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Appendix



Cashless, Paperless, Presence-less India – The government has a strong focus on transforming the country into a cashless, paperless and presence-less economy under the “Digital India” initiative



Cashless

Using non-cash methods—such as electronic transfers, and debit or credit card or cheque, instead of cash



Paperless

Eliminating (or reducing) use of paper in otherwise paper-intensive government or legal processes (including communication, identity or document verification, record keeping, contracts, etc.)

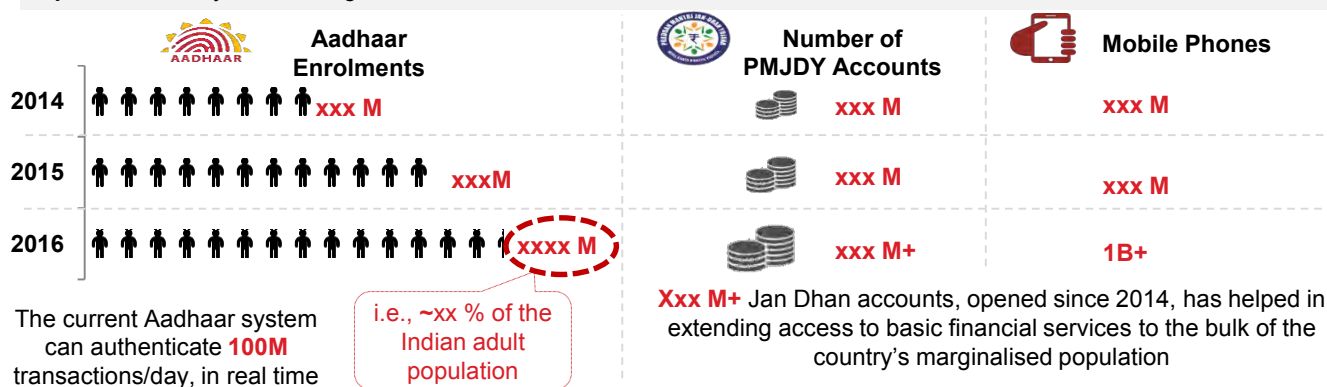


Presence-less

Through online biometric authentication, eliminating the need of physical presence of a person for verification

Drivers

- JAM Trinity:** Financial inclusion of marginalised population, which accounts for a significant share of the population, through rapid adoption of **Pradhan Mantri Jan Dhan Yojana (PMJDY)**, **Aadhaar enrolments** and **increase in mobile uptake** is the key driver of digitisation



- eKYC:** In March 2013, the government launched eKYC—an Aadhaar-linked paperless KYC process—which is a convenient and cost-effective alternative to the traditional KYC process and only requires a fraction of time to complete

- eSign:** In August 2016, the government launched eSign service, another Aadhaar-linked service, which allows consumers to digitally sign documents by leveraging the e-KYC process. Example of few uses are self-attestation of documents, e-filing of tax, opening of account in bank/post office, renewal of driving license, registration of vehicle, etc.

- DigiLocker:** DigiLocker (launched by Gol in February 2015) is a cloud-based platform for storage, sharing and verification of documents and certificates; in addition, it allows departments to push e-documents directly into an individual's account. The service is intended to minimize the use of physical documents and to provide authenticity to e-documents



- India Stack:** Strengthening the “Digital India” initiative further, iSPIRT launched India Stack, a complete set of APIs for developers which includes Aadhaar, e-KYC, e-sign, UPI, and secure data-sharing within the stack. This allows tech-start-ups and app developers to readily create novel business apps using the infrastructure provided by the stack.

Demonetisation propelled digital payments in the country

6 Demonetisation: Demonetisation of high-value currency notes on 9th Nov 2016 led to a cash crunch among the masses, which in turn created a spurt in digital transactions.

Cashless Ecosystem

NUUP

To overcome barriers due to the penetration of smartphone and internet, NPCI* created **National Unified USSD Platform (NUUP)**. Since it is a USSD-based* payment system, it works even without the Internet

UPI **BHIM**

In August 2016, NPCI* and RBI launched **Unified Payments Interface (UPI)**, which is a new payment system to facilitate instant money transfer between multiple banks using a smartphone

Further, in Dec 2016, it launched an UPI-based digital payments app, named BHIM, which claims to be more secure and convenient

M-wallets

These are majorly used for mobile recharges, bill payments and ecommerce

paytm **MobiKwik** **Citrus**

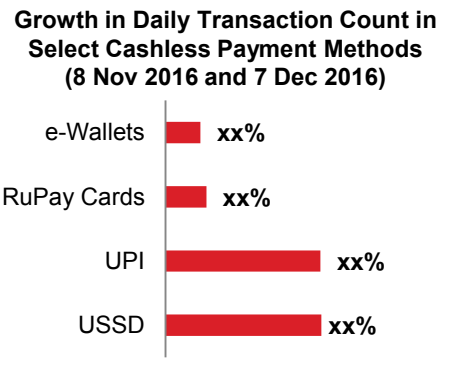
Debit and Credit Cards

Usage of debit and credit cards is on the rise. In Nov 2016, MoM increase in transaction volume for debit card and credit card at POS was xx% and xx%, respectively

Prepaid cards

These are mainly used for expense management, remittances, railway bookings, etc.

ItzCash **Suvidha** **oxigen**



Peer-to-Peer (P2P) Lending

P2P lending companies offer online platforms to connect individual lenders to individual borrowers, without involving official financial institution as intermediary

P2P lending space is not regulated in India at present, which is its biggest drawback as it exposes individuals/companies to a high risk of default

xx new online P2P lending companies were launched in India in 2015 alone

xx+ start-ups in the P2P lending at present

Key Players:

iFunding.com **micrograam** **Lenden**

INSTAPAISA **Vote4Cash**

i-lend **LOANMEET**

FAIRCENT.com
EVERY 5 COURTS

KEY TAKEAWAYS







 Citizens	 Government	 Business	 Banks
<ul style="list-style-type: none"> Reduced risk of “leakages” due to effective implementation of the government’s direct benefit transfer (DBT) schemes Access to fast, convenient and affordable credit Improved experience due to presence-less and paperless authentication 	<ul style="list-style-type: none"> Better delivery of e-Governance Reduced cost of cash, better economy, and ease of doing business due to effortless transactions and decrease in black money Financial inclusion of the unbanked population 	<ul style="list-style-type: none"> Open API architecture (such as India Stack) to promote start-ups and private sector players Increase in the potential customer base 	<ul style="list-style-type: none"> Lower cost & time to offer banking services to masses Facilitate gradual shift in banks’ business model from low volume, high value, high cost and high fees to high volume, low value, low cost and no fees

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Appendix



Internet Economy – With xxx+ Internet Subscribers, India has the 2nd largest user base after China

What comprises Internet Economy

Online Services

- Entertainment
- General
- Search
- Communication

e-Commerce

- B2C e-Commerce
- B2B e-Commerce

Enabling Tech & Services

- Online payments
- Advertising, ratings & analytics
- Cloud computing, web design & hosting

Internet Economy Statistics (Where are we at the moment?)

Total Internet Subscribers 376.5 M*

Wireless vs. Wired

Broadband vs. Narrowband

Rural vs. Urban

*as of Sept'16

Mobile Proliferation (In M)

Mobile Subscriptions

xxx (2015) → x% → xxx (2021)

Smartphone Subscriptions

xxx (2015) → xx% → xxx (2021)

Rural Wireless Subscriber Base

Internet's Contribution

Digital Economy's Contribution to GDP

The Internet Economy contributed xx% to India's GDP in 2013, making it the sixth largest in the world

Infrastructural Development

Government Initiatives Industry Initiatives Start-up Initiatives

Broadband Highway

Broadband for All – Rural:

- 250,000 village panchayats to be provided internet connectivity under **BharatNet**
- First phase involves connecting 100,000 Gram Panchayats (GPs) – to be completed by Mar'17.
- Second phase scheduled to be completed by Dec'18 and third by 2023

Broadband for All – Urban:

Efficient service delivery and communication infrastructure to be provided in new urban developments by leveraging Virtual Network Operators

Project Cost: INR xxx B

Work Description	Status (Dec'16)
Optical Fibre Cable Pipe laid	1,85,424 km (79,067 GPs)
Optical Fibre laid	1,53,871 km (67,129 GPs)

*Does not include data for Andhra Pradesh

Broadband Highway, Public Wifi, White Spectrum Space – various ways of improving last mile connectivity

1 2 3

Public Internet Access Programme

Two sub-components of the Public Internet Access Programme are **Common Service Centres (CSCs)** and **Post Offices**. They act as access points for delivery of various services in rural areas, with an aim to connect them digitally and financially

- CSCs would provide high quality cost effective video, voice and data content and services, covering areas like e-governance, education, health, telemedicine, entertainment; besides other private services
- It is proposed that a total of 1xx,000 Post Offices are to be converted into multi-service centres



0.xx M Total Operational CSCs (Mar'16)



0.xx M Estimated number of GPs connected



xxxx GPs connected with BharatNet



Xxx CSCs collocated with BharatNet Connections

*As of Jan'16

Other Major Initiatives

- **Universal Access to Mobile Connectivity:** ~55,619 villages lacking mobile coverage to be covered
- **RailTel Wi-Fi Initiative:** RailTel has initiated public Wi-Fi hotspots at 700 railway stations in India
- **Mumbai Wi-Fi:** India's biggest public Wi-Fi network, Mumbai Wi-Fi, completed its phase 1 with launch of 500 (out of the committed 1200) live hotspots in Jan'17

Wi-Fi Hotspots installed in India



2016
xxxx



2018
xxxx

NITI Aayog's approval for trials for three new technologies will take broadband to the yet un-connected:

- Use of **White Spectrum Space** between the 200-300 MHz frequencies by television channels to provide data transmission wirelessly
- **Very Small Aperture Terminal (VSAT)** technology delivers internet via satellites
- **Public Wi-Fi System** can be used to democratise digital access by setting up Wi-Fi hotspots at various locations

Government Initiatives

Industry Initiatives

Start-up Initiatives



- Google has partnered with RailTel to provide **high-speed Wi-Fi at 400 railway stations** across India
- Google Loon's **solar powered balloons** aim to provide connectivity to ~40 km ground area (in diameter) using LTE technology



- Microsoft has initiated its pilot project using **white space spectrum technology to connect 0.5M villages**



- IIT-M and Nokia have tied-up for three years to create technology solutions to enhance broadband connectivity in rural India

Government Initiatives

Industry Initiatives

Start-up Initiatives



Bengaluru based **Saankhya Labs** has designed a chip that can beam Internet to a number of **rural households by using TV White Spaces**



Astrome is set to launch **high capacity satellites** in 2019. The company will form a mini-constellation in low earth orbit (LEO) to provide broadband connectivity to rural and semi-urban areas



Microsoft's Affordable Internet Initiative: Democratise access to the Internet through grants and commercial partnerships for last mile technologies such as TV White Spaces. Microsoft has selected India's AirJaldi and Zaya among 12 start-ups to help it scale this initiative

Users from rural India, vernacular content, videos over texts, cashless transactions – key characteristics of Internet 2020

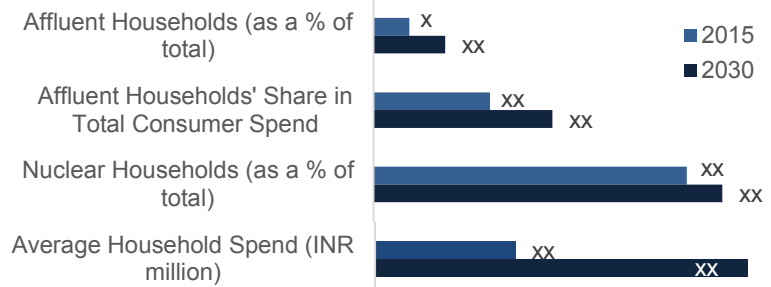
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Socio-cultural, economic and political drivers

- Increasing Urbanisation
- Rise in Affluent Middle Class
- Increasing Trend of Nuclear families
- Hectic Lifestyles Increasing the Need for Convenience
- Rising Disposable Income
- Growing Number of Tech-savvy Indians
- Push Towards Cashless Economy/ Demonetisation

India – Key Demographic Indicators

From xx% in 2010, urbanisation rate set to reach xx% by 2025



Challenges

Right of Way (RoW)²: Absence of provisions providing safeguards against challenges associated with RoW, such as acquisition of sites, exorbitant fee charges, etc., restricts smooth deployment of the optical fibre network

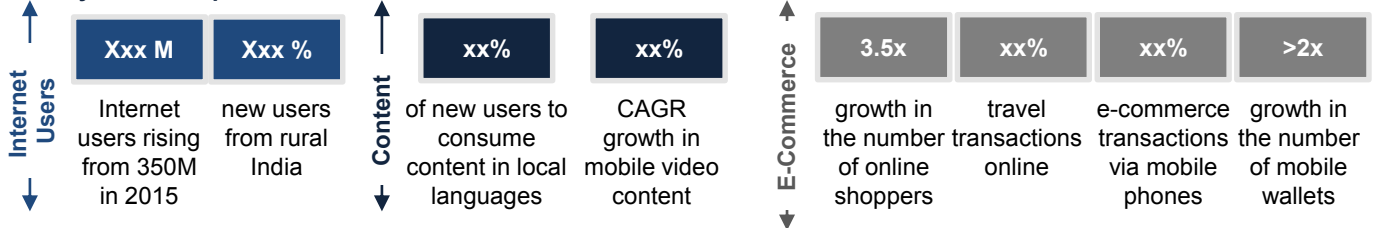
Quantum of Resources Needed: Large-scale skilled manpower and resource requirements are also critical challenges

Single Window Clearance Mechanism: A single window, without the need for approvals and permissions from multiple authorities, is required to ensure operators have access to the fibre in a non-discriminatory, time bound, cost-efficient manner

Supply Side Barriers: With Indian telcos reeling under significant spectrum acquisition and fibre backhaul costs, massive operating expenditure for Wi-Fi hotspot deployment inhibits them to enter the public Wi-Fi domain

Internet in 2020

India by 2020 is expected to witness...



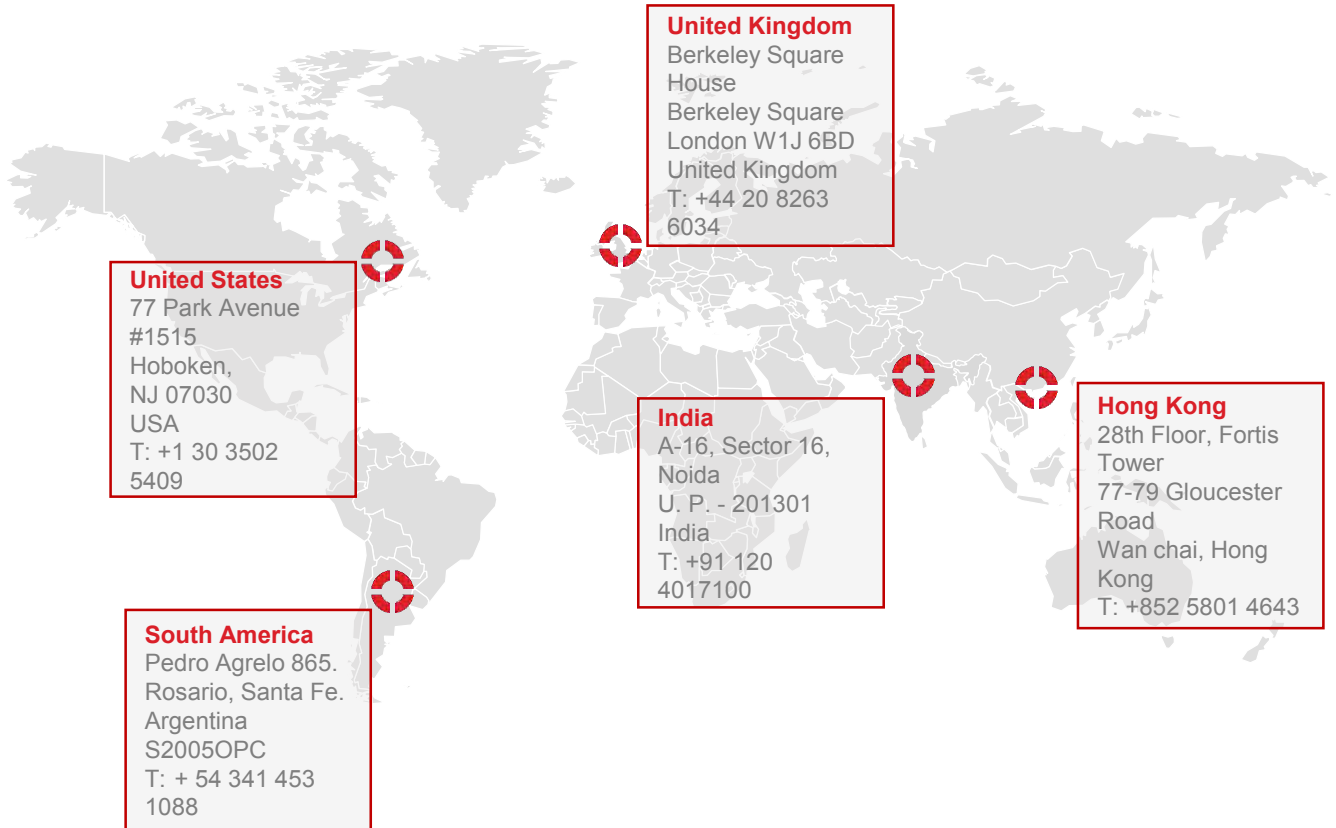
Business

- In the wake of the rising cyber security concerns, increasing digitisation will create substantial opportunities for cyber security companies
- India's gradual transition to become a data rich country will likely promote the use of big data/analytics, predictive technologies for better customer acquisition
- Growing digitisation to boost e-Commerce and online payment companies
- The need to maintain optimal web performance, amid increasing web traffic (including video content), is expected to drive growth of data centre infrastructure and content delivery networks
- Handset makers and telecom companies will reap the benefits of growing demand for mobile phones and telecom services, respectively
- Start-up ecosystem will receive a boost due to rise in the addressable market

KEY TAKEAWAYS



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