial Intelligence will definitely go a long way in improving the lives of users around the world.

Acer is strengthening its partnership as well as customer outreach program with intensive engagement programmes. It has forged strong partnerships with all the large format retail stores.

AMIT RAJ BATHLA

DIRECTOR & HEAD OF MARKETING, APAC- ALCATEL-LUCENT ENTERPRISE

In our endeavour to be in line with the market demand, the company took three key initiatives. Network on Demand was brought to market where we shared the risks with our partners thereby showing our commitment to making this offering a success. To further complement our offering, we aligned our R&D to bring to market our Rainbow offer. This is an enterprises grade communication solution. This solution brings with it features and security to best serve enterprises which a regular communication solution cannot meet.

Thirdly, the company also reinforced its vertical focus. As an organization, we saw that the market was demanding vertical solution. To meet this market need, we have aligned our organization to offer and sell vertical solutions. For the year 2017, ALE is forming four regional

sales organizations to better serve its partners, customers and their markets. By placing a focus on specific market segments for growth and accelerating the shift to new business models, each of the four regions will have its own dedicated sales staff supporting its defined industry-specific sales strategy, cloud sales strategy and channel strategy, with a complementary sales enablement and services delivery.

Within these four regional sales organizations, ALE will extend its successful industry approach in hospitality to the healthcare, education, government and transportation sectors. This industry approach delivers tailored solutions, integrated with industry-specific business processes to enable new business opportunities, address growing demands for IoT enabled



communications systems, and simplify the job of IT staffs while reducing costs for the business.

We will continue to invest in your communications and networking portfolio.



TRYST WITH TECHNOLOGY

Government organisations are looking to leverage the power of technology to significantly transform the way it functions and delivers services to the citizens.

But this transformation is also posing challenges related to creating basic infrastructure, providing cyber security and being investor friendly. **Mohd Ujaley** spoke to key government officials who are at the helm of affairs. They share their tryst with technology in the past and the way forward

SANJAY JAJU

JOINT SECRETARY AND DIRECTOR, NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION (NHIDCL)

Use of technology is indispensable for any organization – be it the government or the private sector. The requirement or the necessity of using technology and e-governance is huge. Especially in a ministry like road transport and highways and its corporation like NHIDCL, the role of e-governance is immense. That is why here at NHIDCL, we went with technology and today, NHIDCL is one of the first Government of India's company which is completely e-governed.

We make use of e-office for all our files from start to finish, except for some contract management files (because of technical requirements), nothing in our office gets done through the manual route. All work is done through e-office. Any order that we issue within the



organisation is put online. We have created e-pace which is for real time monitoring of all our projects. At the same time, we make use of e-

procurement portal for all our tenders that we invite. We have invited tenders worth more than ₹15,000 crore, all these tenders have been put out online.

Our future road map would be to integrate all tech driven initiatives together. Right now, we have a lot of projects which are serving their own needs. Some of them are not integratable because they are all in their own home. They are bigger projects like INAM-Pro portal which has established its position in the marketplace for infrastructure providers and material suppliers. So obviously, it cannot become part of our system, it is a platform for the external world but some of our internal initiatives can get integrated. But obviously right now whatever we have done, is good enough to take us to the next level.

P H KURIAN

PRINCIPAL SECRETARY, INDUSTRY, GOVERNMENT OF KERALA

Kerala has witnessed the growth of the Indian IT industry from a nascent stage to a leading industry and be counted among the biggest in the world; but this has been mostly on the services side. Today we are witnessing a change in the IT industry from a service focus to a product oriented industry; from a few large players employing huge manpower to large number of small startups creating value through their products.

I was IT Secretary during two tenures and there has been considerable change in the way the face of the industry has changed and the way ICT has affected the lives of the common people. It was during my first tenure as IT Secretary, during 2003 to 2008, that we looked at the proliferation of the Akshaya centers across the state on an entrepreneurship model. That was the time when we laid huge emphasis on creation of the basic infrastructure – be it the connectivity backbone or the data center, well ahead of the Government of India schemes. The

period also marked remarkable asset creation by the IT majors in the state.

During my second tenure from 2012 to 2016, we looked at going digital. The digital road map was created for the state in 2012, wherein we tried to create a digital society. This needed electronic governance and facilitating the common man's life through technology. We planned to create an integrated system with access for citizens based on his/her authentication. Kerala completed 95 percent and above Aadhaar registrations by 2013-14 itself and started working on a citizen database. We attempted to create interoperability of systems and announced that the data, other than classified/personal data, will be shared among departments. The digital divide was attacked at a new level, i.e., by internet-enabling citizens through an innovative project with the help of student police cadets. In this program, the student police cadets facilitated the basic learning and hands-on working of 'digitally illiterates' using a tab and a software



developed for the same. They were issued awareness certificates and the data was centrally recorded.

I had a dream of citizen centric governance where the citizen does not have to ask for a government service; rather it would be delivered to him as a right. Thus, he would not be required to run around government offices to avail a particular service. This would require seamless flow of information and close integration of various government departments. Though we have made big strides in this direction, it is far from my satisfaction.

SANDEEP KUMAR SULTANIA

TRANSPORT COMMISSIONER, GOVERNMENT OF TELANGANA



As you know the Transport Department of Telangana is a highly IT driven organization. Most of our processes and backend are already digitized. The basic purpose of using IT in a government department is to enable smooth and hassle free interaction between citizens and the government. This is only possible when you cut the number of touch-points and offer as many services as possible through a single platform. To do this, in the transport department, we have removed manual processes. Most of our services are available on the internet. In fact, now you can apply for the learning license by sitting in your home. You only have to visit our office to give your thumb

impression and photo.

For our own administrative purpose, we have connected all our offices in the state to a central server, so now we have real-time information about any transaction taking place in any part of the state. This has helped us in improving our standards and accuracy of information. All our decisions are now data driven. That is the main reason public reliability has increased and corruption in the system has reduced.

In recent past, we have taken several steps to use IT for our own benefit. We have 49 offices across the state. Today, they are connected on real-time basis to our central server. This gives us better visibility about our own activities.

Also, you are aware that to cut the burden of physically producing vehicle documents like driving license, registration certificate to enforcement authorities, we have launched a mobile app called 'RTA m-Wallet' and officially declared it as valid during any enforcement done by the police. This app allows a user to download digital copies of documents like driving license and registration certificate and insurance papers, which could be shown to the police and RTA authorities when demanded. This app has been a major hit and over 10 lakh people have downloaded it.

The next big thing that we are going to do is to make our entire interaction with the people, appointment based. Most of our offices have time limitations and officers can only meet a limited number of people in a day. The system is so unpredictable that even if you visit an office, there is no guarantee that your work will be done. To get over this, we are working on an appointment based system like Passport Seva project. A person will seek appointment through our website or mobile app from available slots. Once their appointment is confirmed, it means that their work on that day will be done. This will not only ease the process but also remove the corruption and touts from the system.

Going forward, our plan is to expand the m-Wallet service. We have an e-Challan system. We would like to link m-Wallet and e-Challan. So, in case of any challan, the citizen can make the payment via the m-Wallet. Once a person is challaned, he or she will get the notification in the m-Wallet app itself. We will integrate a payment gateway into m-Wallet, that will enable a person to make the payment in the app itself. Also, we are trying to incorporate CCTV footage, traffic and weather updates in the mobile app. So, that people do not need to go to different platforms to access this information.

We are thinking to use blockchain technology for our document management.

TARUN KUMAR PITHODE

DISTRICT COLLECTOR, RAJGARH

Since the day I joined here as district collector, my priority has been to ensure that all the schemes of the government are implemented to the satisfaction of the people. On technology front, we have created a working model for Wi-Fi zones in villages so that people avail various online services sitting in their homes. The main requirements in villages are information relating to farming, health consultancy and education inputs for students. If we can create low cost Wi-Fi zones it will ensure that people get these services on their own.

With low cost Wi-Fi, we are aiming to become the first Wi-Fi district. It involves the effort of various entrepreneurs, social organisations and administration. We have thought of mainly three ways to promote it. First, led by volunteer organisations like the one done in the panchayat Bawadikheda. But this is not sustainable as nothing is free in this



world, however there could be sponsors to promote this model. We are trying to bring them in. The other model is to let it be free for the entrepreneurs to implement and levy user charge. This may involve complex issues of licenses and all. We are considering such legal issues. The third one is facilitating the

local bodies to implement it. We are working on details of all such ways. There could be two other ways but it is still in the process of development.

Going forward, the broad vision is to make people capable through various inputs like training and technology to ensure they take the right decision at the right time leading to improvement in the quality of life for all residents of the district, especially rural folks. We aim to improve the standard of living by increasing the agricultural income to double in five years, the construction of two major dams adds to the effort as these would be completed by the year 2018. We aim to better the human health and education index by improving the health services and quality of education. Besides, start few services that makes it possible to ensure delivery of services at the doorstep of residents. In all, there is a huge role of information communication technology (ICT).

GOLOK KUMAR SIMLI

CHIEF OF TECHNOLOGY, PASSPORT SEVA PROJECT, MINISTRY OF EXTERNAL AFFAIRS

When the government decided to set-up core IT infrastructure and run services (in a mission mode approach) on top of it under National e-Governance Plan (NeGP), Passport Seva Project was taken as a mission mode project (MMP) with clear objectives and goals. And, over the years, we have ensured sustainability, accountability, transparency, and have worked on process re-engineering and capacity building resulting into service delivery excellence. Citizens now feel connected and empowered as part of passport delivery system. We have tried to create a digital eco-system under Passport Seva Program.

In fact, Passport Seva starts with the digital. Citizens' first touch-point is digital, when they apply for passport related services through our portal. From there on, we move digitally i.e. right

from application submission online to cashless payment to appointment scheduling. The next step is in-person visit to Passport Seva Kendra, the facilitation center created for citizens' convenience for processing, and in-person granting of passport application in a secured and transparent manner. Further, creation of digital file for the citizens to end-to-end service delivery making stakeholders accountable as part of digital connect, the Passport Seva also ensures a paperless flow of citizen's grievance and feedback mechanism system and providing a wow factor to Generation-Y by way of empowering them through social media platform like Twitter and Facebook. Mobility and the cloud-way would be our next target.

We can very well say that we have marched ahead from silos-to-integrated-



to-collaborative way, governance-to-egovernance-to-mgovernance, digitisation-to-over the net-to-digital connect, technology procurement-to-automation-to-technology explosion, MIS-to-analytics-to-Big Data and finally improvements-to-inclusiveness-to-empowerment. And, in coming years, we will keep on using modern technology for serving people.

RUDRA MURTHY KG

CISO, DIGITAL INDIA

The Government of India is majorly focusing on digitalisation as it can help in delivering good governance. One of the classic examples in this regard is the initiative of Aadhaar by UIDAI, which has become one of the fastest large scale programmes across the globe by crossing the enrollment mark of one billion recently. The government now has the necessary information about citizens. They can use this data for framing policy and welfare schemes in a far more efficient way than what they have been doing. Aadhaar alone has offered the capability to the government to provide simple authentication solution, deliver subsidy directly into the hands of the beneficiaries, leading to reduced corruption and improved transparency.

This clearly shows the role of technology in improving governance. The Digital India project takes these

things to the next level. Apart from focusing on the nine-pillars of the Digital India programme, the back-end process and platform of most of the government services are also getting digitized. The paper work is gradually coming down. For example, under CCTNS project, entire compliance processes are being automated for e-policing.

But having said that, the criticality of information security management has also increased with this technology intervention because number of users and flow of data have increased substantially. Therefore, government organisations need to ensure adequate information security framework for protecting the information. For me, information security in the Digital India project is vital and basically it is the work in progress for all the stakeholders.

I think the time has come for the top of



the government to scale up, in terms of the human resource talent and its technical expertise to understand the nitty-gritty of the scope of work given to the service provider. This will help them to understand – what is expected during the implementation and how to get the work done within time. Right now, most of these controls are in administrative hands but ideally it should go to a technical person.

DINESH TYAGI

CEO, CSC e-GOVERNANCE SERVICES, DEITY

Our Common Service Centres (CSCs) are an integral part of the Digital India initiative of Government of India. CSCs are largely access points which have basic computing infrastructure run and operated by local entrepreneurs who live within the same community.

We have built technology with National Payments Corporation of India that will enable CSCs to become a white level BC, in the sense that a CSC can do transactions for all banks, and not just one bank. In a village, somebody has an account with Punjab National Bank or State Bank of India, he can withdraw money from CSC and the cost is negligible – CSC just needs to put a biometric device and do it. Presently, only withdrawal is done and we are now trying to work out if deposits and remittances can also be enabled. The objective is to create an access point of financial



services across the country.

We are using new technologies, and the government is also persuasive in trying and creating that model, wherein citizens get access to financial services.

Going forward, our aim is to create at least one CSC in every panchayat. So far, we have created 1 lakh 60 thousand across India. In addition, about 250 people are involved in CSCs at the

headquarters and now we are planning for two people in every district. We will have about 1,400 people across all the districts. We are also trying to extend connectivity which is the major constraint. We have decided that wherever there is an NOFN, CSC will be in that location – either established or shifted from existing locations. We have recently taken an ISP license to enable our VLE to also provide internet through NOFN backbone and create a business model. We are also trying to work out an e-commerce model. Although, we signed agreements with large companies like Flipkart and Snapdeal, they mostly serve in urban areas. We are now trying to create ourselves a platform to sell products which are unique to India, like Agra shoes. Our VLE will upload the product details on the platform and we will try to sell them. This will be an e-commerce from rural to urban areas.

DR HUGH THOMPSON
SYMANTEC CORPORATION

An industry veteran, Dr Hugh Thompson, CTO at Symantec Corporation is a leading force in the information security industry with more than a decade of experience in creating methodologies that help organizations build demonstrably more secure systems. Dr Thompson was earlier Senior VP at Blue Coat Systems. He was named CTO of Symantec after the acquisition of Blue Coat in August 2016. In an interview with EC's Jasmine Desai, he shares how Symantec has gained from the acquisition of Blue Coat.

Acquisition of Blue Coat opens new cross selling opportunities

Which is the biggest value proposition for your customers and partners post the acquisition of Blue Coat?

The acquisition of Blue Coat complements Symantec's innovative product portfolio and has created the industry's largest pure play cyber security company. Together, we have over 385,000 customers worldwide. Our partners can now look to Symantec as a single strategic source for integrated solutions across endpoints, cloud and infrastructure. The combined portfolio of the two companies has opened new and substantial cross selling opportunities for partners.

Symantec has the scale, portfolio and resources necessary to usher in the development of a new era of security solutions to help protect customers with integrated cyber defense. SEP 14 is an important milestone in our objective of redefining cyber security as the first solution that offers orchestrated protection across both endpoints and the network.

More recently we also announced significant enhancements to our threat intelligence capabilities made uniquely possible by integrating Symantec and Blue Coat's security telemetry and applying the brute data-crunching force of artificial intelligence that is needed when analyzing numbers reaching into the trillions. Recently, two new attack campaigns were uncovered by this unifying intelligence, including a China-based attack that many considered dormant. Additionally, an innovative new anti-phishing technology powering Symantec security products has exposed 137,000 new phishing campaigns.

Much has been spoken about Cloud Access Security Brokerage (CASB). What is its function and how can customers avail it?

Cloud adoption and the massive data requirements that come along with it have



You mentioned that we need healthy paranoia when it comes to cyberspace. Can you elaborate on that?

Trends we are seeing in enterprises like BYOD and work anywhere have a greater appeal compared to the threats they may bring along. At the same time, cyber attackers have changed the way they plan and deploy an attack. Hence the need to exercise healthy paranoia when it comes to information security.

recently created new security and compliance issues that enterprises have to deal with. There is a need to ensure data integrity, irrespective of where it comes from or where it is going. The cloud generation loves to access data within seconds, but for enterprises it is a challenge to protect confidential information that is uploaded, stored and shared from any location. Moreover, as this cloud data moves freely between mobile devices, cloud services and on-premises infrastructure, companies need to keep a track of and secure critical information. Existing security solutions are sometimes just not enough to secure numerous touch points, so this is where an effective Cloud Access Security Broker (CASB) comes into the picture.

Can you share some details about how your products will evolve in the future?

Today's attackers are well funded, state-sponsored, stealthy and persistent; this enables them to create new techniques to hide themselves while compromising defenses and critical data. Attackers have moved far beyond targeting limited financial incentives such as credit card or Netflix accounts.

To fight these threats, enterprises need an intelligent next generation solution that doesn't just address one or two capabilities but provides end-to-end protection. There seems to be a lot of confusion over what next generation threat protection really is and isn't. At Symantec, we've developed an intelligent next generation threat protection by focusing on areas such as multi-dimensional machine learning and deep learning.

Beyond machine learning, Symantec is going further with deep learning. Deep learning is a state of the art machine learning technique that uses artificial neural networks, inspired by the human brain, to learn in a manner similar to ours.

jasmine.desai@expressindia.com

IT ENABLES THE ₹ 9000 CRORE NAGPUR METRO RAIL PROJECT

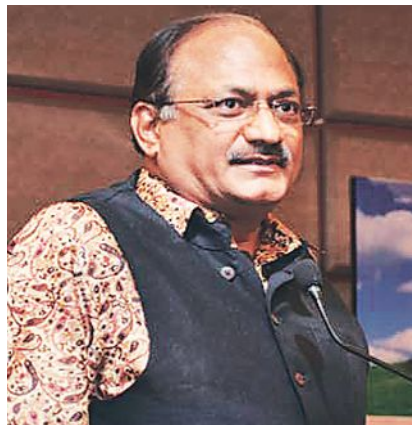
Brijesh Dixit, Managing Director, Nagpur Metro Rail Corporation (NMRCL) uses technology as an imperative and key factor in the multi-crore, large magnitude project of NMRCL. He has proven himself to be a tech visionary in the sense of using a technology as advanced as 5D BIM along with an integrated SAP ERP, right from the inception of the project. The speed of implementation of this Metro Rail is a proof of his far-sightedness. He reveals how paying attention to technology and using information technology judiciously has helped in setting a new benchmark for such future projects of the country. By Abhishek Rawal

Why do you think there is a need for metro and how can it impact a city?

Metro rail services are provided within the confines of a city, which must have been a village at some point of time and it sprawled and became a city. When a city sprawls further you need effective transportation system. The buses cannot handle a lot. They create nightmares in the form of congestion, pollution, etc. Bus services have too many stoppages. Trains stop at fewer stations and have a higher speed. Mumbai is Mumbai because of its rail services. Metro helps such cities to grow with effective transportation system providing comfort to the commuters.

How has been the experience of using a technology as advanced as 5D BIM integrated with SAP ERP and selection of Highbar Technologies as implementation partner. What made you chose and implement technology from the very start of this mega-project?

Experience has showed us that the projects of big magnitude and such large infrastructural projects take 8-10 years because of procedural formalities, technical and financial requirements and should happen in a systematic and orderly fashion. Implementation starts almost 5 years after the project is conceived. And it mostly doesn't get completed in the stipulated time. Earlier this was the trend because there was no other alternative.



However, information technology brought in a lot of efficiency. Today if you see the projects there are many challenges related to time, cost and changes in design which add to the delay. We want flawless, good looking and long lasting infrastructure. We encounter the problem of lack of funds and that is because the original limit has been exceeded and the revision process starts when the work actually stops. Technology has brought in financial efficiency, time efficiency and they have reduced our spending. 5-Dimensional Building Information Modelling (5D BIM) is a specifically helpful tool for analysis and design. It helps to reduce design and drawing time. It helps in making estimates. It reduces the burden of

voluminous work. A few changes that need to be made sometimes takes months manually, which can be done instantly with 5D BIM. It allows carrying out simulations and 'what if' analysis. We at Nagpur Metro have integrated 5D BIM with SAP ERP supported by Owner support office. This digital platform of 5D BIM integrated with SAP ERP is implemented by our technology partner Highbar Technologies along with the responsibility of Owner's Support Office (OSO). Once this digital platform is up and running it will be a very unique, pioneering and innovative thing in India. It will provide new way of project management enabling mega projects to be more efficient. In India it has not yet picked up to a level which it needs to. All this makes a huge difference in the operation and maintenance stage of project.

Technology helps at every stage. Project of this magnitude requires a project office which will have at least 300 people to get off the ground. The recruitment, training and building of office space for them itself is a very long tedious and time consuming process. With technology we are able to cut that short and move ahead.

Would you use this technology again in your future projects?

Most certainly! For Nagpur metro this would be the USP. We would like to share

this experience and knowledge with other infrastructure agencies, departments and other arms of the government so that it spreads as much as possible.

For projects of this magnitude, revenue usually comes from more than just the fare box. Can you elaborate on the sources of revenue for this project?

The fare box will not be the only source of revenue for Nagpur metro. Usually fare box is not capable of providing for the sustenance in the long run. In our case, we have investment from KfW Germany and AFD France. We have to make sure we have enough to pay for operation, maintenance and debt servicing. Public utilities are supposed to be affordable to people. Ridership will depend on affordability. So there is a limit up to which you can increase the fares. There are three sources of non fare box revenues for us – increase of FSI and the revenue from the premium of that, increase the stamp duty and increase in the developmental charges which are levied by the local government for real estate projects will also be ploughed back. Capturing the land value is also a very potent source. As you develop and make metros, etc, the land value increases as well because people start coming to that area. So it creates value. Metro should be the first to capture this value rather than anyone else. That is what we are trying to do.

Can you explain how Nagpur, as a city, will benefit from this project?

This project is set to improve Nagpur's transportation infrastructure. Nagpur Metro will not only make the daily commutation comfortable but will change their way of life.. Our cities are suffering with a problem of urban sprawl. There is a need for vertical growth in such cities. Transit oriented development is the need of the hour. Nagpur is in for a long infrastructural up gradation. The stations will be multi-storied with airspace development as well. . All this will transform the city.

What are the expectations people have from this project?



World class stations are being created in Nagpur Metro. We have already planned the first 20 storey station in India where the train would enter and leave the building that means people shall be able to access their work places in the building directly from the platforms without leaving the station. So far, two such

stations are being planned. It will also have space for development of offices, hotels, retail etc. That will be on PPP. We will only finalize the architecture and the PPP partner will undertake construction, branding, sale, etc.

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IOT, MOBILITY AND AUTOMATION AMONG TOP CIO PRIORITIES IN 2017

Digital transformation continues to be hot for CIOs and technologies that aid this transformation are gaining further importance

RASHI VARSHNEY

Express Computer spoke to key IT decision-makers and chief information officers (CIOs) in large companies across sectors, discussing not only their strategies for the year ahead, but also their major implementations in the past year. For 2017, we found out that most of the CIOs will look for ways to increase the pace with which they can anticipate demand, give digital power to colleagues across the enterprise, and increasingly be viewed as a source of innovation for the company's growth. IoT, mobility, and automation topped the list for most CIOs.

According to Hubert Yoshida, CTO, Hitachi Data Systems and Russell Skingsley, CTO, Hitachi Data Systems

Asia Pacific, agile infrastructure, cloud, and the benefits of DevOps will gain greater attention as a way to speed up the development and deployment of applications and services with less defects and wasted effort.

The Forbes survey sponsored by Hitachi Data Systems also outlines that to ensure the governance and accessibility of data, IT needs to create a centralized data hub for better management, use and protection of their data. This centralized hub will need to be an object store that can scale beyond the limitations of traditional storage systems, ingest data from different sources, and provide search across public and private clouds as

well as mobile devices.

"With digital transformation rising up the agenda of CIOs across the world in 2016, we expect to see an increasing number of organizations striving to reach digital maturity in 2017," comments Skingsley.

New CIOs for digital maturity

Large giants have hired their first CIOs ever in 2016 or new CIOs to achieve a sophisticated digital maturity in 2017. For instance, Radisson Hotel owner Carlson Rezidor Hotel Group hired the company's very first CIO - Kevin Carl in 2016, and global cybersecurity leader Forcepoint recently named Meerah

Rajavel as its new CIO to become a transformative cybersecurity company.

Closer home, smartphone maker Intex Technologies appointed a new CIO, Yashpal Soni, with an aim to strengthen business priorities and the company's reputation for excellence and innovation. In his new role, Soni will lead the alignment of IT strategy with business strategy, information technology & systems, IT shared services, information security, ERP implementation, business process re-engineering, and IT risk management, adding one more pillar of strength to the company's development.

We feature below views of a few CXOs, as they share their perspective on how the year 2016 was for them, and their plans for 2017:



YASHPAL SONI

INTEX

Yashpal Soni says that technologies such as HANA, IOT, and mobility excites him the most for the upcoming year. For Intex's workforce, the CIO says that he will be implementing dealer management at tertiary level, along with demand management, MES, and service management. "Will ensure cradle to grave cycle with dashboards and single source of truth," states Soni.

For business process re-engineering, Intex has recently engaged E&Y for IM strategy for the group. "This will bring in almost two years of the alignment with business strategy which may result in business process re-engineering, new

projects implementation for business benefits," he informs. Intex has also put IT security as a top priority. Soni is planning to solve information security and IT risk management in two ways - technology implementation and creation of Information Security Management System (ISMS) organization.

The focus areas for 2017 will be - automation, IOT, information security, GST, and demand cycle and OTIF (On-Time In-Full) for improved supply chain.



G RADHAKRISHNA PILLAI

SRL LTD

In 2016, one of the largest diagnostics companies in India, SRL Ltd, focused on improving its staff effectiveness and customer experience by leveraging mobile devices, apps and other new age technologies.

SRL automated the process collection for its phlebotomists (Home Collect Experts) by using a mobile based solution. "A customer books a test based on location and time for home collection of specimen through SRL's web and mobile app," mentions G Radhakrishna Pillai, CIO, SRL Ltd.

All the bookings go to SRL's Oracle RightNow CRM in a single pool, and are then auto-distributed among the available agents. This implementation has improved efficiency of the agents and has also resulted in customer satisfaction as the agents are now more punctual, there is no repeat in the visits and it is easy to use.

For 2017, mobility will remain in focus for SRL. "We will use maps more for location based pickups (specimen) and drops (reports), and will also rollout logistics tools for daily monitoring," says Pillai, adding that this will improve the turnaround time for consumers.

For the sales force, SRL will hand over tablets with e-catalogues, for giving tech-enabled sales pitch to their clients.



P REDDY

GMR INFRASTRUCTURE LTD

Infrastructure giant GMR Infrastructure Ltd is giving tech power to the workforce as well as digitizing the business processes. "We are setting up cloud ready datacenter for the entire GMR corporate operations adopting SDDC (Software Defined Datacenter) framework which gets commenced by end of Feb 2017," says P. Reddy, AGM - Enterprise IT, GMR Infrastructure.

He believes that in today's IT world, cost optimization is a fancy word to hear, but planning, implementation, adoption and sustenance is the toughest challenge faced by senior IT managers especially in non-IT companies. Hence, P Reddy has decided to work in a phased manner. "We have targeted this in two phases. Accomplishment of the first phase is by end of March 2017," he informs, adding that he will implement mobility, BYOD and will strengthen the IT security at GMR.



VISHAL GUPTA

INDRAPRASTHA APOLLO HOSPITALS

Indraprastha Apollo Hospitals, the flagship hospital of the Apollo Hospitals Group is a multi-specialty tertiary acute care hospital, spread over 15 acres, with 710 beds and 52 specialties. It is one of the most sought after destinations in Asia for healthcare.

Vishal Gupta, Head - Information Technology, Indraprastha Apollo Hospitals reveals that last year he did a technology refresh almost on all fronts of IT, including infrastructure, storage, security and applications. "There were major projects we completed like PACS, Oracle ERP, office 365 and CRM etc," he points out.

Gupta informs that next year will be more happening with target projects related to customer experience and service excellence like nursing tasks automation, mobility solution, and paper-lite automation mainly related to clinical areas. "IT at Apollo will also introduce buzzing concepts like virtualized network, software defined data center, application intelligence and IoT etc," he mentions.

Gupta is excited about next generation technologies because of the current competitiveness in the healthcare market. "Today's patient compares the experience and ease of getting healthcare service. I believe the days are gone when healthcare facilities were able to sustain only on basis of clinical excellence and a list of star doctors, however having said that, the

underlying principle of our IT investment is always based on a solid business proposition and we don't deploy a technology only just for a sake of technology," affirms Gupta.



JS SODHI

AMITY EDUCATION GROUP

Threats to the education sector and universities are becoming prime targets for hackers. JS Sodhi, CIO, Amity Education Group and Executive Director-Cyborg Cyber Forensics & Information Security (CCFIS) created a National Cyber Alert System with its flagship technology Advanced Threat Protection (ATP) sensor to make Amity University' cyber walls unbreakable. The Amity Education Group has over 1,00,000 students studying across 1000 acres of hi-tech campuses spread over Delhi, Jaipur, Lucknow, Noida, Ghaziabad, Gurgaon and many national and international campuses across the globe.

JS Sodhi and his team created a National Cyber Alert System with ATP sensor. In 2016, Sodhi and his team ensured that the technology supporting national cyber alert system, ATP sensor should simulate IT infrastructure and IT appliances, and should also emulate gas stations that are connected to the internet and various other SCADA appliances to capture SCADA based attacks and malware.

"In the next phase of ATP sensors by 2017, we will work on artificial

intelligence and will communicate with each other while simulating the IT infrastructure of the entire country. These ATP sensors will be synchronized on a common platform to generate automated alerts and share their captured data with each other to plan self-defense accordingly," remarks Sodhi.



GAURAV KATARIA

CYIENT

Cyient (formerly Infotech Enterprises), an Indian company focused on engineering, networks and operations boasts to be the first India-based company to move to Workday - a global SaaS based Human Capital Management (HCM) platform covering recruitment, on-boarding, human resource management, talent management, absence management, compensation and reporting.

"In terms of business automation, we are the first India-headquartered company to implement Workday for HR processes. We started the implementation in 2016 and the go live was on December 5," says Gaurav Kataria, CIO, Cyient. "In 2016, we became the first company in India to automate the HR process and Workday has helped consolidate our Hire to Retire process globally across 26 countries, with 13000+ employees," he adds.

Besides this, the IT team has revamped SAP Financials from ECC to SAP S/4 HANA, IT security strategy review and upgrade with respect to increased cyber security threats, improved data reporting and analytics, and created proof of concepts around

IoT. “We have increased the level of our vulnerability test on app levels as well. For tightening the security, we have also setup security operations center (SOC) in the company,” informs Kataria.

Cyient’s IT aims to improve and simplify business processes in 2017 and will increase automation of business processes to help drive productive improvement. “We have also listed new tier 3 certified data center to help setup private cloud, and we will increase the adoption of cloud technologies in 2017,” he states.

Mobile apps will be enabled for several processes for the workforce. “We will focus on mobility, analytics, machine learning for overall productivity of our employees,” he adds.



SANJIV K JAIN

MINDA MANAGEMENT SERVICES LIMITED (MMSL)

Spark Minda, Ashok Minda Group is one of the key manufacturers of automotive components in India. The group has 38 plants in India and overseas including Germany, Poland, Czech Republic, Indonesia, Vietnam and Uzbekistan with office in Japan. With multiple businesses, several Joint Ventures, and a global footprint the need was felt for an apex entity that could provide leadership and direction to the group, with focus on the future. Minda Management Services Limited (MMSL) is the culmination of such an organization. Established in April 2007, MMSL has emerged as a powerful entity of professionals providing thought leadership and direction to the group in

the key areas of strategy, marketing, finance, legal, projects, HR, TQM and communications with office in Gurgaon, India and a design and marketing office in Japan. For such a company communication plays a huge role. Hence, in year 2016 the focus was on standardization and automation along with steps towards implementation of unified communication.

“We implemented near to real presence videoconferencing solutions at 19 locations to have faster decision making, reviews and trainings,” states Sanjiv Kumar Jain, Group CIO, MMSL, adding that the IT team also implemented mobile applications in some customer facing applications, and adoption of e-commerce for aftermarket product selling.

“We also rolled out our centralized ERP footprint to more units in the group, shifted the datacentre to our corporate office in Gurgaon with hardware refresh and created a BCP site at Noida. Adopted cloud for our non-critical but very user centric applications for higher availability and access from any location at any point of time,” points our Jain. He reveals that the year 2017 will bring more focus on digitization, converged IT solutions, mobility and business analytics to have faster decision making and reach to customers. “We will automate production lines and link with ERP for online production monitoring and eliminate the manual processes,” shares Jain.

The Group CIO and his team will expand videoconferencing systems to more units and individual executives for better and focused meetings looking into the business expansions in different time zone locations.

MANOJ KUMAR

ACME

Purgaon-based ACME Group manages telecom tower sites in India and Africa. It has 15000 field technicians across the country, who are managing the telecom tower across the



country. There were many open tickets pending long overdue. The company was paying huge penalty to the customers. Submission of bill to the customers was after 120 days, because field technicians were not sending reports on time. There was a huge financial loss. The company was facing tough challenge in Root Cause Analysis (RCA), because all data was manual and non-authentic. So maintaining the telecom site was an expensive proposition. The IT team at ACME developed a mobile application for all field technicians, and the company has distributed tabs among technicians. To optimize the budget, ACME has give the option of BYOD, with 50 percent each cost being borne by the company and technicians. All technicians are paying some amount on monthly basis.

“This project implementation was major until 2016, as it brought a sea-change across the organization, such as real time data, tracking of technicians, and started a new culture of digital workspace in ACME across the globe. In 2016, the company created around 10-12 apps for its employees working in various segments,” informs Kumar.

Further, ACME is now leveraging benefits of IoT in a big way. It has connected all the solar plants, via SCADA, and has implemented central monitoring systems for predictive analysis. ACME has placed sensor devices at all its 40 solar plants to gather and analyze real-time data. “In 2017, this project will be our focus,” states Kumar.



TRANSFORMATIONAL IT AT PSU BEHEMOTH

Bharat Heavy Electricals Limited (BHEL) is India's largest power plant equipment manufacturer in the country. **Rajiv Garg, ED, Corporate Digital Transformation, BHEL**, shares with Ankush Kumar how strategic IT interventions at the Maharatna PSU is transforming its businesses

The IT department at Bharat Heavy Electricals Limited (BHEL) has been reorganized and now it is known as CDT (Corporate Digital Transformation). An important transformation has been the fact that traditional IT practices have given way to the business side of technology. “It is no more back-end IT operations as we are now more focused towards digitization. Primarily, the IT function is based on three pillars - infrastructure and services, systems applications development, and information security,” says Rajiv Garg, Executive Director, Corporate Digital Transformation, BHEL. He adds that with CDT there are two additional sub-functions - digital strategy and governance; products and solutions.

Key technological interventions

Elaborating on the IT framework and some of the key initiatives that have significantly shaped the company's overall growth, Garg states, “We do not have a centralized IT, we have a federal structure where the business units have their own IT teams and then there is a corporate IT which is basically related to the governance and certain corporate projects. Mostly the contribution of corporate IT is from the network side as it can't be created just by one of the units.”

BHEL is the first PSU to introduce reverse auction. “We have reverse auction embedded in most of our procurement process. So wherever there are four or more bids, reverse auction is mandatory. In 2004, we also started a key initiative in the information security space. As all our units and locations are now ISMS 27001 certified, we have permitted our units to go for their own internet gateways because infrastructure was not very strong and it was difficult to have a centralized gateway,” he states, adding that there are two centralized internet gateways; one in Noida and the other in Hyderabad for project sites at small locations. The number of gateways was 29 and six of them have been consolidated. “We want to have only nine internet gateways to have proper control on the security, plus the investment will also come down,” he remarks.

The other turnaround initiative by the company was the adoption of video conferencing. “We have adopted video conferencing in a big way. All our business transactions are via video conferencing. This has resulted in huge savings in travel time as well as in monetary terms. We have video-wall setup and we are working with multiple vendors through various system integrators,” points out Garg.

Consolidation for cost minimization

The leading power plant PSU is consolidating most of its processes and systems to save cost. “Every two years or so we refresh our total hardware. Our model is not outright purchase, we do it on a five-year financial lease. The major reason is that we have the remote sites where even quality PC will not be available because their requirement will be small, around 8-12 PCs. Once we do the consolidation we will get good SLA (service



level agreement) even for the remote sites,” mentions Garg.

On the ERP front, the company is trying to do consolidation. Currently BHEL has end-to-end systems running in the units. “Some units have Oracle based home grown systems and some have ERP, therefore we want to do single instance known as One-BHEL, but unfortunately in the last two years we couldn’t get a good response in terms of tender,” rues Garg. One-BHEL will be a total business transformation as it will enable standardization and harmonization of processes across the country. Being a project oriented company, One-BHEL will also highlight the status of projects on a real-time basis.

“On the technology side we have done virtualization where we are able to do a lot of savings, both on the licenses side and on the hardware side. Similarly, earlier we were running four instances of Oracle for one application so that consolidation was huge savings for us,” mentions Garg.

Present focus and eGovernance initiatives

For the last six-seven months the focus has been on mobility, virtualization and IoT. Explains Garg, “As our organization is a vast, we are identifying IoT projects from all the units like IoT applications for remote monitoring, solar power plants, energy management system, RFID based material tracking, data center monitoring, GPRS based logistics, etc. Our philosophy is to initiate smaller projects of 4-5 months and replicate them. Most of our applications were web-based so now we are taking all these applications on mobile and to secure these we have also built a playstore on Android. We will make it available on IOS as well. Also, we have developed an in-house application for sharing larger files through email within the company. All the back-end authentication of these applications happens through SAP HR.”

Under the eGovernance activities the

adoption of UHMS (Unified Health Medical Scheme) for BHEL hospitals has been a major highlight. Garg shares the details, “Earlier for doctor referral patients needed to come personally but now we are doing it online. The referral will automatically reach the hospital where the patients have been referred. Therefore, in the second phase we will take this to the retired employees where they can also log in and can get the claim status.”

Other significant implementations include the NOC system. Earlier when a person quit the organisation he had to get approvals from 15 different departments which was a tedious task, but now the process is online. Similarly, vigilance clearance was manual, but now it is online. “The focus of IT is shifting from back office to three areas, that is product innovation, operational excellence, and customer centric activity,” concludes Garg.

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Technology Sabha

An Express Group Initiative

HYDERABAD NOVEMBER 18 - 20, 2016

The Indian Express Group hosted the third edition of Technology Sabha - PSU in Hyderabad. The conference was attended by 100+ IT professionals from some of the top Indian PSUs. Senior officials from Telangana, the host state, kicked off the proceedings with their presentations. Mohammad Mahmood Ali, Deputy CM, Telangana and Dr. A. S. Ramasastri, Director, IDRBT presented the Intelligent Express PSU Awards. Senior IT executives from HAL, NMDC, SBI, IOCL, DFCCI shared their IT presentations with the PSU IT community.



TECHNOLOGY SABHA – PSU: GLIMPSES OF A SUCCESSFUL CONFERENCE



EXPRESS TECH SABHA 2016

- Technology Sabha – PSU: Glimpses of a successful conference
- Guest of Honour Speech
- Keynote Address
- How IT can improve efficiencies in PSUs
- Ease of digital services adoption with the new IP
- Using analytics for ensuring a green environment
- A checklist for ensuring enterprise security in PSUs
- Panel Discussion: Competing in the digital world

In the month of November 2016, the Indian Express Group hosted one of the largest PSU focused conferences, called Technology Sabha - PSU, in Hyderabad. This was the third edition of the Technology Sabha - PSU, after two successful years.

The two day event explored new trends and innovations in enterprise IT, and facilitated the sharing of knowledge between the information technology solution providers and the key decision makers engaged in deploying ICT in India's foremost PSUs. The highlight of the conference was an awards ceremony which recognized and honored Indian PSUs that demonstrated innovative use of a particular technology or a combination of technologies for distinct business benefit.

Some of the key dignitaries who participated in the conference included

Mohammad Mahmood Ali, Deputy CM, Telangana; Jayesh Ranjan, Secretary, Information Technology, Electronics and Communications (ITE&C), Government of Telangana; A K Goel, Advisor, Planning & Energy, Government of Telangana; Dr U D Choubey, Director General, Standing Conference of Public Enterprises (SCOPE); Dr A S Ramasastry, Director, IDRBT; B Kalyan Chakravarthy (IAS), Director General, Environment Protection, Training and Research Institute; Rajeev Agarwal – Head-Corporate IT, Hindustan Aeronautics Limited; Nandlal Kundu, AGM-IT, Bank of Baroda; Sunil Kumar, Group GM - IT, IRCTC; Kunjal Prasad, GM-IT, State Bank of India; Nitin Chandurkar, Chief General Manager (IT), Maharashtra State Power Generation Company and S K Upadhyay, Jt.GM – Computer & Information Technology, NMDC.

Guest of Honour Speech



A K Goel, Advisor, Planning & Energy, Government of Telangana

A K Goel began his keynote address by highlighting the fact that use of information communication technology (ICT) has changed the overall dynamics of the government's service delivery to citizens. Public sector units (PSUs) that adopted this change have survived and those which could not keep up with technology have either failed or are on the verge of collapsing.

"There are over 200 central PSUs and about 2000 state PSUs, not all of them are profitable or contributing significantly. Only those public-sector organisations which have adopted technology or kept pace with developments in technology are profitable or growing. This itself shows the relevance of technology in

PSUs," Goel said.

Emphasising on the significant role played by PSUs in the early 70s, he stated that about 70% tax used to come from PSUs, but that trend has completely changed now because new technology has brought new economics into the business leading to proliferation of outstanding private companies, which have surpassed PSUs way ahead. "So, now PSUs should be leaner, thinner and efficient and that is only possible with the use of technology," he mentioned.

He encouraged the PSUs to use modern data analytics tools to mine large chunk of the data they have. According to him this will enable them to create better products, understand the future demand and manage resources efficiently.

Keynote Address



Jayesh Ranjan, Secretary, Information Technology, Electronics and Communications (ITE&C), Government of Telangana

Jayesh Ranjan started his presentation by saying that there can be varying opinion on PSUs' continuance but the country needs to persist on investments in PSUs. On the adoption of technology in public sector units he was of the view that initially they could not match with the pace of tech development but second waves of Moore's Law which is likely to start with the emergence of emerging technologies like cloud, virtualisation, machine learning, artificial intelligence, virtual reality, the PSUs would have a chance to adopt technology continuously.

Explaining about some of the

technology trends globally and their relevance for PSUs, Ranjan pointed out that three technologies - machine learning, blockchain and 3D printing - will have a long term impact on the life of people. He gave an example of how doctors and schools can use data analytics to ease the burden of reading multiple reports and address the challenge of higher drop-outs from school by merely using simple analytics tools.

Highlighting on blockchain, he said that it is going to become an important tool for government departments and PSUs as it is useful for keeping transitional documents.

How IT can improve efficiencies in PSUs



Dr U D Choubey, Director General, Standing Conference of Public Enterprises (SCOPE)

There are about 298 Central Public Sector Undertakings (CPSUs) in India, with a cumulative turnover of approximately 20 lakh crore, stated Dr UD Choubey. Most of the Maharatnas and Navratnas have a decent adoption of IT, if not very advanced. At Hindustan Aeronautics Ltd, (HAL), the helicopter designing is entirely digitized. BSNL, MTNL and HMT have not been able to technology enable many processes. IRCTC has heavily digitized operations. The Gas Authority of India Ltd (GAIL) is running SCADA systems; Coal India Ltd

successfully auctioned coal blocks using the online medium. The mining PSUs have adopted and some are in the process of going for digital mining operations.

According to a recent Goldman Sachs report, PSUs in India will procure close to ten lakh crore of products through e-procurement. Some of the challenges facing PSUs include a plethora of guidelines to be followed for e-procurement, which also involves directions from the respective ministries. The PSUs also do not get a level playing field as they are subjected to RTI whereas other private companies are not.

Ease of digital services adoption with the new IP

George Chacko, Principal Systems Engineer, Brocade India



The Industry is moving towards new IP, Network Function Virtualisation (NFV) architecture, which will add on capabilities of the network devices. All these functions or capabilities can be software enabled. Thus, it will result into a transformation from a hardware to a software and application-based approach.

If the demand spurts, there is no need to rely on hardware. The software can scale up to fulfill the demand of applications. All this happens in an automated way. For example, when a public safety application picks up an anomaly, the information infrastructure can reprogramme itself on the fly and pass on the information.

It makes open source adoption easier. The vendors will provide infrastructure but the controls will be in the hands of the end customer. Brocade India has taken a software defined approach, where a company can have two different systems working seamlessly together.

Using analytics for ensuring a green environment



B Kalyan Chakravarthy, Director General, Environment Protection, Training and Research Institute

Chakravarthy in his address spoke about how under the Digital India initiative the government is using technology in every sphere. He gave examples of his previous role in the Income Tax Department in the state of Assam where he was designated as commissioner. He mentioned how the state was finding difficulty in transforming to VAT. "There was no way of calculating the amount of tax that each district was paying, therefore information technology was implemented and a framework was designed." He also gave an example of his tenure at FCI (Food Corporation of India) where Depo Management Software was implemented. Depot Online was helpful in tracking and controlling the procurement, storage and movement of

food grains within a depot by managing all associated transactions like lorry weigh bridge, quality control, storage loss / transit loss, gunny inventory, labour management, etc. Real time information provides accuracy in inventory and improves visibility on quantity, location and age of available stock. "FCI has large number of godowns segregated across the country and it was important to maintain the availability of stock of food grains for the next three months so as to ensure the supply even in the crises situations of drought and epidemic, etc. We needed a technology which can help us in knowing the availability of food stock at different godowns." He talked about the need of effectively using predictive analytics by the state and central government at a policy level.

A checklist for ensuring enterprise security in PSUs



Nanda Dulal Kundu, AGM-IT, Bank of Baroda

Kundu shared some interesting insights on the latest happenings in the enterprise security space. He highlighted about the two most important threat vectors creating havoc in the enterprise IT space; information loss and unauthorized access. Talking about security standards that most companies have to qualify, he questioned in such a high risk scenario, whether implementation of standards and related certificates really helped? Stressing on cyber security challenges faced by most organizations Kundu said that most companies lack in cyber security readiness. They should know how their attackers are working so as

to frame the appropriate model for mitigating such threats. Email is still the popular malware effecting most enterprises. He gave example of the cyber security incident in Bangladesh bank where US \$81 million was syphoned due to a malware attack. Underlining the seriousness of the issue he stated that malware can remain undetected uptill five months – looking for critical and sensitive data. He pointed out that it is most important to protect the users rather than only the devices. Therefore awareness plays a crucial which can be brought in by regular training programs for employees by the organizations.

Panel Discussion: Competing in the digital world



(L-R) Amit Sharma, MD, SIDCO, Government of Jammu & Kashmir; Col HPS Bawa, CEO, Webel Technology, Government of West Bengal; George Kuruvilla, CMD, Broadcast Engineering Consultants India

Moderating a panel discussion on the use of technology in PSUs, Amit Sharma, MD, SIDCO, Government of Jammu & Kashmir stated that in PSUs, it is less about adopting technology but it is more about adopted by people who work in PSUs. Emphasising on the proper training and creation of quality human resources, he was of the view that proper technology training should be given to people who work in PSUs so that the officers at the helm of affair understand the importance of technology and effectively implement it in their

respective PSUs. He asked all fellow panellist to share their tryst with technology.

George Kuruvilla, CMD, Broadcast Engineering Consultants India said that his organisation is part of the Ministry of Information and Broadcasting and it is tasked with connecting the entire country with radio and TV. He averred that in his organisation the whole focus has shifted to IT, "Now there is a growing realisation that IT could play a critical role in reaching out to a large number of people," he stated. He also informed that his organisation participates in some of

the biggest events of broadcast media to understand the new things in this field.

Participating in the discussion, Col HPS Bawa, CEO, Webel Technology, Government of West Bengal shared various initiatives of his state government. "Payment mechanism in the government has been completely digitised. All the payments are now happening online and within three days of submitting the bills," he informed. Col Bawa shared the government's financial management system which has linked all the government machineries to a single portal to withdraw or disburse money.

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USING OPEN SOURCE FOR COMPETITIVE ADVANTAGE

Rajeev Agarwal – Head-Corporate IT, Hindustan Aeronautics Limited



EXPRESS TECH SABHA 2016

- Using open source for competitive advantage
- Adopting digital transformation – An IRCTC perspective
- Application delivery networking
- Power back-up solutions
- SBI's analytics journey
- 10 things that make ESDS a preferred datacenter and technology partner
- Power Discussion: ESDS
- Panel Discussion: Securing a hyperconnected world
- Case Study: Using IT for enabling real-time visibility
- Power Discussion: Exide
- Digital mining for improving mining efficiencies

Presenting an interesting AV (audio visual) on how disruption has become the new normal, Agarwal said, “The change is experimental and there is no time for normal course of growth. ICT is one of the key enablers which can drastically change the game.” Talking about open source he said that many times our networks are separate it doesn't go with the internet. There is a software called free OTP which is a two factor authentication without any cost. He also discussed about OpenSSH which is a suite of security-related network-level utilities based on the Secure Shell (SSH) protocol, which helps to secure network communications via the encryption of network traffic over multiple authentication methods and by providing secure tunneling capabilities. He gave an example of Drupal which is a scalable,

open platform for web content management and digital experiences. It provides deep capabilities and endless flexibility on the web. Agarwal also shared his insights on XgenPlus which is an enterprise email hosting and web hosting server with advance feature of spam free and trackable bulk emails. Sharing his views on open collaborative technologies he also discussed about JT Open, which is a unique program to help members leverage the benefits of open collaboration across the extended enterprise through the adoption of the JT format, a technology that makes it possible to view and share product information throughout the product lifecycle. “In open source the adequate support is not there therefore it is important for the organisation to share the codes among themselves,” he asserted.

Adopting digital transformation – An IRCTC perspective



Sunil Kumar, Group GM - IT, IRCTC

In his presentation, Sunil Kumar provided detail overview of the work done by IRCTC and some of its plans. He said, "Due to immense use of modern technology, the user experience of booking tickets online has completely changed. Unlike the past, when there was issue of servers not able to handle large number of login, now transactions on the IRCTC portal have become smooth." For this, IRCTC has made significant investments in technology deployment, he added.

Informing about modernisation of the payment system, he stated, "IRCTC accepts almost all the payment methods available in the market today and it is

planning to start UPI payment within three months." On being questioned by delegates about not being able to book Tatkal tickets due to short time of ticket availability and longer time taken by the payment system to process the payment, he replied that one can use IRCTC wallet for ensuring quicker payment.

Kumar also emphasised on the success of recently launched insurance scheme, wherein a person can book travel insurance in less than one rupee. So far, over a crore insurance have been booked and the Railways is striving to provide more services in the future.

Application delivery networking

Rajesh Jain, Head System Engineering, F5 Network



Jain started his presentation by giving a brief introduction about his company. F5 Network specializes in application delivery networking (ADN) technology for the delivery of web applications and the security, performance, availability of

servers, data storage devices, and other network and cloud resources. F5 is headquartered in Seattle, Washington, and has close to two billion dollar revenue with around 2000 employees. Talking about the relevance of the applications for an organization he said,

"Applications are there everywhere, not only with the individuals but also with the organizations. It is important to know which of the applications are useful and which are just being there without any constructive implications." Giving an example of one of his clients he said that he was surprised to know that there were around 7000 applications running in one of the government clients data center. "Today security is global, we know data breaches are happening despite the security with cloud users moving from data centers to the outside world. We used to protect the apps in our own data center. Apps are there in the data center in public cloud and in private cloud. It is important to see if we can secure our data wherever it lives. There should be unified framework for the applications. Apps are the gateway to the data center and they must be protected to secure data," he stated.

Power back-up solutions



Manoj Kumar Hazarika, Regional Sales Manger,
Exide Industries Ltd

PSUs have large scale operations and network which signifies the need for power back-up or Uninterrupted Power Supply (UPS) Systems. The integral part of a UPS is the battery bank. The battery acts as a back-up power source that supports the UPS system. The most popular battery system being used with UPS is the Lead Acid battery system. Broadly, there are two types of Lead Acid batteries suitable for SMF VRLA batteries and Tubular batteries. Hazarika in his presentation focused on the unique requirements that PSUs have with respect to batteries for their UPS systems. He gave three categories of PSU's requirement for UPS systems; one with less back-up, maintenance free and higher rate of discharge where he recommended Exide Power Safe Plus (7 AH to 200 AH). Second, with longer

back-up, less maintenance, longer life and reliability, he recommended the use of Flooded Tubular batteries (40 AH to 200 AH). Third, if the requirement is of moderate back-up, maintenance free, longer life, good HRD and extended warranty, he recommended Exide Power Safe NXT (17 AH to 200 AH). He said the country is witnessing a changing business scenario. With government initiative for financial inclusion, recent demonetization transactions are expected to be more electronically driven, new bank branches in rural India will be opened, there will be more installation of ATMs in villages, 100 percent banks to be CBS and increased number of mobile ATM vans. All this will require more back-up and so the battery requirements will go up and therefore, have an important role to play.

SBI's analytics journey



Kunjal Prasad, GM-IT, State
Bank of India

The Indian public sector banks are capable to operate like e-commerce companies, which provide analytics to customers on the next best products they would like and many other features. "The

analytics team at SBI has close to 35 people, not only with expertise in IT but also statistics and other skills. They are given statistical models, which they convert to win-back models for winning the customers back by using static and dynamic data after running machine learning," explained Kunjal Prasad. For example, the bank has been able to win back many failed education loan accounts. SBI started building its data warehouse in 2007. The bank has been using Hadoop as a data analytics platform. As there are a host of legacy systems, a data quality initiative is also underway. SBI will soon be adopting a future ready CRM by having a customer one view, which will also pick up customer choice from social platforms.

10 things that make ESDS a preferred datacenter and technology partner



Dr Rajeev Papneja, EVP & COO, ESDS Software Solution

ESDS has most of the technology available (hardware and Software) for 90% of the requirements.

ESDS has the best certifications and a patented cloud model viz. 'Autoscaling cloud'. The company's billing model is on a pay-per-consumption model, whereas other companies charge on the hardware model. Another notable advantage is of having a cost effective DR, wherein the customer is not charged for passive DR but only when the disaster strikes, which according to ESDS saves 70% on DR related costs.

For network, the customer has to sign up separately with different service providers. However, when working with ESDS, there is no need for a separate network. The company has 700+ links.

On the security related features, ESDS has MTvScan, which not only manages security from outside the organization but also from inside. The solution scans for SQL Injection, cross site scripting (XSS) and also takes care of code. Dena bank, HDFC Bank and State Bank of India are some of the customers using MTvScan.

Power Discussion: ESDS



Dr Rajeev Papneja, EVP and COO, ESDS Software Solutions, shared details about ESDS' data centers. He also spoke in detail about its flagship product, eNlight, which was a 'Made in India' offering, and comparable to the best in the world.

Dr Papneja highlighted that ESDS held a US patent for the auto-scalable feature of eNlight, which has succeeded in eliminating the downtime suffrages, which occur as a result of volatile internet traffic. This auto-scaling feature makes eNlight

suitable for Disaster Recovery hosting and cuts down Disaster Recovery hosting costs by 70%. Pointing out to the ability to choose only the exact features that enterprises want, Dr Papneja said that the cloud hosting solution had a built-in ability to automatically scale CPU and RAM on-demand. Government enterprises also have the choice of opting for minute-to-minute usage and billing of CPU, RAM, bandwidth and hard disk space of each virtual machine. Government enterprises with seasonal traffic who experience

unpredictable compute load and do not want to make heavy IT investments can use the pay-per-use model of eNlight cloud.

Information on eMagic, an enterprise data center management solution from ESDS and MTvScan (a malware and Trojan vulnerability scanner) were also shared with the attendees. eNlight is a private cloud hosted on the customer's on premise IT infrastructure. The charge back mechanism is built into it. It gives the flexibility to shuffle IT resources between group companies and the chargeback is built accordingly.

eNlight cloud is the public cloud of ESDS. It has been included in the empanelled vendors of the GoI. ESDS also offers managed service hosting. It has partnered with Google and Microsoft. The company also provides free hosting services to potential customers to enable them to compare its service with the existing vendor. The Govt of Nepal is using eNlight 360.

Panel Discussion: Securing a hyperconnected world



The panel discussion shared views on the challenges faced emanating out of hyper connectedness because of the increase in digital connectivity between organizations. It also discussed possible solutions to carry business operations securely in the hyper-connected world. K C Palanisamy, Chief Manager-IS, IOCL said that securing the devices of the partners was a challenge. Communicating the IS policy to different stakeholders was also a challenge. Most of the

vulnerabilities are from applications especially as the in-house apps are not tested thoroughly for most PSUs.

The applications are vulnerable because they are run in isolation, said Piyush Somani, MD & CEO, Piyush Somani, ESDS Software Solution. In a cloud environment, he suggests, the notification about a breach is instant and the code and database is stopped with immediate effect after the breach. Since the CSPs have a dedicated infrastructure to monitor the threat vectors, they are in

better position to manage them. Somani gave the example of the central government, saying that all the major government initiatives like Stand up India, Start up India, Mudra Yojana are hosted on the cloud, with SLAs framed by the Government.

MVJ Sastry, Chief Manager, CISO cell, Andhra Bank spoke about the challenge of the human element. Monitoring, logging, reviewing logs, rewriting codes involves 80% of security related work, for a CISO in a PSU.

The threat knowledge is available. The need is to proactively research and enhance enterprise readiness to face the threat vectors, said Krishanu Ray, Assoc. VP, Corporate IT, Balmer Lawrie and Co. "IT assets should be prioritized based on the business risk. The end users remain the weakest link and thus should be well trained," said Ray.

Proper teams should be formed internally in the organization and Public Private Partnerships (PPP) can also go a long way in improving the security posture of the PSUs.

Case Study: Using IT for enabling real-time visibility



Nitin Chandurkar, Chief General Manager (IT),
Maharashtra State Power Generation Company

MAHAGENCO generates and supplies electricity, and strives to fully meet the energy needs of the state by value enhancements. "With a bigger installed capacity and increasing demand for power, MAHAGENCO was looking for an ideal

solution to help optimise fuel management and decentralise the current processes. The company chose SAP for its customised approach to suit the changing needs along with its proven domain expertise," said Chandurkar. He mentioned that MAHAGENCO implemented this IT initiative across 14 different locations, including all power stations and offices in the state. The single integrated enterprise resource planning (ERP) component, SAP ERP Central Component, has allowed senior management rapid information access, minimised costs, enabled better resource utilisation and management to

offer enhanced services and improve power efficiency for their customers.

Additionally, this has also maximised the value of IT with web-based technologies and a centralised data centre for MAHAGENCO. So far over 11 modules of SAP have been incorporated and MAHAGENCO is mulling to consolidate islands of information across the organisation, including financial accounting, human resources, payroll, material management, maintenance management and project management, to bring the information to a single concentrated platform, he informed.

Power Discussion: Exide



The aim of the power discussion was to give in-depth information to the select PSU representatives about the importance of batteries for their organization and how selecting the right kind of battery for their requirement can boost the overall work efficiency.

Briefing about the background of the company, R. Srinivasan, Dy. Manager – Industrial Sales, Exide, said, “As India's largest storage battery company with the widest range of both conventional flooded

as well as latest VRLA batteries, we design, manufacture, market and sell the widest range of lead acid storage batteries in the world - batteries ranging from 2.5Ah to 20,600Ah capacity - to cover the broadest spectrum of applications. We market our industrial batteries to the domestic market, under Exide, SF and CEIL brands. Internationally, our major brands are CEIL, Chloride and Index.” Talking about the general expectations of PSUs, he said public corporations need batteries that

have higher backup, higher life, high warranty, no downtime and low maintenance.

He then talked about the Plante Battery which has a 20 plus years service life. It is the most reliable battery for standby float application. The positive plates are made of 99.99% ultra pure lead, which forms the basic strength. The cells are assembled in transparent containers, which make the cells very user-friendly. Antimony-free ultra-pure lead and large pool of electrolyte make it a very low maintenance battery. It has excellent high discharge characteristics and is capable of rapid recharging. 100% capacity is retained throughout its life span and therefore no aging factor has to be considered. He also discussed about the Powersafe XHD series battery with unique GEL technology mainly for UPS applications. These batteries are designed with tubular positive plate and GEL Electrolyte. The main application of these batteries are in UPS system, process instrumentation and control, office automation equipments, EPABX system, electronic attendance and cash register, and fire alarm and security systems.

Digital mining for improving mining efficiencies



S K Upadhyay, Jt. GM – Computer & Information Technology, NMDC

S K Upadhyay started his presentation by stating that mining organisations are labour intensive. Their work depends on different cycles and levels. At different levels, there is need for different types of technologies, therefore there is rapid adoption of technology in mining today.

He believes that going forward organisations must think going digital. He urged PSUs to work on the idea of

digital mining because it would improve their operational efficiency and allow them to focus on their core-job.

Upadhyay also emphasised on the creation of right kind of talent in the country which could be deployed for using modern technology in highly engineering fields like mining. According to him, this is only possible, if we focus on imparting the right kind of IT skills among workers.

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Mohammad Mahmood Ali, Deputy Chief Minister of Telangana



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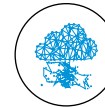


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