

Digital Economy & Cyber Infrastructure – A Critical Analysis

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Abstract

The presented paper deals with “The present position of cyber infrastructure in India and it’s influence on the digital economy” in the cyber space. It aims at extensively examining the true state of cyber infrastructure and analyses that whether India is ready to take up the digital or the cashless economy with specific reference to notable instances in the recent past along with highlighting its present situation in India.

India had been planning for a digital economy since past many years but on 8th November 2016, the Demonetization policy brought a wide change into the domain. The nation emphasized on cashless/digital economy and more emphasis was laid on avoiding cash transactions. Without going much into whether the move was right or not, a substantial question pertains, that is, whether the nation is even ready for the digital economy or not?

Statistics reveal that India faced over **80,000 cyber-attacks** between 9th December 2016 to 12th December 2016 after the note ban policy. In October 2016, itself, **SBI** blocked over **6 Lakh ATM cards** to avoid one of the biggest and most destructive cyber attacks on the Indian economy. The qualitative extensive research lays down the background of the subject, its meaning and its relevance in the present time.

The research makes an attempt to analyses what are the true reasons behind such scenario, whether the laws need to be altered or the present laws need to be executed more stringently, is deeply discussed in the presented research paper.

The paper further lays down specific emphasis on the problems being faced, viz. what exactly amounts to a good and defensive cyber infrastructure to save the economy from cyber threats.

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The paper in the end briefly deals with upcoming problems and its implications in the present time. It also suggests some solutions for fruitful understanding of this concept, along with suggestions to ensure that the digital economy keeps working smoothly and without any flaws.

Introduction

The Digital India² programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy.

E-governance initiatives in India took a broader dimension in the mid 1990s for wider sectoral applications with emphasis on citizen-centric services. The major ICT initiatives of the Government included, inter alia, some major projects such as railway computerization, land record computerization, etc. which focused mainly on the development of information systems. Later on, many states started ambitious individual e-governance projects aimed at providing electronic services to citizens.

Though these e-governance projects were citizen-centric, they could make less than the desired impact due to their limited features. The isolated and less interactive systems revealed major gaps that were thwarting the successful adoption of e-governance along the entire spectrum of governance. They clearly pointed towards the need for a more comprehensive planning and implementation for the infrastructure required to be put in place, interoperability issues to be addressed, etc. to establish a more connected government.

The national level e-Governance programme called National e-Governance Plan was initiated in 2006. There were 31 Mission Mode Projects under National e-Governance Plan covering a wide range of domains, viz. agriculture, land records, health, education, passports, police, courts, municipalities, commercial taxes, treasuries etc. 24 Mission Mode Projects have been implemented and started delivering either full or partial range of envisaged services.

² Ministry of Electronics and Information Technology, *ABOUT DIGITAL INDIA*, GOVERNMENT OF INDIA (January. 09, 2018, 06:21PM), <http://digitalindia.gov.in/content/about-programme>

Considering the shortcomings in National e-Governance Plan that included lack of integration amongst Government applications and databases, low degree of government process reengineering, scope for leveraging emerging technologies like mobile, cloud...etc, Government of India has approved the e-Kranti programme recently with the vision of “Transforming e-Governance for Transforming Governance”.

All new and on-going eGovernance projects as well as the existing projects, which are being revamped, should now follow the key principles of e-Kranti namely ‘Transformation and not Translation’, ‘Integrated Services and not Individual Services’, ‘Government Process Reengineering (GPR) to be mandatory in every MMP’, ‘ICT Infrastructure on Demand’, ‘Cloud by Default’, ‘Mobile First’, ‘Fast Tracking Approvals’, ‘Mandating Standards and Protocols’, ‘Language Localization’, ‘National GIS (Geo-Spatial Information System)’, ‘Security and Electronic Data Preservation’.

The portfolio of Mission Mode Projects has increased from 31 to 44 MMPs. Many new social sector projects namely Women and Child Development³, Social Benefits, Financial Inclusion, Urban Governance, eBhasha...etc have been added as new MMPs under e-Kranti.

The Journey

Almost everyone on Facebook changing their profile pictures to support digital India but to make it reality here are list of challenges in the implementation of digital India. Challenges are in every sector right from policy making, changing the work flow up to changing the mentality of the government officers. It is technological change within the most diversified nation. Few of them have been listed below:

High level of digital illiteracy: Digital illiteracy is prevalent in most of the towns and villages in India. Cities have adopted digitalization but limited to certain extent. Full fledged digitalization is cashless transaction on daily basis, use of internet services to get government certificates. This requires administration changes, Taxation changes and change in public

mentality. So it’s a team work which includes citizen’s responsibility and support to the new system

³ Ministry of Women and Child Development, *ABOUT US*, GOVERNMENT OF INDIA (January. 17, 2018, 06:41PM), <http://www.wcd.nic.in/about-us/about-ministry>

Connectivity to remote areas: It is a mammoth task to have connectivity with each and every village, town and city. The problem of connectivity is a complex issue because every state has different laws pertaining to its execution. Also it is challenging for the central authorities to make a database where such a huge information can be stored.

Compatibility with center state databases: Every state has different internet protocols because every state is diversified. Diversified not only in the sense of religion but also in language. Hence software compatibility with the center is a crucial issue. Information shall be saved carefully.

Cyber Crime: There is cyber threat all over the globe and digital India will not be any exception. Hence we need a strong anti cyber crime team which maintains the database and protects it round the clock

Inter Departmental Co ordination: Within the government there are various departments which should be integrated. Integration has technical as well as corporate issue. Corporate in the sense self ego of the officers and staff of our government services are hurdle in the change. Also the middle man policy will be eliminated completely because of digital India, hence there will be imminent resistance from the working staff.

Finance: Though there are resources with India but there is a huge capital cost which is to be invested and the fruits of the investment will be received after few years.

Net neutrality⁴: The issue is still on the table and we are blindly following the digital India. Net neutrality is must and we should make sure that digital India without net neutrality would be a great blow to entrepreneurs and citizens of India.

Changing the mindset: This point will come into picture when you have allocated the required resources and material but when it comes to implementing them, most of them will

⁴ New York Times, *NET NEUTRALITY*, The New York Times (January. 14, 2018, 09:41PM), <https://www.nytimes.com/topic/subject/net-neutrality>

be hesitant to change. People are accustomed with years of same of practice that they are not ready to change.

Exchange of information: The information stored should also be used by other government offices. For example police, surveillance and other security issues can be easily resolved with digital India but its co ordination is a mammoth task. It is not only a technological question but also deals with the question of privacy and security.

Cashless Economy In India

The financial technology industry would be unwise to ignore the rise of mobile transaction services, person-to-person networks and the whole range of digital disruption in the payments arena from the likes of Bitcoin, ApplePay and PayPal that undoubtedly is putting pressure on cash.

Cash is like water a basic necessity without which survival is a challenge. Nevertheless, cash use doesn't seem to be waning all that much, with around 85% of global payments still made using cash. One of the main reasons is that there is nothing to truly compete with the flexibility of notes and coins.

Of course, the digital era is something to embrace, and new methods of payments will continue to be introduced. But Indians need to recognize the risks and benefits of different payment instruments, the risks associated with electronic payment instruments are far more diverse and severe. Recently lakhs of debit card data were stolen by hackers; the ability of Indian financial institutions to protect the electronic currency came into question also an important reason why people favour cash.

In a courageous move to combat black money and counterfeit currency, Narendra Modi's government scrapped currency notes of INR 500 and INR 1000 denominations, which is seen as an unprecedented measure, though a giant leap towards curbing corruption and forged currency. The declaration created confusion across the spectrum, as these high-value notes form around 86% of total legal tender.

However, the whole isometrics of moving from cash-driven economy to cashless economy has somehow been assorted with demonetisation that was aimed to extract liquidity from the system to unearth black money. Prime Minister Narendra Modi acknowledged the fact in his

monthly radio programme, 'Mann Ki Baat' on Sunday that making the transition to cashless economy is challenging, and hence has urged the public to move to 'less-cash' society.

A report by Boston Consulting Group (BCG)⁵ and Google India revealed that last year around 75 per cent of transactions in India was cash-based, while in developed nations such as the US, Japan, France, Germany etc. it was around 20-25 per cent. The depletion in cash due to demonetisation has pushed digital and e-transactions to the forefront; e-banking, e-wallets, and other transaction apps becoming prevalent.

Why Is Cash Required?

The magnificence of cash is that -- it just works; even in the isolated whereabouts of India, where the government might not be present physically with its paraphernalia, its injunction runs in the form of legal tender that public uses for business on an everyday basis. A large informal economy that supports a major part of Indian population and their livelihoods also runs in cash. This is why Cash is yet King.

The ground reality reveals, a majority of transactions in Kirana stores, the go-to shop for daily purchases in India are cash based transactions, because these are generally small ticket transactions. The customers, as well as Kirana store owners feel more comfortable in dealing with cash for small transactions, while these merchants also provide credit facility to customers.

However, the governments drive to incentivise consumers and merchants alike to move to electronic modes of payments has not found many takers because our cash driven economy is fuelled through rampant corruption in society and black money. The modus operations for corruption are cash so unless we rid our society of corruption at all levels this will be a huge task. Imagine paying a corrupt official through your e-wallet it will never happen.

Also another point to ponder on is why India has such less tax payers in a population of over 1.2 billion people. Is 98% of our population earning below 2.5 lakhs a year. This is one of the issues

that needs to be addressed and hopefully with many more transaction moving electronic & records of the same being made available many more people should fall under the tax net be it small merchants, professionals etc. Will this segment of society adapt to electronic modes

⁵ BCG, *REPORT 2017*, Boston Consultancy Group (February. 01, 2018, 11:51PM), <https://www.bcg.com/>

of payment so that the nation can benefit from a higher tax collection leading to better benefits to society at large?

The challenge to go digital

A major obstacle for the quick adoption of alternate mode of payments is mobile internet penetration, which is crucial because point-of-sale (PoS) terminal works over mobile internet connections, while banks have been charging money on card-based transactions, which is seen as a hurdle. The low literacy rates in rural India, along with the lack of infrastructure like internet access and Power make things extremely difficult for people to adopt e-transaction route.

The financial safety over the digital payment channels is important for pushing the cashless economy idea. Imagine losing your credit cards or being the victim of digital hackers can lead to a whole host of issues like denied payment, identity theft, account takeover, fraudulent transactions and data breaches. According to the digital security company Gemalto⁶, more than 1 billion personal records were compromised in 2014.

Cash is Here to Stay

Despite the numerous State endeavors, India has always been driven by cash; while electronic payments are seen restricted to a small size of the population, compared to the cash transactions. Considering the demographics of India, two-thirds of the population live in rural areas, where farmers and poor people are still struggling to get their hands on their own money. As per Data in July this year, 881 million transactions were made using debit cards at ATMs and PoS terminals. Out of these, 92 per cent were cash withdrawals from ATMs. The sole purpose for

cards in Indian is to withdraw cash. Changing this mind set will be an uphill task. The last few days have clearly shown that the country is highly underpenetrated as far as ATMs per million

⁶ GEMALTO, *DIGITAL SECURITY RECORDS*, Gemalto Digital Security Company (February. 03, 2018, 01:51PM), <https://www.gemalto.com/>

people and it's the ATM which will help the government fulfill its ambition of financial inclusion as the ATM will play a key role in the last mile towards customer fulfillment which is self-service 24*7 which even a Business Correspondent or Micro ATM cannot do.

Currently, there is a mix of cash and cashless transactions happening across the country, while many enablers are working towards turning the cashless economy dream into a reality. We have taken big strides towards becoming a cashless economy; however it will take more than a generation to change the habit from cash to no cash transaction. Rushing the economy into a cashless state without proper planning and infrastructure will be disastrous and its consequences will be everlasting. A gradual move towards less-cash society as said by the Prime Minister is the right way forward.

Also, important to note that if people start flocking to alternate currencies, governments could wind up losing much of their power to influence economic issues such as inflation and unemployment. The government can't set an interest rate for institutions lending in a currency it doesn't control.