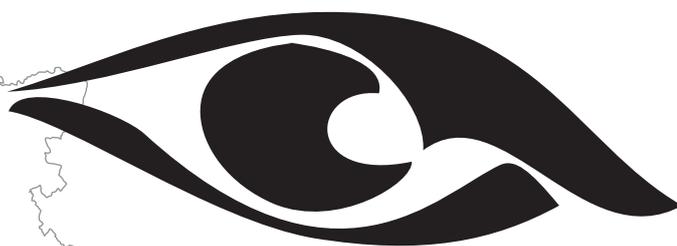




Bombay Chamber
of Commerce & Industry



**Enhancing
Competitiveness
of India**

**VISION
2025**

DRIVERS

INFRASTRUCTURE

INCLUSION

FISCAL POLICY



Bombay Chamber
of Commerce & Industry

**Enhancing
Competitiveness
of India** | **VISION
2025**

June 2019

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FOREWORD

India is at a pivotal position in the world today; the IMF recognises India as being among the fastest growing large economies, with a growth rate of 7.3% for 2020 and 7.5% for 2021. The general expectation is that the growth rate will enhance further to 8% plus in the medium term, supported by a suitable enabling environment.

For Growth to be sustained at such levels, Productivity is key. This should result in better use of Resources – Land, Labour, Capital and Technology. Concomitantly, enhancing the conditions for Country Competitiveness will play a critical role in improving Productivity.

Accordingly, the Bombay Chamber has focussed on the question of what can make India more 'Competitive' in the backdrop of a rapidly changing World Order, brought about by policy changes as well as by unprecedented Technology disruptions. In this rapidly changing scenario, the Chamber opines that a medium term (2025) perspective will be appropriate.

While there have been several studies in the country extolling the long term potential of India, the Chamber decided to focus on the period between the present and 2025. Such a time frame also enabled it to examine and recommend a mix of strategic, tactical and operational elements for India's future competitiveness. In addition, it allows for some course adjustments along the way.

To address the issue, the Bombay Chamber selected a few specific areas that it believes will enhance India's overall Competitiveness. These include Digitisation, Finance, Manufacturing, Infrastructure, Tourism, Education & Health, Taxation, Agriculture, Trade Policy and Diversity & Inclusive Growth. These areas were identified by the Policy Research & Development Committee of the Bombay Chamber and approved by its Advisory Board. Authors associated with the Committee agreed to contribute relevant articles on the identified subject that were subsequently vetted by the editorial committee particularly constituted to address this responsibility. The final result of such a process is embodied in the document that follows.

The Chamber expects, that between now and 2025, this document and its recommendations will initiate discussions on policy making and prompt related action between both policy makers and member enterprises.



Sunil Mathur

President

Bombay Chamber of Commerce & Industry

ACKNOWLEDGEMENT

We believe this is an appropriate time to set off a policy debate on how India can become economically competitive in the Medium Term – just a few years from now. Such debate will likely also encompass measures that will enable ongoing improvement in Indian Competitiveness within this temporal trajectory and thereby contribute to a stream of continuing transformation within the country – via facilitating productivity and growth. With an objective to stimulate such debate, the Bombay Chamber has prepared a document titled “Enhancing Competitiveness of India : Vision 2025”, wherein chosen areas within the economy that can contribute to the above-stated objective are highlighted – along with suggested measures, with a view to draw the attention of policy makers, corporate communities and other relevant stakeholders to what *can* and *should* be done.

In this document, ten areas have been covered (classified within Drivers/Infrastructure/Inclusion/Fiscal Policy): Digitisation, Finance, Manufacturing, Infrastructure, Tourism, Education & Health, Taxation, Agriculture and Trade Policy. Within these areas attention is drawn to a renewed need for implementing the schemes already in place, and for a thrust to newer initiatives to further India’s “Competitiveness”. An attempt is made to align with the national strategy, Strategy for New India@75 for building a New India by 2022 (NITI Aayog), within the suggested framework.

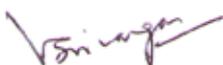
The document is put together by highly experienced and internationally reputed experts in their respective fields (academic, private or multinational). They include Professor Arup Daripa, Department of Economics, Mathematics and Statistics, Birkbeck, University of London; Ashok Sethi, Chairman of Tata Consulting Engineers Limited and the former Chief Operating Officer & Executive Director of Tata Power Co. Ltd : Professor Bibhas Saha, Department of Economics, Durham Business School, England; Deepak Goray, Head, Smart Cities, Siemens Ltd. : Indranil Pan, Chief Economist, IDFC FIRST Bank; Dr. Minakshi Chakraborty, Economist, Mahindra & Mahindra; Prashant Deshpande, Partner, Deloitte Haskins & Sells LLP; Dr. Prakash Hebalkar, Owner, ProfiTech; Dr. Sachchidanand Shukla, Chief Economist, Mahindra & Mahindra; Saugata Bhattacharya, Senior Vice- President, Business and Chief Economist, Axis Bank; Sudhir Kapadia, Partner & National Tax Leader, Ernst & Young LLP; Professor R Nagaraj, Department of Economics, Indira Gandhi Institute of Development Research; Rajeshree Sabnavis, Proprietor, Rajeshree Sabnavis & Associates and Dr. Sidhhartha Roy, CEO, SR Associates.

Inputs for some of the suggestions also emanated from consultations with private sector executives and policymakers. These included two high profile events with participation of eminent personalities like Dr. Rajiv Kumar, Vice Chairman, NITI Aayog; Dr. Rathin Roy, Director, National Institute of Public Finance and Policy and Member, Prime Minister’s Economic Advisory Council; Shri Viral Acharya, Deputy Governor, Reserve Bank of India among others, as keynote speakers. Additionally, several discussions/meetings/calls that included advisory committee members of the Policy Research & Development Committee and Direct & Indirect Taxation Committees from late 2017 provided relevant inputs. I thank every one of them for their inputs.

This document would not have been possible without the critical inputs provided by the dedicated editorial team comprising Saugata Bhattacharya, Senior Vice-President Business & Chief Economist, Axis Bank; Indranil Pan, Chief Economist, IDFC FIRST Bank; Dr. Sachchidanand Shukla, Chief Economist, Mahindra & Mahindra, Dr. Siddhartha Roy, CEO, S R Associates, Shri Vijay Srirangan, Director General, Bombay Chamber and Dr. Sugeeta Upadhyay, Bombay Chamber.

I would also like to thank DBS Bank India Limited, Deloitte Haskins & Sells LLP, Sustainable Agro-commercial Finance Ltd., State Bank of India and Tata Investment Corporation Limited for assistance in the printing of this document.

This document is a contributory step towards enhancing India’s economic competitiveness. It would have served its purpose if it encourages the private sector, policy makers, the academicians and civil society etc. to have vigorous ongoing debates with the government – Centre, State and Local – on the need (and the measures) to act decisively for enhancing India’s competitiveness.



Vijay Srirangan
Director General
Bombay Chamber of Commerce and Industry

DBS Bank India Limited (DBIL) is first among the large foreign banks in India to start operating as a wholly owned, locally incorporated subsidiary of a leading global bank. Headquartered and listed in Singapore, **DBS Group** is a leading financial services group in Asia with presence in 18 countries. DBS Group's "AA-" and "Aa1" credit ratings are among the highest in the world. DBS Bank has been present in India for 25 years, having opened its first office in Mumbai in 1994.

In India, DBIL provides the entire range of banking services for large, medium and small enterprises on one hand and to individual consumers on the other. In 2016, DBS had launched India's first, mobile-only bank – **digibank**, which now has over 2.5 million customers. Currently present across 20 cities, the Bank has been expanding its presence across India since converting to a wholly owned subsidiary. Over the next year, the Bank intends to further expand its presence within the existing cities as well as new locations with over 100 customer touchpoints.

DBS is committed to building lasting relationships with customers, and positively impacting communities through supporting social enterprises, as it connects customers and markets across Asia. DBS Group's Foundation works closely with social enterprises across all its key markets in Asia. The Bank is focused on **Making Banking Joyful** with the passion, commitment and can-do spirit in all of its 27,000 strong staff, representing over 40 nationalities.

State Bank of India (SBI) the largest commercial bank in terms of assets, deposits, branches, customers and employees; is also the largest mortgage lender in the country. As on March 31, 2019, the bank has a deposit base of over Rs. 29 lakh crore with CASA ratio of 45.74% and advances of over Rs. 22 lakh crore. SBI commands around 35% of market share in home loans and auto loans. The Bank has the largest network of 22,010 branches in India and an ATM / CDM network of over 58,000. The number of customers using internet banking facility are more than 6 crore and mobile banking services stand at 1.41 crore. Downloads for YONO - an integrated digital and lifestyle platform by SBI - are over 2 Crore, with more than 15 lakh logins per day. On social media platforms, SBI has the highest number of followers on Facebook, YouTube, LinkedIn and Pinterest. The Bank tops the list of followers on Facebook and YouTube across all banks worldwide.

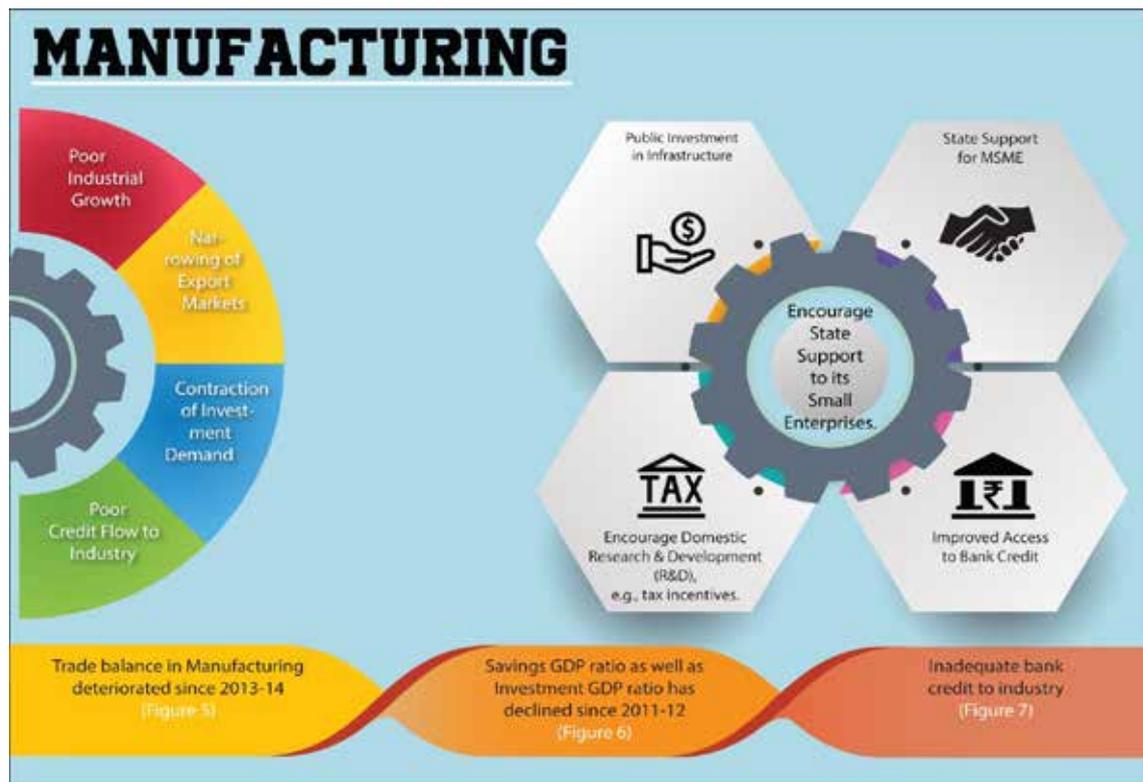
EXECUTIVE SUMMARY

ENHANCING COMPETITIVENESS OF INDIA: VISION 2025

DRIVERS

INDIA 2025-A DIGITAL DREAM





RE-IMAGINING AGRICULTURE IN INDIA





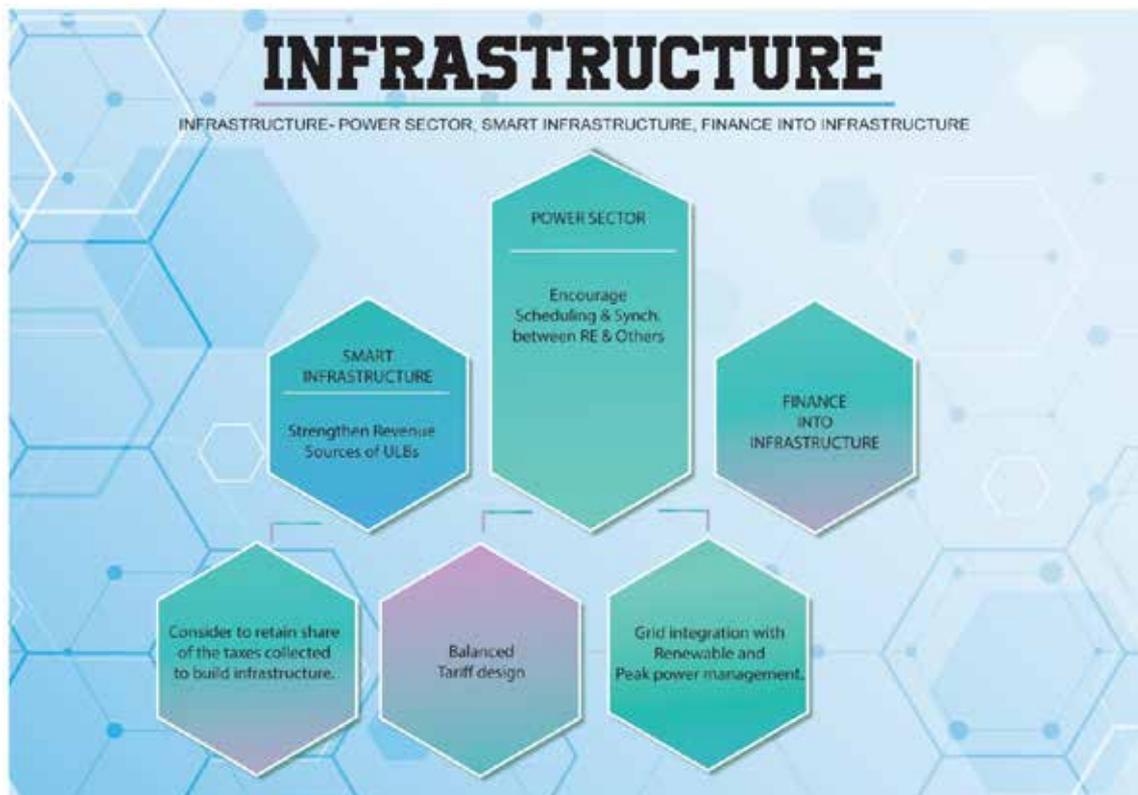
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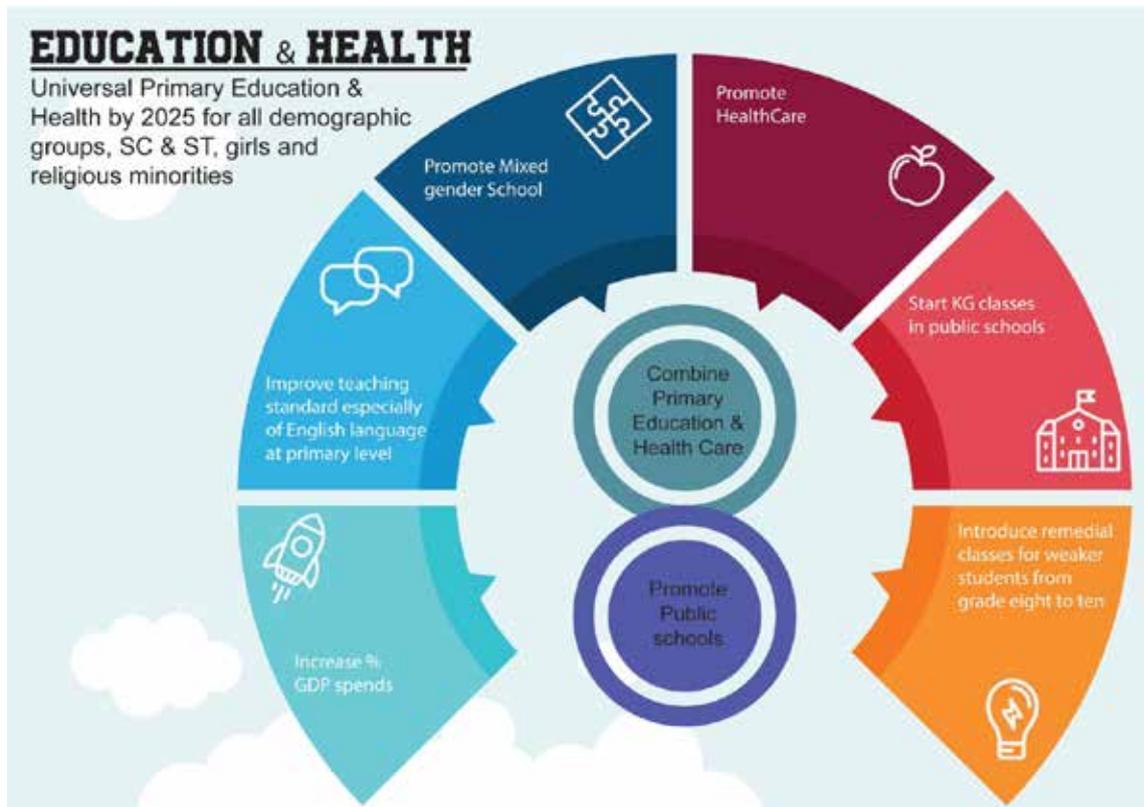
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- INNOVATIVE FRAMEWORKS FOR FACILITATING FINANCE INTO INFRASTRUCTURE SECTORS
- ENHANCING THE COMPETITIVENESS OF POWER SECTOR IN INDIA
- SMART INFRASTRUCTURE: AN ENABLER FOR INDIA'S ENHANCED COMPETITIVENESS



INCLUSION

MILES TO GO BEFORE WE LEARN: EDUCATION AND HEALTH



FISCAL POLICY

FUTURE OF INDIA'S TAX POLICY

TAXATION

TAX POLICY

Not 'Trust' based.

Reduced Litigation





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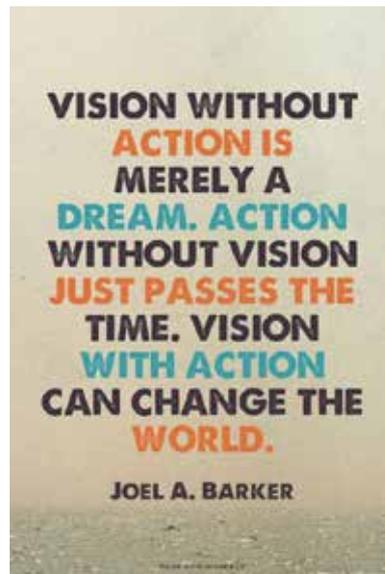
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DRIVERS



(Joel Barker was the first person to popularize the concept of paradigm shifts in the corporate world.)

- A Digital World (DW) will create a paperless dream for India with anytime-anywhere access for all its citizens.
- Services businesses enabled by underlying drivers of DW have already demonstrated key innovation – democratization of commerce-in-goods; crowd funding of start-ups; out-of-town and small mobile-based payment services etc.
- Realising the Digital Vision incorporates a whole new Digital Strategy, clear mapping of the deliverables and fail-safe implementation underscored by legal and regulatory support.

AN OVERVIEW:

The Digital World (DW) envisions a pivotal national shift from using information technology (IT) for point-solutions to creating an accessible, ubiquitous Digital World in India that enables personal and economic development for all citizens.

The driving force arises from the benefits from Moore's Law¹ on the cost of internet-enabled mobile devices with increased technical capabilities on the one hand, and the benefits flowing from Metcalfe's Law² from the network effect of growth of data communications capabilities (read internet) on the other hand. In short, "**the more the better**" – more people covered and participating, more economic activities covered, more governance activities covered etc.

Technologically, the expansion of the address-space of participants in the internet through the adoption of IPV6 has now enabled unattended devices to become participants, leading to the emergence of the Internet of Things (IOT). The internet now interconnects not just people to each other and not just physical world devices such as guided cars, power distribution networks, household appliances etc. to each other, but interconnects both people and devices.

¹Moore's Law is a computing term which originated around 1970; the simplified version of this law states that processor speeds, or overall processing power for computers will double every two years, while simultaneously costs reduce by half.

²Metcalfe's law states the effect (value) of a telecommunications network is proportional to the square of the number of connected users of the system (n^2).

ANALYSIS & DISCUSSIONS:

The objective of creating a Digital World for India is to increase the velocity of economic activity.

1. The Digital World

The Digital World envisaged for India has some important characteristics:

- A. **Virtual records** of value (assets), transactions, and identity that are entirely - paperless.
- B. **Ubiquity of access** – Anytime, anywhere (location independent) access.
- C. **Low thresholds for participation** – “inclusiveness focused”.

A. Virtual Records

The essence of the Digital World (DW) is virtuality – representation of physical aspects of the “real” world in symbolic form for record-keeping, for transformations, for processing and for interaction with senses. Representation of documents by scanned images is the simplest example familiar to almost everyone touched by it to date. Extending that to contracts, evidence, land-assets, driving licenses, passports, visas etc. and indeed money itself, in an all-encompassing comprehensive manner is the objective of the DW.

Without virtualisation, the two other aspects outlined below would be impossible.

B Ubiquity of Access

The Digital World envisages that the limitations of time (e.g., working hours for banks) and place (e.g., physical ATM or bank branch) should no longer apply. Instead all transactions are allowed to occur electronically via one or more computing devices, mobile phones or IOT devices. This creates, when done successfully, an anytime-anywhere environment for all economic activity. Whether it is banking, border crossing, ecommerce, hospital admission or any activity requiring validation of identity and access, in the DW, the environment is set up to facilitate rather than block such activity.

C. Low Thresholds for Participation

The final characteristic of the Digital World is its use of low thresholds to enable mass participation. For example, a user simply needs to obtain an email address, use their registered mobile phone or similar method for unique identification in order to participate in the DW. Obtaining an email address requires only minimal information such as self-created handle (checked for availability and non-duplication) and a self-created password. The Central Government’s JAN trio programme similarly requires minimal information and minimal (zero) money balance for account opening.

2. Benefits

A. Disintermediation

By virtualisation and direct interconnectivity among participants, intermediaries (with their cost and complications) become largely unnecessary. By connecting travellers and airlines, travel-agents become unnecessary for reservations and ticketing. By connecting buyers and suppliers, ecommerce and digital banking can make both stores and cash unnecessary.

B. Innovation

Services businesses have already demonstrated significant innovation enabled by the underlying drivers of the Digital World, including democratisation of the commerce-in-goods business.

- Peer-to-peer lending by individuals (in small amounts) to other individuals, adding up to adequately large amounts (e.g. Lendingclub).
- Crowd-funding of startup businesses (e.g. Kickstarter) by individuals in similar small bites.

- Out-of-town payment services (e.g. MPesa) and small payments by mobile phone based applications (e.g. Paypal and PayTM)
- And many more....

C. Governance Simplification

The disintermediation advantage described earlier can be a powerful tool for governance. The hitherto common middleman who facilitated obtaining permits, payments etc. can be eliminated by direct connectivity of citizens and government computers for citizen services such as for marriage certificates, death certificates, tax registration, tax payments etc.

3. Risks and Challenges

The Digital World is not inherently risky; rather the risks arise from the business model chosen to implement connectivity and access. For example, the physical risk to passengers using on-demand transportation services such as Uber, Ola or Meru arises from the large number of private car owners becoming drivers in the scheme and some drivers only participating on a sporadic basis, such as during surge pricing times. Surge pricing is designed as much to benefit from supply-demand mismatches financially as to increase supply of service providers in response to the incentives presented by the mismatch. Naturally, relatively little is known about these Johnny-come-lately drivers' behaviour or character, notwithstanding a crowd-sourced rating system.

In the case of payment systems, risks arise from the virtual nature of money transfers and the reliability of operators. "A prominent mobile operator who might own a payments bank could easily create accounts in the latter to which money transfers are redirected from mobile-linked bank accounts without the owner's knowledge or permission". Moreover, with identities unverified, traceability, in the event of default or in a series of related transactions of forensic interest is a problem. Absence of physical records may hinder recovery or prosecution if the judicial system is not a participant in the DW.

In the case of e-commerce, the convenience of cash on delivery (COD) payments engenders the risk of non-acceptance of delivery - a risk for merchants; in contrast, prepayment engenders the risk of delivery of bricks instead of mobile phones – a risk for the consumer. Both instances cited are real and have occurred in recent history.

All the above risks and all others get magnified manifold by the comprehensiveness of participation of all persons as economic actors. Any-to-any interactions are possible and indeed even encouraged (certainly by the creators of every App). The usual protections and risk-mitigation mechanisms such as credit ratings or credit checks before authorisation for participation (e.g. credit card issuance, insurance policy underwriting etc.) are either absent or harder to implement in a credible manner. Ubiquity creates an anytime-anywhere universe of transactions that provides little of the physical protections of a cashier's bullet-proof enclosure, or locked bank safe/vaults.

The Internet of Things (IOT) creates other risks, outlined by Bruce Schneider³ in his new book, "Click Here to Kill Everybody", in which he warns about the rapidly evolving "one big connected system of devices".

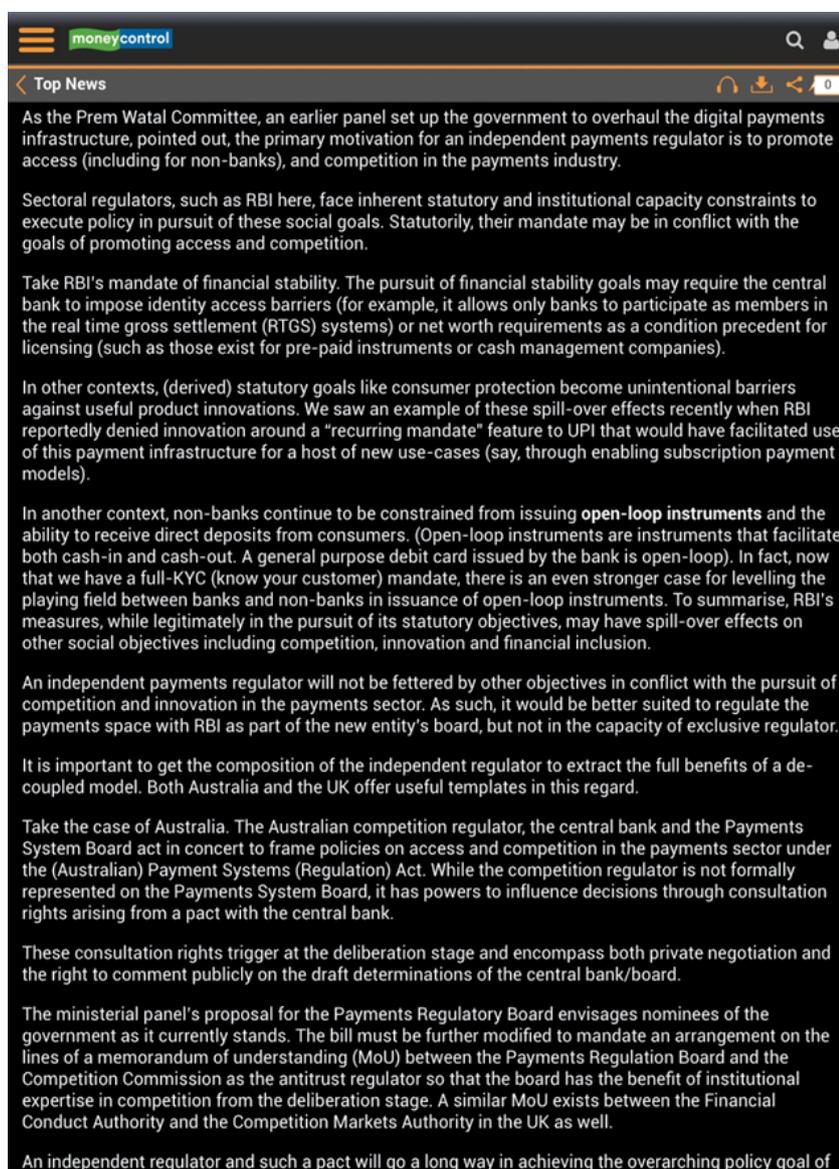
One important difference between the Internet we are used to and the Internet of the future is that computers can now directly affect the physical world. They help us drive our cars. They are embedded in our bodies in the form of heart monitors and defibrillators. They turn our heating and air conditioning on. They fly drones and control power plants. *Today we can be physically harmed by computers in ways that just were not possible before.* And that threat will increase as even more computers get physical capabilities. B.S. Schneider

³Mr Schneider, is a fellow at the Berkman Klein Center for Internet & Society at Harvard University; a Lecturer in Public Policy at the Harvard Kennedy School; a board member of the Electronic Frontier Foundation, AccessNow, and the Tor Project; an Advisory Board Member of the Electronic Privacy Information Center and VerifiedVoting.org; and a special advisor to IBM Security and the Chief Technology Officer at IBM Resilient.

One major societal risk is the conflict between regulation and innovation. It always exists in a pervasive or widespread and ubiquitous service. This is true of transportation and payment systems already, as explained below.

In the case of transportation, the on-demand model of Uber and its ilk ran into conflicts with the regulated taxi industry in many global cities, notably New York, London and Paris. In many cases, this was settled by limits on the number of vehicles. In others, it was resolved by regulations on driver qualifications or backgrounds. Consumer safety is an outstanding issue and will see competition between innovators and regulators to devise solutions.

In the case of payment systems, a similar conflict has presented itself between online wallets and debit cards. This too tends to get resolved, if at all, by quantitative restrictions or regulatory interventions of some kind such as 2-factor authentication that includes one-time-passwords or full blown-KYC (Know Your Customer) requirements. In the US, small value payments require no authentication (e.g. fuel purchase at a gas station) so the regulatory concern gets overlooked in the interests of velocity of business. The consumer liability limit of \$50 under statutory protection plays a large role in calming consumer fears of misuse in this choice of regulation. Sometimes the conflict gets “resolved” by regulatory capture! In the case of payment systems, there is even competition between bureaucrats! Given alongside is some flavour of that:



One hopes such competition to regulate results in the greater good.

4. Transition: Translating the Dream Into a Reality

Vision without execution is a hallucination - Thomas Edison
Vision with action can change the world - Joel A. Barker

This is best illustrated in India by the “garibi hatao” dream of the political powers in Delhi which remained a hallucination for five decades – a similar dream by the Chinese was turned into a transformed world in two decades.

Action towards transforming the dream into a Digital World involves:

A. Convergence and Omnichannel Architectures

Transition to a Digital World will require business organisations whether they deal in goods or services to develop “omnichannel” architectures. This is the unity and integrity of deliverables regardless of mode of access and delivery. In the case of commerce, for example, the same end result should be available whether at a physical store or on the internet; and whether directly or by referral (clickthrough) or a mix thereof. In the case of banking, a transaction should be possible to be carried out at a branch, via internet banking, or by physical or virtual cards at ATMs and retail point-of-sale devices.

B. Robust Infrastructure to Parallel the Physical One- “Too Big to Fail” is a Reality

Ubiquity is still far from achieved currently. Only an estimated 200 million Indians have some form of broadband access. Around 80% of mobile phones are feature phones with no smarts. Bureaucracies are uncomfortable without paper records. The list of areas of shortfall in the ubiquity objectives is long.

This calls for strong implementation mechanisms and a sense of urgency. It also requires robustness to ensure dependability of the data infrastructure that, at the very least, matches the dependability of the physical infrastructure which the masses can see and experience, and possibly even exceeds that so that its benefits are available even where the physical infrastructure is not (e.g. telemedicine advice in remote villages). As an exemplar, Tibetan-Chinese internet communications access is available right on top of Mount Everest⁴!

At the very least⁵, availability of 4G service nationwide along with easy availability of gigabit fibre connectivity in urban areas are clear targets for 2025. The rapid build-out of 5G connectivity nationwide as global operational experience and standards develop are the stretch goals for 2025.

Establishing identity in a ubiquitous “all persons participating” environment is a major problem. Aadhar, according to the UIDAI, only confirms that in their database there exists an association between a (full set of) biometrics and an Aadhar number; any of the demographic details such as name, address, age, sex etc. are merely as provided by secondary evidence such as PAN cards or voter cards at the time of registration and so only as reliable as that secondary evidence. This implies that any fraud or mischief in the latter reflects in the UIDAI database too. The principal weak link in all such evidence is the collection of agents doing the registration and any corruption, malice or incompetence is mimicked in all such data.

Accordingly, establishing the credibility of a truly Universal ID system is a high priority task for the transition. The same problem arises for juridical persons as the recent splash of news stories on fake loans and defunct companies illustrates. More on this later.

⁴ EVEREST 2018 -REPORT FROM THE SUMMIT POSTED ON MAY 22, 2018

Hello everyone, reported that the entire team is standing on the summit of Everest As Ben mentioned it was a great summit day, not too many peoples, sunny and no wind. Team starting to summit from 6:27 till 7:28 they are going to take photos and start to descend to South Col soon.

⁵ Broadband in the USA is defined as: The FCC retains the existing speed benchmark of 25 Mbps download/3 Mbps upload (25 Mbps/3 Mbps) for fixed services and examines the deployment of mobile services with minimum advertised speeds of 5 Mbps/1 Mbps, and those with a median speed of 10 Mbps/3 Mbps or higher. Feb 2, 2018.

C. Trust, Dependability, Crash Resistance – SLAs

These are implicit in an all-encompassing always-on economic environment. A digital payments system that fails rapidly destroys faith in digital payments. Similarly for other facilities, always-on is presumed and not a bonus. This demands very high levels of Service Level Agreements (SLAs) with vendors and subcontractors providing such connectivity – service levels relating to both geographical and temporal coverage, as well as responsiveness are crucial.

D. Regulation without Stifling Innovation

Regulation rapidly runs into a debate on two models of regulation: Regulation by Principles and Regulation by Prescription(s) or Directives. The former facilitates innovation, the latter is easier to implement. In India, the latter is more common. Since execution is 80% of strategy, a blend has to evolve. As an example, consider Competition regulation.

In Competition regulation, there is the issue of predatory pricing. The usual presumption is that incumbents build walls around themselves which are hard for insurgents to climb over or breakdown⁶.

Predatory pricing then is an anti-competitive ploy that the successful incumbent can use to keep insurgents from maintaining their siege before they run out of men and material. In the real world this may have worked well. In a digital world, the insurgent now has deep pockets or a rich uncle (Uber, Flipkart, Tesla) and if he cannot win by strength of technology, he can use predatory pricing to win away customer volumes that are so key to his business model which depends critically on the network effect. Only principles based regulation can recognise this and adapt to this situation and then counteract such predatory pricing.

Directions for evolution of regulation of Fintech, Regtech, Insurtech etc. are still being explored as this report indicates:

Traditional banking-sector participants are witnessing an emergence of marketplace lenders (MPLs) that is profoundly changing the way individuals and businesses within the financial community interact. An estimated \$4.7 trillion in financial services revenue is at risk of being displaced by FinTech. This has made regulators increasingly aware that appropriate reform is needed, given MPLs' positioning in the financial services market, as well as their evolving business models and increasing institutional support.

Policy-makers are attempting to develop a regulatory framework for MPLs that encourages growth and innovation, while balancing the need for addressing systemic risk and safeguarding consumers. The applicability of current regulations, and the language of those forthcoming, need to be clear and transparent so FinTech firms can appropriately navigate their industry's ever-changing environment. Failure to do so will have a dramatic impact on MPLs' potential to improve the world economy as a whole. Furthermore, the regulatory architecture must remain dynamic to handle the innovation coming from MPLs and the fast pace at which they move and evolve.

This publication highlights the major differences in the current regulatory frameworks between China, the UK and the US with respect to MPLs. In particular, it focuses on the differences regarding investor protection and securities laws; clearing, settlement and segregation of client money; risk retention and capital requirements; secondary servicer requirements; tax incentives; promotion of SME lending; credit analysis and underwriting; data protection; regulatory reporting; registration and licensing; debt collection; and interest rate regulation. It then examines and assesses the concerns

⁶Berkshire Hathway chairman Warren Buffet says his principle is: "The most important thing [is] trying to find a business with a wide and long-lasting moat around it... protecting a terrific economic castle with an honest lord in charge of the castle," he said. Warren Buffett believes **the "most important" factor to pick a successful investment is judging the durability of a company's competitive advantage or so-called "moat."** – Source CNBC

that these differences raise for MPLs. We hope policy-makers will work together to create a standardized and accommodative framework for FinTech’s growth and innovation. (World Economic Forum Report “The Complex Regulatory Landscape for FinTech”).

E. Legal Support

The combinatorial explosion of interactions demands a matching response in error-proofing, error-mitigating (hence loss-mitigating and liability-mitigating) instruments. The problem is aggravated in the transition by the distinct nature of the physical interaction and the digital one. In a sense this can be seen already today in the ATM interaction - an interaction between the physical world of cash and the digital world of virtual banks. How is an identity fraud detected and rectified? Who bears liability? Is the standard Indian bank excuse when the captured image is not of the account holder that “the owner could have shared the password with an agent or office worker to get the cash on his behalf” challengeable? Today’s incidence rate of such fraud will grow combinatorially with comprehensiveness of coverage such as by the Jan Dhan programme and the JAM trinity of measures.

This urgently calls for legislative and regulatory measures apportioning or capping/limiting liabilities of the actors⁷ and providing for coverage of the risk by suitable insurance-like instruments.

<p>15 U.S. Code § 1643 - Liability of holder of credit card</p> <p>US Code</p> <p>Notes</p> <p>Authorities (CFR)</p> <p>prev next</p> <p>(a) Limits on liability</p> <p>(1) A cardholder shall be liable for the unauthorized use of a credit card only if—</p> <p>(A) the card is an accepted credit card;</p> <p>(B) the liability is not in excess of \$50;</p> <p>(C) the card issuer gives adequate notice to the cardholder of the potential liability;</p> <p>(D) the card issuer has provided the cardholder with a description of a means by which the card issuer may be notified of loss or theft of the card, which description may be provided on the face or reverse side of the statement required by section 1637(b) of this title or on a separate notice accompanying such statement;</p> <p>(E) the unauthorized use occurs before the card issuer has been notified that an unauthorized use of the credit card has occurred or may occur as the result of loss, theft, or otherwise; and</p> <p>(F) the card issuer has provided a method whereby the user of such card can be identified as the person authorized to use it.</p> <p>(2) For purposes of this section, a card issuer has been notified when such steps as may be reasonably required in the ordinary course of business to provide the card issuer with the pertinent information have been taken, whether or not any particular officer, employee, or agent of the card issuer does in fact receive such information.</p> <p>(b) Burden of proof</p> <p>In any action by a card issuer to enforce liability for the use of a credit card, the burden of proof is upon the card issuer to show that the use was authorized or, if the use was unauthorized, then the burden of proof is upon the card issuer to show that the conditions of liability for the unauthorized use of a credit card, as set forth in subsection (a), have been met.</p> <p>(c) Liability imposed by other laws or by agreement with issuer Nothing in this section imposes liability upon a cardholder for the unauthorized use of a credit card in excess of his liability for such use under other applicable law or under any agreement with the card issuer.</p> <p>(d) Exclusiveness of liability</p> <p>Except as provided in this section, a cardholder incurs no liability from the unauthorized use of a credit card.</p> <p>(Pub. L. 90–321, title I, §?133, as added Pub. L. 91–508, title V, §?502(a), Oct. 26, 1970, 84 Stat. 1126; amended Pub. L. 96–221, title VI, §?617, Mar. 31, 1980, 94 Stat. 182.),</p>

An example of such a measure which applies to online use too is shown in the text box alongside. An extension of this measure, which gets into the Principles versus Prescriptions debate on regulations, may be requiring an additional factor authorisation before a large transaction can be considered authorised for payment by the ATM/Debit/credit card issuer.

i) Data Protection

Once universality of coverage is targeted and as it is achieved, trillions of data points are generated by the combinatorial power of billions of citizens with billions of goods and services as well as views and opinions. This “Data is the new Oil”⁸ as Humby

⁷US Federal law limits consumers’ liability for credit card fraud to \$50 According to the Federal Fair Credit Billing Act: If your credit card - the physical card - is stolen and used by a crook, your issuer can hold you responsible for up to \$50 in fraudulent charges. Oct 30, 2017.

said. Its value, both statistically (for insights) and qualitatively (e.g. for surveillance or marketing) is priceless. Accordingly its preservation and control of access become inevitable.

Laws and regulations regarding preservation and access are still evolving. The European General Data Protection Regulation (GDPR)⁹ is one such effort. The Justice Sri Krishna committee report is triggering a similar effort in India.

Tension between the gatherers of data who wish to use and disseminate it for gain and the providers/generators of the data who wish to control access to their own data will continue. The judiciary, meanwhile, will keep applying the principle of “proportionality” in its attempt at fairness.

Metadata i.e., the mere existence of relationships (but not the details of the participants) and their structure, as well as anonymisation will be powerful tools for resolution of this tension. The medical fraternity already has major research efforts underway towards personalised medicine based on analysis of both metadata (e.g. gene variant correlation with phenotypes) and anonymisation (say of longitudinal data i.e., observations of the same individuals over long periods of time).

Jurisprudence, rather than legislation, is most likely to drive the evolution of legislation. The recent Aadhar judgment by the Supreme Court and its dissection with analysis by a legal commentator¹⁰ is representative of this driving force.

ii) Evidence Act

As issues of liability will inevitably arise in such a massively combinatorial Digital World, the nature of evidence and standards of evidence too will have to evolve. Authenticity standards will have to evolve. Irrefutability principles will have to evolve. Standards for classification, e. g. for class action suits, will have to evolve and so on.

The willingness of the judiciary to cast a wide net for learning globally, to disseminate it within the community¹¹ and the development of legal education to remain up-to-date will be critical.

iii) Identity Protection and Theft

Identity establishment and verification are critical and yet remain a challenge even for technology: whether by biometrics (thumbprints) and image recognition (Apple Face ID), voice recognition (Amazon Alexa), puzzles, or artificial intelligence. False positives and false negatives both affect credibility of the mechanism in operation. Identity theft, proxies and stored data (e.g. fingerprints) bring up misidentification error probability. New solutions engender new challenges.

This is an evolutionary field and acceptance of “the cost of doing business” by service providers both of the technology costs and the liabilities of mistakes will be critical. A UIDAI type of stand that “we are never wrong” would be counterproductive.

⁸Clive Humby, UK Mathematician and architect of Tesco’s Clubcard, 2006 (widely credited as the first to coin the phrase): “Data is the new oil. It’s valuable, but if unrefined it cannot really be used.

⁹The General Data Protection Regulation (EU) 2016/679 (“GDPR”) is a regulation in EU law on data protection and privacy for all individuals within the European Union (EU) and the European Economic Area (EEA). It also addresses the export of personal data outside the EU and EEA areas. The GDPR aims primarily to give control to individuals over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU.[1]

¹⁰The Aadhaar Judgment and the Constitution - I: Doctrinal Inconsistencies and a Constitutionalism of Convenience - Indian Constitutional Law and Philosophy by Gautam Bhatia@gautambhati88.

¹¹Such as through the Maharashtra Judicial Academy.

<p>18 U.S. Code § 1028 - Fraud and related activity in connection with identification documents, authentication features, and information</p> <p>US Code</p> <p>Notes</p> <p>prev next</p> <p>(a) Whoever, in a circumstance described in subsection (c) of this section—</p> <p>(1) knowingly and without lawful authority produces an identification document, authentication feature, or a false identification document;</p> <p>(2) knowingly transfers an identification document, authentication feature, or a false identification document knowing that such document or feature was stolen or produced without lawful authority;</p> <p>(3) knowingly possesses with intent to use unlawfully or transfer unlawfully five or more identification documents (other than those issued lawfully for the use of the possessor), authentication features, or false identification documents;</p> <p>(4) knowingly possesses an identification document (other than one issued lawfully for the use of the possessor), authentication feature, or a false identification document, with the intent such document or feature be used to defraud the United States;</p> <p>(5) knowingly produces, transfers, or possesses a document-making implement or authentication feature with the intent such document-making implement or authentication feature will be used in the production of a false identification document or another document-making implement or authentication feature which will be so used;</p> <p>(6) knowingly possesses an identification document or authentication feature that is or appears to be an identification document or authentication feature of the United States or a sponsoring entity of an event designated as a special event of national significance which is stolen or produced without lawful authority knowing that such document or feature was stolen or produced without such authority;</p> <p>(7) knowingly transfers, possesses, or uses, without lawful authority, a means of identification of another person with the intent to commit, or to aid or abet, or in connection with, any unlawful activity that constitutes a violation of Federal law, or that constitutes a felony under any applicable State or local law; or</p> <p>(8) knowingly traffics in false or actual authentication features for use in false identification documents, document-making implements, or means of identification; shall be punished as provided in subsection (b) of this section.</p> <p>Source: Wikipedia</p>
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F. Business Strategy

Apart from multi-channel architectures, business organisations will have to develop a whole Digital Strategy involving all facets of business, such as sales, marketing, supply chains, post warranty support, customer complaint handling, financing etc. and their impact on profitability as well as growth. Digital Strategy for business is a topic that requires its own focus and is best left for another day and time.

It is nevertheless critical.

CONCLUSIONS:

The realisation of the Digital Vision requires a clear enunciation of the deliverables and good implementation. The devil is always in the details.

A dependable and adequate digital infrastructure that truly covers the entire country is a critical requirement. A dependable identity mechanism that withstands technological and process failure is another. In this regard the record of Aadhar is un-established to date. A fail-safe transaction platform that supports genuine transactions to the benefit of all participants in a transaction and prevents dubious ones is a third.

Consumer protection mechanisms that are technologically up to date and backed by legislative and effective regulatory support, is another critical requirement. A legislative environment that is in keeping with the times is yet another.

A well managed transition from the current to this digital world will indeed be a grand paradigm shift for India that will accelerate the velocity of economic activity!

REVIVING MANUFACTURING SECTOR: NEED FOR GOVERNMENT INVESTMENT AND SUPPORT FOR MSMEs

Dr. R NAGARAJ

- Manufacturing having attained 18% GDP in 2017-2018, has led to complacency among India's policy makers. However the IIP spells otherwise. Also, rising imports presents a case for greater fixed investment.
- As part of the mid-term review of the Foreign Trade Policy 2015-20, the GoI has raised export incentives to labour intensive MSMEs by 2%.
- Stepping up state support for MSMEs, raising fixed investment and thrusting the "Make in India" drive for India itself will surely be useful for 2025.

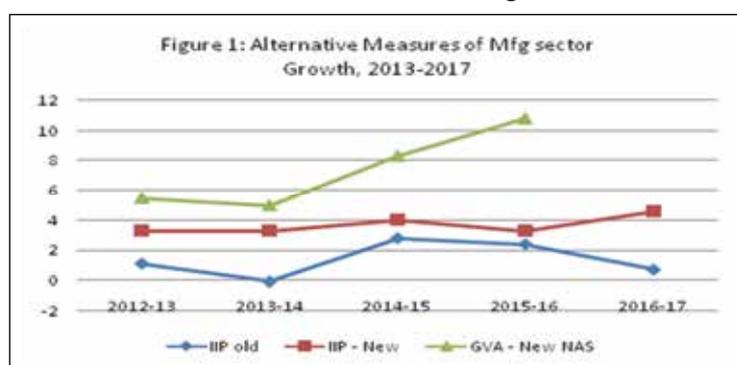
AN OVERVIEW:

Undeniably, industrial growth has slowed down during the last four years, whichever data series one looks at. There is no dispute about the slowing down of exports. An increase in the ratio of trade deficit to gross domestic product (GDP) is a matter of concern, as Mr. Rajiv Kumar, vice chairman of National Institution for Transforming India (NITI Aayog) cautioned recently. We believe the need of the hour is an industrial revival in order to stem import growth. There is need for greater public infrastructure investment to ease critical supply constraints and create demand for domestic industry. Micro, Small & Medium Enterprises (MSMEs) need better access to bank credit and strategic policy interventions to support labour-intensive industries.

ANALYSIS & DISCUSSIONS:

In accordance with the Indian system of National Accounts, the manufacturing sector has accounted for 18 percent of the country's GDP in 2017-18, employing probably about 11-12 per cent of the workforce. It is observed that there is complacency among policy makers about a gradual improvement in industrial output growth since 2011-14. However, a similar view is not borne out by the other indicators of industrial production (exhibits 1 and 2).

Exhibit 1: Alternative Measures of Manufacturing Sector Growth 2013-2017:



Source: RBI's Handbook of Statistics on Indian Economy

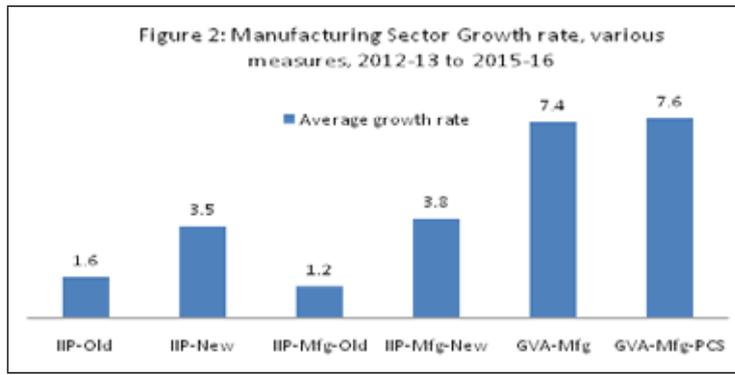
Legend:

IIP - old, Index of Industrial Production-total (old series):

IIP - New, Index of Industrial Production-total (new series):

GVA - New NAS, Gross Value added at constant prices (new series of National Account Statistics).

Exhibit 2: Manufacturing Sector Growth Rate – Various Measures, 2012-13 to 2015-16 :



Source: RBI's Handbook of Statistics on Indian Economy

Legend:

IIP - Old, Index of Industrial Production-total - old series;

IIP - New, Index of industrial production-total - new series;

IIP - Mfg-Old, Index of industrial production-manufacturing - old series;

IIP - Mfg-New, Index of industrial production-manufacturing-new series;

GVA - Mfg, Gross value added at constant prices in total manufacturing;

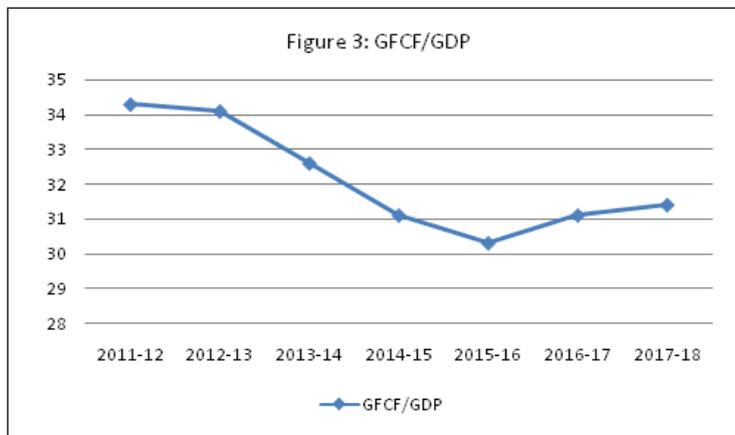
GVA - Mfg - PCS, Gross value added at constant prices in manufacturing in private corporate sector.

PRESENT SCENARIO

The policy shocks of demonetisation as well as the hasty introduction of Goods and Services Tax (GST) appear to have adversely affected industrial production in the unorganised sector; however, these events are inadequately captured in the official statistics. My field visits to about eight industrial centres across the country during March-May this year confirmed several of my hunches. Relatively, though, the bigger enterprises and the better-educated businessmen appear to have withstood the shocks better; most others have not. This is a controversial issue, so I would leave it at that.

Another measure of the economy's poor performance is decelerating ratio of fixed investment to GDP, which has fallen from 34.3 percent in 2011-12 to 31.4 per cent in 2017-18 (exhibit 3 below). Although there is a slight uptick during the last two years, the count is too meagre. To give a perspective, the fixed investment ratio was 37-38 percent of GDP in 2007-08, during the economic boom a decade ago, when manufacturing clocked an annual growth rate of 8-9% according to the older GDP series.

Exhibit 3: Gross Fixed Capital Formation (GFCF)/ GDP

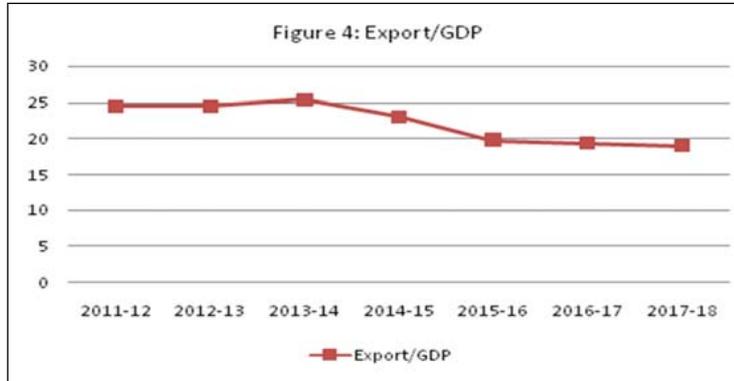


Source: National Accounts Statistics, Various Issues

Legend: Gross Fixed Capital Formation to GDP Ratio

An additional measure of economic performance is the Export/GDP ratio, which has also decelerated (exhibit 4 below). As manufactured products account for a significant share of exports, weak performance of the manufacturing segment has also adversely affected this ratio. We know that the trade deficit ratio has also mounted, implying that rising domestic consumption expenditure is being increasingly met by imports.

Exhibit 4: Export/GDP :



Source: National Accounts Statistics, Various Issues.

Legend: India's Exports to GDP Ratio

CONCLUSIONS:

Signals from Global Economy and Polity

We are effectively in a trade war like situation with the President of the USA, Mr. Donald Trump's unilateral actions. The US president is currently undoing the architecture of global trade built up since the end of the Cold War. It is in this context that one should consider what India's industrialisation policies should be, particularly for labour-intensive manufacturing. We hence make certain recommendations that will get India into the digital circa 2025:

- Avoid any knee-jerk reaction and respond to global threats in a calibrated manner.
- Consider a medium to long-term strategy to step up domestic investment to promote re-industrialisation.
- MSMEs need special attention, as they seem to have been frozen in time in terms of government's attention since the liberal reforms were initiated.
- My recent field visits suggest that MSMEs are not disinclined toward import competition, especially from China. What they look forward to from the Indian government is the kind of state support China offers.
- My field work has shown that wherever there has been systematic state support, whether Morbi in Gujarat, or Tirupur in Tamil Nadu, MSMEs have done well.

In sum, there is need for strategic thinking to step up investment to re-industrialise this sector, and within this, support from the state is needed for specific industries and locations. We will have to, per se, think of "Make in India" largely for India. This in itself will likely be a substantial opportunity given the high level of import to GDP ratio.

- The singular focus on subsidies, unlike in other emerging economies, has led to stark market inefficiency in India. This scenario must change for farmer betterment.
- The launch of eNAM (for online trade), a revamped crop insurance scheme in 2016, a new agri marketing Act in 2017 and finalising a Model Contract Farming Act in 2018 are key government initiatives that will thrust the agri-sector's journey ahead.
- Key tools needed to kick-start India's agri journey to 2025 – increased public investment to create an enabling scenario, a policy environment that induces private investment in farming, keen participation of private sector in the entire value chain from farm inputs supply to farm products export. Successful implementation of the stated recommendations will likely achieve doubling of farm income by 2022!

AN OVERVIEW:

Indian farmers have collectively produced 5x the quantity of foodgrain over the last six decades; horticultural output too has increased by 3x in the last 26 years. We note foodgrain and horticulture output has achieved a record 283MT and 314MT respectively for FY19.

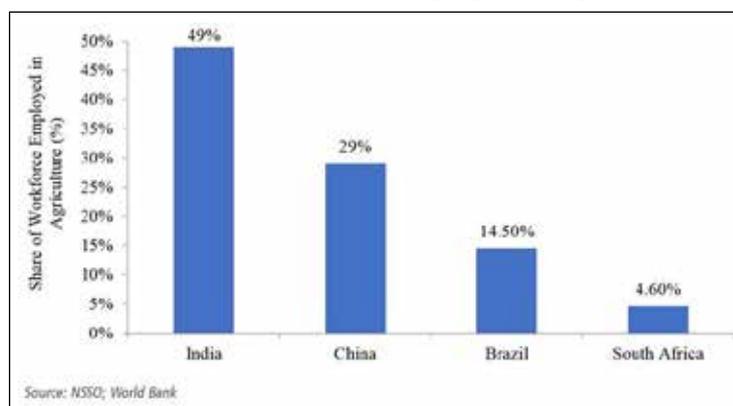
ANALYSIS & DISCUSSIONS:

Sustainable growth of any sector depends on the ability of the sector to generate income that can be reinvested. In terms of gross capital formation (GCF), investment in agriculture as a percentage of GDP in agriculture and allied services decreased from 18% in FY12 to 14% in FY18. However, the government's share in total GCF increased from 14% in FY12 to 19% in FY17 (National Accounts Statistics, 2018). The government has been injecting funds through numerous schemes introduced in its Five Year Plans. However, a large section of public spending has been mostly in the form of subsidies and only partly in agricultural related R&D.

India's Subsidy Culture: The singular focus on subsidies has resulted in tremendous wasteful expenditure and has not led to reaping any benefit to the sector. Input subsidies i.e. government-

sponsored subsidies to farmers for fertilisers, irrigation, electricity and food – are the most expensive aspect of India's agricultural policies. India has witnessed a high subsidy budget over time. This has resulted in our agriculture sector being more dependent on input subsidies when compared with other large emerging economies as seen in exhibit 5 below:

Exhibit 5: Share of Workforce Employed in Agriculture (%)



Source: World Bank; National Sample Survey Office

Developing economies such as Brazil and China have made a conscious move away from subsidies realising them to be one-sided transactions that do not provide long-term benefits of real development. In India, of the total planned revenue expenditure, 35% is spent on subsidies whilst a mere 9% is earmarked for capital investment (Union Budget, 2018). This improper and low utilisation of allocated funds has been resulting in superior market inefficiency.

For any investment to have a positive impact on production, productivity and real income, it must contribute to capital formation at the farm level. In this respect, the investments made by farmers themselves are indispensable. Public investment in agriculture should create the enabling environment that helps farmers re-invest in their land. Most developed countries spend a significant share of the agriculture investment on essential public goods, such as rural infrastructure, including roads and electricity.

Role of Private Investment

Government policies that allow:

- farmers access to seeds,
- the private sector to set up businesses that deliver supplies to farmers, and
- markets and trade environments to function for farmers,

are critical inputs to equip farmers to be able to produce more and re-invest in agriculture. Agricultural investment entails a large component of public good and this nature of investment has an 'inducement' effect on private investment – both at the farm household level and the corporate sector.

For any improvement in farm income, India's private corporate investment in agriculture should at least double from the current level of investment (Chand, 2018) [1]. Private sector investments in India along value chains are opening up new market opportunities for farmers. However, the declining share of private investment in agriculture is discouraging. Increased participation of the private sector is required across value chains – these include a wide range of small and large scale activities that encompass supplying farm inputs, processing, storing, distributing, wholesaling, retailing and exporting farm products.

To promote private sector participation, the government has allowed 100 per cent foreign direct investment (FDI) in several segments of the agriculture sector.[2] These include fertilisers, agricultural machinery, horticulture, development of seeds, animal husbandry, pisciculture and the cultivation of fruits and vegetables. Drawing these private sector investments is expected to greatly benefit Indian farmers, as a majority of them engage in small scale businesses and struggle to attain profitability. These investments can be used to propagate agricultural R&D, develop technologies for energy saving, and protect the environment, which could help increase yield. However, there is a need to strengthen government policies to encourage private investment in agriculture. Stringent regulations, high risk in agriculture, administrative procedures and delays have often discouraged private investment.

The significance of capital formation in agriculture for growth is evident from the fact that investment in machinery and equipment enables the farm workers to work on larger tracts of land and make use of other forms of capital, such as livestock. The investment in machinery and equipment augments labour and renders it more productive. Further, the concept of investment to augment productive capacity of agriculture entails not merely investment in physical assets, but investment in human capital, science and technology, social capital build-up and in infrastructure. Private investment in agro-industries complement farm-level investment but such capital cannot substitute for the investments that need to be made by the farmers themselves.

Promoting Farm Level Investment

First and foremost, the prerequisite for promoting farm level investment is stability in income. However, the challenges and risks involved in agricultural income are manifold. With small and marginal farmers constituting a majority (~80% [3]) in the agriculture sector in India, realising economies of scale at an individual level is a challenge. Farm mechanisation – an essential input to reduce cost and increase yield is increasingly becoming uneconomical with continued reduction in average farm size. Accessing key farm inputs and supplying to the market as a collective could potentially lower the input costs for farmers and lead to greater realised revenues. By innovative sharing of the cost of machinery, the cost required to be invested by farm holders can be made affordable.

Custom hiring models and tying up with local original equipment makers is one of the ways to reach out to the small farms. Some examples of initiatives taken by private investors in custom hiring are given below:

Exhibit 6: Private Investor Initiatives in Custom Hiring

Company/ Parameters	Geography of Operations	Operational Model
Mahindra & Mahindra	Pan India	Franchisee based model
TAFE (Tractor & Farm Equipment)	Tamil Nadu	Experimenting with various options
Zamindara Farm Solutions Pvt Ltd.	Punjab & Haryana	Library and radio taxi
Olam India	Madhya Pradesh	Tie ups with agri- service providers
ISAP	Karnataka & Rajasthan	Rental tie ups with FPOs
John Deere	Madhya Pradesh	Tie ups with FPOs
EM3 Agri services	Pan India	Pay-for-use models
Tata Trust	Madhya Pradesh	Tie ups with EM3, FPOs
Yanmar Coromandel	Tamil Nadu & Andhra Pradesh	Rental models through outlets

Source: Company Data, Media

Farmers' Readiness to Risk

An important criterion to ensure stability in income is a farmer's readiness to risk. Monitoring of the sowing progress, crop condition is the necessary premise for farm based decision making in a situation of shortage or surplus. As precision farming or smart agriculture is gaining prominence in India, global majors are adopting innovative solutions and customised models to help small and marginal farmers whose investment capacity is limited. It uses information technology or other technological innovations such as GPS, GNSS global navigation satellite systems, even drones to accurately predict what ingredients crops and soil need for optimum productivity.

Several models using satellite data have been devised by researchers to monitor crop growing progress. A high time frequency meteorological satellite can gather information about the terrestrial process daily, making it possible to monitor the crop continuously and dynamically (Fang & Meng ji Hua, 2008) [4]. Development of remote sensing technology and the use of remote sensing data make it possible to apply crop growing models in large scale areas. The Government of India has recently announced a new drone policy that permits use of unmanned aerial vehicles (UAV) with a few rules and regulations. These regulations have been put in place as of December 2018. This is good news for the agriculture sector because drone technology is a potent solution for crop monitoring and crop insurance. However, the application of these models would require location specific agro parameters and observed field data.

Liberalising Agriculture

The fact remains that agriculture is still in the clutches of highly restrictive laws which have inhibited it from developing into an efficient market place for agricultural produce. This is an area where the Central government can continue to play the lead role. There exists a maze of laws especially the Essential Commodities Act, the Land Ceiling Act, the APMC Act and the Foreign Trade Act, 1995, which enable arbitrary imposition of restrictions on exports, minimum export prices, and unfair imports.

The sugar production sector is a case in point. It is probably the most complex and under-reformed sector of the agricultural economy. The Central and state governments have poured subsidies and resources into the sector and India has a problem of chronic overproduction. India is likely to produce over 35 million tonnes this financial year, which is 40% more than what is required for domestic consumption. There is already a stock of 10 million tonnes of sugar in place. Moreover, government policies misapplied export and import controls in order to “manage” domestic prices of commodities such as sugar, which means that Indian farmers have never been able to effectively enter global supply chains.

The propensity to subsidise farmers translates to subsidy arrears reaching massive proportions particularly in the years of overproduction thereby calling for a “rescue package”. There have been various recommendations including from a committee led by C Rangarajan. But implementation has been lackadaisical.

It is clear that unless agriculture is unshackled and liberalised in general and policies such as the Foreign Trade Act, APMC and ECA in particular, are abolished or reworked completely, both man and nature will continue to conspire against Indian farmers.

Addressing Problems of Scale

The provisional numbers from a latest survey of the 10th agriculture census 2015-16 highlight the challenge of scale. Small and marginal farmers with less than two hectares of land account for 86.2% of all farmers in India, but own just 47.3% of the crop area. In comparison, semi-medium and medium land holding farmers owning between 2-10 hectares of land account for 13.2% of all farmers, but own 43.6% of crop area. Indian farms have become more fragmented between 2010-11 and 2015-16, and land holdings continue to be inequitably distributed. During this period, the proportion of small and marginal farmers grew from 84.9% to 86.2%, whilst the total number of operational holdings grew from 138 million to 146 million. More importantly, the total area under farming, however, fell from 159.6 million hectares in 2010-11 to 157.14 million hectares in 2015-16.

The existence of a large number of small and marginal farmers, close to 126 million, makes it difficult to enable the reach of new technology and farm support schemes.

The Right Set of Initiatives Has Been Announced

- Launch of the electronic national agriculture market or eNAM to facilitate online trade to give more choice of buyers to farmers.
- This was followed by a revamped crop insurance scheme launched in the kharif season of 2016 which promised reduced premiums and higher coverage of risks.
- In April 2017, the centre rolled out a new agricultural marketing Act and urged states to adopt it for making wholesale markets more competitive and transparent.
- In May 2018, the government finalised a Model Contract Farming Act to integrate farmers with bulk purchasers and agro-industries. Thus, promoting cooperative farming, for instance, will allow small and marginal farmers to take the advantage of their family labour. Corporate farming, meanwhile, could allow economies of scale to kick in at lower thresholds.

However, the implementation of the stated measures along with cooperation of the states will signal the difference between success and failure.

Farmer Producer Organisations (FPO)

Organising farmers into formal management practices is an important step to improve market linkages. The initiative of the Government to aggregate farmers into FPOs (cooperatives/SHGs/FIGs/producer company) can help integration into the supply chain and take up roles traditionally done by market intermediaries. The farmer aggregators can help farmers take collective decisions on cultivation, make best use of market intelligence, create opportunities for producers to get involved in value adding decision and activities, such as, input supply, credit, pre-conditioning, processing, marketing and distribution.

The instrument of Farmer Producer Company (FPC), registered under the Companies Act is emerging as effective. FPCs offer a wide range of benefits compared to other formats of aggregation of farmers.

Exhibit 7: Statewise Progress Of FPO Promotion as on 30 September 2018

State	No. of Farmers		No. of FPOs	
	Mobilised	Targeted Farmer	Registered	Under Registration
Andhra Pradesh	6792	7000	7	0
Arunachal Pradesh	1750	2750	2	2
Assam	5647	7500	12	3
Bihar	26186	34000	27	8
Chhattisgarh	29135	29000	26	2
Delhi	3535	3500	4	0
Goa	1810	1750	2	0
Gujarat	19166	20000	20	1
Haryana	12225	12750	23	3
Himachal Pradesh	4887	4850	5	0
Jammu & Kashmir	6814	8061	2	5
Jharkhand	10009	12000	8	2
Karnataka	121218	122500	119	1
Madhya Pradesh	126934	145000	141	3
Maharashtra	88348	99500	91	9
Manipur	5671	6950	4	4
Meghalaya	2990	3750	3	1
Mizoram	1700	2700	1	2
Nagaland	1750	1750	2	0
Odisha	39463	38900	41	0
Punjab	6288	6000	7	0
Rajasthan	49617	50500	40	2
Sikkim	16279	15750	30	0
Tamil Nadu	10945	11000	11	0
Telangana	24548	23998	20	0
Tripura	2874	2750	4	0
Uttarakhand	6004	6000	7	0
Uttar Pradesh	35746	49000	35	15
West Bengal	80317	88500	75	12
Total	748648	817709	769	75

Source: Small Farmers' Agr-Business Consortium

FPCs have performed well in states like Maharashtra, Madhya Pradesh and Kerala and farmers have been able to realise higher returns for their produce. Most of the FPOs remain focused on addressing issues of crop planning, technology infusion, input supply and primary marketing. Given that FPOs have been successful aggregators for meeting farmer's needs, it is important that the roles of FPOs extends further up the value chain, entering into post-harvest management, transport, storage and value-added processing and engage in contract production of primary agricultural produce.

Creating Mechanisms for Responding to Excess Production

Government policy initiatives are an important determinant of farm incomes but they typically get triggered in the event of crop failure and do not adequately address the issue of overproduction and consequent loss in realisations for farmers. Thus, the policy response function for agri must recognise that absence of rain or poor rainfall is not the only driver of stress. Even "normal" or good rains can cause stress as higher output often translates into lower realisations.

Current policies do not adequately address the eventuality of lower realisations arising due to excess output. Typically governments use a combination of MSP increase and higher procurement along with rural infra spend to alleviate farm distress. Even the budget leans heavily on the Market Assurance Scheme, which is a decentralised procurement of MSP-notified crops other than wheat and paddy by states where it shall be the responsibility of the states to handle and dispose of the procured commodity. The Centre will compensate the states for losses, if any, in the process to a maximum of 40 percent of MSP of the procured commodity. However, there is enough documented evidence on the shortcomings of this approach i.e. constraints of FCI, the wastage involved, limitations of state governments and the subsidy burden.

Since it is equally likely that farmer realisations will be hit in times of overproduction, key variables including soil nutrients, environmental factors, progress of monsoons and sowing patterns etc. can be monitored by an expert panel (crop and regionwise) and respective agencies can step in with alternative/ diversified crops, and the required infrastructure if there is a likelihood of excess production. A case in point is the Karnataka government which stepped in last year in the Cauvery command area to make farmers opt for ragi (finger millet) or other millet cultivation over their preference for paddy or sugarcane, as drought loomed. Technology can also be leveraged to do this much more effectively now.

Making Crop Insurance Effective

One of the effective mechanisms to mitigate agricultural risks emanating from weather is the adoption of a robust insurance system. Crop insurance was introduced in India in 1972. However, it always grappled with the problems of lack of transparency, non-payment/delayed payment to farmers etc. Till March 2016, there were three crop insurance schemes operating in India – National Agricultural Insurance Scheme (NAIS), Modified National Agricultural Insurance Scheme (MNAIS), and Weather Based Crop Insurance Scheme (WBCIS). The crop insurance schemes were not very successful – penetration of agricultural insurance was low and stagnant in terms of area insured and farmers covered. In 2016, the GoI launched a new crop insurance scheme, Pradhan Mantri Fasal Bima Yojana (PMFBY). Some of the improved features of the scheme were removal of capping on premium rates leading to higher amount of sum insured, fixing premium rates at 2% in kharif season and 1.5% in rabi season for farmers leading to substantial increase in premium subsidy by the government.

With the introduction of the new schemes, the overall area insured has increased marginally by 6.5%, from 54 million hectares in 2015-16 to 57 million hectares in 2016-17. However, the number of farmers insured has increased significantly by 20% from 48 million in 2015-16 to 57 million farmers in 2016-17. During the same period, the sum insured increased by 74% and premiums paid increased by 298% [5]

However, there has been disappointment among the farmers, insurance agencies etc. on the actual benefits incurred from the scheme. Delay in submission of yield data, payment of premium subsidy to insurance companies and therefore delay in payment to the farmers is causing lot of discomfort. Some of the reasons for this delay are the following:

- (1) **Crop Correction for Claim Settlement:** Farmers declare production of a crop which has low premium but a high claim amount. However, there are instances where in reality, they produce crops that have low input costs. The difference in what they declare and what they actually produce necessitates verification on the ground and calculation of claims. This causes serious delays.
- (2) **Area Correction for Claim Settlement:** Farmers are sowing less and expecting more. In many of the cases where there are delays in claim settlement, the sowing certificate stating the area sown for the period does not match with the sown area declared.
- (3) **Multiple Ownership of Land:** The scheme allows the claim to be settled with one owner per land. But on the ground, the expectation is if there is more than one owner for a land, all the owners will get the payment.

Thus, there are delays in claims payment as insurance companies are not releasing payments without clear documentation which is being overlooked at the time of registration & premium collection.

Widespread use of remote sensing in agriculture, insurance programme with minimum human intervention in order to assess crop damages and expeditious settlement of claims is necessary for smooth functioning of the crop insurance scheme. An increase in awareness among farmers through government agencies, insurance companies and banks is required. Farmers should be informed through an aggressive media campaign about compulsory deduction of premium, amount of sum insured, name of insurance company and the procedure for settlement of claims. Indian Railways Catering and Tourism Corporation (IRCTC) has already shown the way for railway tickets booked online by informing the passengers about the insurance policy through an SMS and email [6].

Premium subsidy programs for crop insurance that started in the USA, China and Kenya have been very successful [7]. The government of China in 2007 led an expansion of insured farm area from 15 million hectares in 2007 to 115 million hectares in 2015. The Kenyan experience is significant due to its efficiency in settlement of claims within 2-4 days. Kilimo Salama (Safe Agriculture) is a weather index based insurance product developed by Syngenta Foundation for Sustainable Agriculture (SFSA) in 2009. They developed an application that uses Safaricom mobile technology, M-pesa, to transfer money for payment of claims. Whenever there is a deviation from normal rainfall resulting in germination failure, the claim amount automatically gets transferred into the accounts of insured farmers [8].

HOW TO CREATE OPTIMUM FARMER INCOMES

Efficient Inputs Usage: Agriculture in India is largely dependent on groundwater irrigation-responsible for 70% of the total production (Fishman et.al, 2015) [9]. However, over extraction of groundwater is depleting aquifers across the country and water table declines are pervasive. The rate of depletion in India is estimated to be highest in the world (Aeschbach-Hertig and Gleeson, 2012). In India the problem is not merely of scarcity but inefficient use of water resources. According to a 2010 report of the UNESCO-IHE Institute of Water Education, the water footprint (the ratio of total volume of water used to the quantity of production) of rice production in India is 2020 M³ a year compared with 970 M³ a year in China and a global average of 1325 M³ a year. This means we use more drop per crop than most other countries, an inverse of our avowed national objective of “more crop per drop” [10].

Several countries have successfully adopted advanced technologies for water conservation and trading. Israel is recognized as the world leader in water technology – with its advanced method of desalination, water recycling, transport, irrigation monitoring and water security. Every year, Israel reclaims 630mm cubic meters of waste water for agricultural purposes, which accounts for 80% of total waste water and is the highest rate of waste water reuse in the world [11]. Australia introduced the concept of water trading in the late 80s, and in 2004, the intergovernmental agreement on a National Water Initiative, facilitated the expansion of water markets across connected valleys and eventually state borders in the Murray-Darling Basin (Fargher. W, National Water Commission)[12]. The basic tenet of Australian Water Trading Market was “Cap and Trade Approach”. “Cap” represents the total

pool of water available for consumption; consistent with sustainable levels of extraction. “Trade” implies change of ownership over time. The price is determined in the market by the value placed on water by many buyers and sellers.

Based on the assessment of water requirement and water availability, accounting for diversification of cropping patterns, a revival or construction of water storage structures would be critical. These storage structures would not only help in assured water availability as rainfall patterns change erratically, they would also reduce the risk of crop loss and loss of livelihood.

Water storage through tanks and overhead structures should be treated as economic assets and the pricing of water for agricultural purposes should account for that.

There are three key objectives to be achieved which together will lead to increased farmer incomes:

- Soil Moisture Security – Minimizing the water gap between demand and availability
- More Crop per Drop – Efficient on-farm water use
- Improved Market Linkages – Ensuring access to, creating and sustaining markets.

Diversifying Sources of Income: One possible measure of increasing farm household income is to generate income from diversified sources. The government’s employment generating schemes, MGNREGA is one such step in this direction. In recent years, migration and remittances have also become a main source of rural household income. Bihar and Jharkhand are examples, where a large section of non-farm income has become an important source of investment in agriculture for the development of family farming and particularly for making the shift from subsistence agriculture to market oriented production.

Diversification of income also implies empowering people to provide employment opportunities. Efforts need to be taken to enhance the proportion of non-farm income in small and marginal farmers’ earnings. Rural construction and industrialisation are important supplementary sources of income.

Adopting State Specific Policies: Agricultural households derive income from varied sources. Large farm households i.e. those owning more than 10 hectares of land depend primarily on cultivation. Small households, with lower sizes of land, derive their income mainly from wages and salaries. The composition of farm and non-farm income varies widely across states. More than 70% of income is derived from the farm business in the states of Madhya Pradesh, Assam, Haryana, Punjab and Uttar Pradesh, whilst lower than 50% of income is derived from the farm business in West Bengal, Kerala and Tamilnadu.

Understandably, the growth path of the states in each source of farm income varies. Chhattisgarh registered highest growth in income from cultivation followed by Haryana, Madhya Pradesh, Andhra Pradesh, Odisha, and Punjab.

High growth in income from cultivation in Chhattisgarh can be partially explained by the high budget allocation on agriculture and allied activities in comparison to other states. However, increase in budget outlay in other states, like Bihar had lower impact. While these measures are cyclical in nature, a more competitive price can be ensured to farmers through agricultural marketing reforms.

The other important sources of farm income growth which directly improve output and reduce cost are an increase in cropping intensity, area under fruits and vegetables and yield of foodgrains. Cropping intensity has improved in most states. Yield of foodgrains and the area under fruit and vegetable cultivation have increased considerably, mainly in MP and Karnataka.

Diversification of household income to other agri-allied activities like livestock and non-farm activities is found to be a significant contributor to farm income growth. In most states, real income from livestock has more than doubled in 10 years. Non-farm sector has the potential to create more productive employment as it contributes nearly 69% of the NDP by engaging merely 39% of the workforce.

Growth of agricultural activity in MP has been remarkable in all the factors of income growth. Growth path of other fast growing states differ – while income from non-farm activities in Andhra Pradesh and Odisha had significant growth, Rajasthan witnessed high growth in income from livestock.

The two relatively more important factors that can impart a positive nudge to growth in income of farmers are - better price realisation and diversification of income. The key premise here is that co-opting of states will be critical to the success of the goal of farm income doubling. The role of an enabling environment by states has been more decisive in attaining tangible goals. A case in point is the stellar growth of agriculture in Madhya Pradesh, where the leadership fixed both supply as well as demand side problems. The states will have to continue to play a meaningful role in next-gen agri reforms (legalising of land leasing, contract farming, repeal of APMC Act, eNAM etc.) and for expansion/modernisation of farm marketing networks.

Market Expansion: Domestic demand has slowed, therefore, it is essential to expand the market to other countries. Openness to trade and integration into global markets is the central element of successful growth strategies. Higher and sustained economic growth is associated with export growth. A three-pronged strategy for promoting export of agri & allied commodities are the following:

- Raising the quality of export items.
- Export diversification.
- Export competitiveness.

Fresh food markets provide significant opportunities for developing countries to develop agricultural export. Also, fresh food products have high income elasticity of demand and face fewer traditional protectionist barriers. However, these products are more likely to carry food safety risks and encounter Sanitary and Phytosanitary Measures (SPS) as barriers to market access (Muhammad et al.) [13]. Indian exporters encountered various SPS-related problems in several export destinations. Export of many food items from India have long been facing severe problems owing to the presence of aflatoxin beyond the maximum levels permitted by the EU.

Indian exports of mango and mango pulp have been affected by SPS related problems in various export destinations including the USA, Japan, the EU, Australia and New Zealand. India's exports of rice face SPS related problems in countries, such as the EU, the USA, Japan, the Middle East and Russia (Das, 2008) [14]. This directs us to focus attention on producing food products of international standards. The major setback lies in the low level of awareness amongst the producers and consumers on SPS measures. Organising workshops, consultancy services on SPS measures, effective co-ordination among various relevant national and sub-national agencies, and transparency on the procedures are some of the measures taken by different countries in meeting international food standards [15].

Export diversification strategy is an effective tool which if effectively implemented can enable the exporters to revive and strengthen their exports. Hot-spot analysis of geographical identification of global markets can be a significant step towards market realisation. Secondly, in the past, branding of basmati rice had given significant boost to promoting export. However, all exports are not sustainable. The export of rice, for instance, is simply the export of precious ground water. As international commodity prices crash, the clamour for India to open its borders for high-value, low-volume imports will rise. Therefore, it is required that more of high-value agri-commodities are branded and promoted for export. Creating consumer awareness of agri-commodities in the identified global markets can help generate demand.

Export competitiveness implies ability to quickly respond to market forces. Instead of global demand and supply factors, farmers in India are guided by minimum support and procurement prices fixed arbitrarily by the government. Keeping domestic prices of farm goods artificially high disincentivises export. Minimum support and procurement prices also over-incentivise cultivation of cereals vis-à-vis

commercial and horticultural crops. This affects India’s ability to capture export markets. India’s farm produce suffers from poor customs, port infrastructure and high logistics cost that cut into exporters’ margins. Exports of many agricultural commodities, sugar for instance, are regulated by arbitrary quota fixation in India. Such executive actions make India an unreliable supplier. That in turn leads to low net realisations from export. Promotion and expansion of export requires an increase in the level of awareness both in terms of improving farming and the market.

An ideal approach to promote farm level investment is to create a one-stop integrated solution that can address the needs of farmers and create channels to connect with them.

Two-Pronged Approach

Exhibit 8 (a): Integrated Solutions Platform - a Platform for Aggregating Needs and Identifying Solutions

Farm Stage	Farm Need	Farm Services
Sow	Efficiency in usage of inputs - seeds, fertilisers	Advisory
Grow	Efficiency in usage of water – irrigation, de-weeding	+
Harvest		Mechanisation
Post-harvest	Processing, transport, storage	Cross-selling opportunities looking at farmers data, needs & queries

Exhibit 8 (b): Stores/Outlets/Mobile Applications to Connect with Farmers

Connectors	Services
Mahindra Samriddhi/ EPC	Advisory, Seeds & input, Irrigation
Trringo	Custom hiring -mechanisation solution
Mahindra Finance	All financing needs
Krishilok	Market linkage, processing & branding

Globally there are several success stories of productive agricultural investment models. For instance, promoting investment in agriculture has been the key reason for the significant economic growth of sub-Saharan African countries. Data suggests that investment on agriculture was 11 times as effective in reducing poverty in sub-Saharan Africa compared with investment in other sectors. In other developing countries, it is said to be about four times as effective. In the last 15 years, 22 countries have been able to cut hunger by half. Also, the framework for agriculture that African countries have put together has enabled them to put their own investments into agriculture [16].

World Bank funded National Fadama Development Project is an example of transforming Nigerian farmers from subsistence farming to agropreneurs. The funded project helped create value chains of cassava, rice, sorghum and horticulture in six states; Kogi, Niger, Kano, Lagos, Anambra and Enugu. The six states were then used to serve as hubs of Staple Crops Processing Zones (SCPZs), while surrounding states were used to serve as catchment areas to feed the processing zones [17].

CONCLUSIONS:

Agriculture in India requires larger participation from private sector to assist in promotion of farm level investment. Public investment should create an enabling environment and a policy environment that induces private investment. Participation of private sector is required across the value chain. These value chains include a wide range of small and large scale activities that involve supplying farm inputs, processing, storing, distributing, wholesaling, retailing and exporting farm products.

Farm level investment should not be merely on physical assets, but also on human capital, science and technology, social capital build-up etc. Such investment will enable the farmers to generate non-farm sources of income that can be used to re-invest on land.

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- Despite improvements in India's banking services, financial exclusion remains a significant problem. Mobile money, if successfully adopted by a large enough part of the population, has the potential to offer a novel solution. Mobile money can offer basic storage and transfer services to the unbanked. Further, through related fintech, it can offer access to vital credit and insurance products.
- Widespread adoption requires social co-ordination. The government can help in this regard by identifying central nodes in local networks in poorer areas and seeding such nodes with appropriate technology and knowledge.
- The government can also help by bringing telecom-based mobile money and fintech providers under the umbrella of the same risk-based capital regulation as banks and then allowing them the same scope as banks in offering financial services. Such a policy would encourage the development of new modes of intermediation as a legitimate part of the financial sector while avoiding unnecessary risks.

AN OVERVIEW:

Old economics textbooks often defined economics as the study of allocation of scarce resources across competing uses. While a vast expansion in the scope of economic inquiry has rendered such a definition outdated – indeed, defining economics in a neat sentence is all but impossible now – it does capture a basic aspect of competitiveness in a market-based economy. Putting resources to their best possible use and minimising waste lie at the heart of being competitive. There are of course several dimensions to this process, as evidenced by the varied contributions in the present volume.

The aspect I consider in this article is the process through which resource allocation works. How do the funds from savers find their way into the hands of the most productive investors? Savers might directly fund a firm by buying its stocks or bonds; or, alternatively, might lend their funds to banks, who then either buy stocks or bonds or extend credit lines to firms. The banking sector plus the markets for stocks and bonds together comprise the financial system, which plays a crucial role in ensuring efficient use of capital. In fact, for a variety of reasons to do with informational problems faced by investors when participating directly in stock markets, the transformation of savings into investment happens principally through the mediation of banks. Banks aggregate capital across small savers, advance credit to the most productive investment opportunities and monitor subsequent actions of those investors to limit mis-use. A well-functioning financial system is therefore essential for efficient allocation of capital.

ANALYSIS & DISCUSSIONS:

The Problem of Financial Exclusion: It follows that if significant parts of an economy remain outside the scope of the financial system, full efficiency of allocation remains unrealised. If many individuals remain unbanked or have access to basic bank accounts but not to services such as credit, insurance or pension plans, there remains significant scope for improvement in productivity – a key component for competitiveness and growth. As noted by Demirguc-Kunt et al. (2017), direct evidence linking financial inclusion of the unbanked or underbanked to economic growth is constrained by data availability. Financial inclusion data is relatively new, making inference problematic. However, the importance of the financial development – a broader category to which financial inclusion contributes – is certainly borne out in data. A large body of research surveyed by Levine (1997), shows that the depth of the banking system is an important factor in determining economic growth.

In India, basic bank account coverage has made great strides in recent years, leading to an improvement in the CRISIL financial inclusion index, currently standing at 58% (CRISIL Inclusix, 2018). However, around 190 million adults remain unbanked and even among those with a bank account, many remain under banked as credit and insurance penetration remains low. Further, limited access to credit stunts the growth potential of many among more than 50 million SMEs. The 2018 report from CRISIL also shows that the pattern of financial deepening is uneven across the country, with north-eastern and eastern regions lagging behind.

The Role of Mobile Money: What drives financial inclusion? The traditional approach rests on expansion of banking networks in rural areas, a relatively slow and costly process. However, in recent years, an entirely different type of solution has emerged that holds great promise in banking the unbanked rapidly at a relatively low cost. The idea is to harness the widespread use of mobile phones to build a platform for financial transactions. The technology itself is not very new – the first instance of mobile money can be traced to the late 90s. However, the idea gained prominence through the spectacular success of Safaricom’s M-Pesa¹ in Kenya, a mobile money service introduced in 2007. Since then, such services have spread across several countries in Sub-Saharan Africa. Indeed, the worldwide mobile money industry landscape is dominated by its relatively mature standing in Sub-Saharan Africa, accounting for 49% of global customers. However, Emerging economies in other continents are catching up – with South Asia registering the highest growth rates in usage².

Mobile money (also often called mobile wallet) refers to financial services provided through mobile phone apps, providing an alternative to bank accounts. Users can exchange cash for electronic credit and both store wealth this way and transfer credit domestically to other users. Unbanked individuals, typically working in the informal sector, have no recourse but to use cash for both purposes. Cash as a store of wealth is vulnerable to theft, and a cash transfer to a distant relative is both inconvenient and costly. Since individuals in the informal sector often face an uncertain income stream, access to a safe storage technology facilitates basic plans to set aside money for food, shelter and health expenses. Also, in the absence of access to formal insurance, transfers play a crucial role in the provision of informal insurance through risk-sharing across family and friends. As Jack and Suri (2014) show in their study of M-Pesa in Kenya, mobile money facilitates this process by reducing transaction costs significantly.³

A further problem is that the unbanked do not have credit histories, and therefore no credit score. This locks such individuals out of credit and insurance markets, not allowing them to plan for and invest in their future, in turn leading to a loss of potential human capital. Lacking credit, small informal businesses cannot grow, and the consequent lack of financial depth implies inefficiencies in capital allocation, as noted at the outset. Here, too, mobile based services can offer new types of solutions. Firms such as InVenture, Branchand Tala Mobile provide credit scores based on mobile phone usage. M-Shwari, a savings and loan service in Kenya developed in partnership between the Commercial Bank of Africa and Safaricom, provides loans to M-Pesa users without requiring visits to a bank or filling out any forms, and allows a gradual increase in loan amounts based on past repayment behaviour.

GSMA (2016) notes that the Commercial Bank of Africa disbursed 40 billion shillings (US\$ 495 million) in loans in Kenya in 2015 through M-Shwari, with a non-performing loan ratio of two per cent (compared to 4.3 per cent globally and 5.4 per cent for Sub-Saharan Africa). A similar product, M-Pawa, operates in Tanzania. The GSMA report concludes that “millions of individuals and businesses that have never had access to credit are now able to generate a transaction history, borrow money, and pay it back through their mobile phone.” Turning to insurance, the GSMA report notes that there were 106 live mobile-enabled insurance services providing life and health insurance in 31 Emerging markets. This is an area of fast growth: the number of policies nearly doubled in a year since 2015.

¹ Pesa is the swahili word for money.

² See GSMA (2017) for details.

³ Aron (2017) provides an excellent survey of the literature on mobile money.

MOBILE MONEY IN INDIA

Facilitated by the widespread use of mobile phones –TRAI reported just over a billion active connections in January 2018, with around 30% of consumers using a smartphone–India has seen rapid development in the use of mobile money over the last four or five years.

The provision is varied. There are non-bank mobile money companies such as PayTM, Freecharge, MobiKwik, provision by banks themselves as well as by telecom service providers (e.g. Airtel Money, Vodafone-MPesa) and direct public sector provision (UPI-based transfer service BHIM). According to data from Medianama, PayTM, the largest provider, had 282 million subscribers in October 2017 as well a merchant base of 5 million. The number of subscribers is growing fast – the numbers had increased by 29% just from March that year.

Further, following licensing from the RBI in 2015, six non-bank companies (e.g. Airtel, PayTM, Jio) have now set up payments banks. These are narrow banks: they can offer transactions services only. As they leverage their mobile-money customer base to offer services, they can compile data on customers that would be valuable in offering further services such as credit and insurance to the unbanked and under-banked. While these banks are prohibited by regulators from offering such services, it might be possible for them to do so through collaboration with credit and insurance providers. A more lenient regulatory regime would, of course, be even better for widening access to credit and insurance. We discuss this further in the next section.

Several alternative-data-based credit rating services have started operations in India. ⁴FICO, a world-leader in credit rating, is partnering with Lenddo—a firm that specialises in developing credit ratings based on social networking data from smartphones (and other web-enabled devices) – to provide a credit rating to Indians lacking a traditional credit history. Similar alternative-data-based rating services for India include the Social Loan Quotient by CASHe, ratings developed in partnerships between Bankbazaar and Experian, Rubique and CIBIL, PayU and Kreditech.

While such rating services and consequent provision of credit or insurance is currently at a nascent stage in India, they hold the promise of a relatively low-cost path towards wider provision of these vital services. Given the shallow credit and insurance penetration in many parts of India, mobile money and related fintech applications could play a vital role in financial development in the next decade.

THE ROLE OF POLICY

Let us now turn to the question of policy. Two types of policies are important. First, the class of regulatory directives that set up the broad business environment for mobile money. Let us call this class “macro policy.” Second, policies that influence take-up through local incentives, a class we can call “micro policy”.

The class of micro policies: Let us examine the micro policy class first. To see how schemes in this class might be designed, it is important to understand why mobile money and related fintech applications represent a very different approach to serving the unbanked and under-banked compared to, say, a push towards more bank accounts. The difference arises from the fact that, unlike traditional bank accounts, mobile money has a social coordination aspect. The more users there are, the more valuable it is for merchants to accept this form of payment, which in turn raises the benefits of adoption for users. In other words, adoption by one user generates positive externalities for other users on both sides of the market. This suggests that once use reaches a tipping point, adoption spreads quickly. Note that adoption spreads not through any top-down policy, but through a bottom-up process driven by positive externalities.

Given the makeup of Indian society, there are, however, natural hurdles in reaching critical mass. Individuals with lower levels of education and technological nous may face an initial adoption barrier.

⁴As an aside, it is interesting to note that the numerous microcredit networks in India, covering many underbanked individuals, has the potential to be a rich source of credit rating. This is by no means straight forward, and requires more research to establish viability, as such rating and subsequent access to credit and insurance might in turn have a negative impact on the original microcredit programmes themselves.

Here social networks play an important role as channels of influence and information from adopters to the rest, facilitating the coordination process.

What factors influence how quickly the tipping point is reached? Economic theory confirms that an increase in an individual's benefits of adopting mobile money relative to costs makes social coordination easier. This is also clear from the spread of mobile money in several African countries. For example, in Kenya, where 90% of the adult population have M-Pesa accounts, there are only 6 bank branches and 11 ATMs for every 100,000 adults, but 538 mobile money agent outlets,⁵ pointing to the high relative benefits of mobile money, which in turn accounts for faster spread of adoption. As Michael Joseph, former CEO of Safaricom said⁶ about the 2007 launch of M-Pesa, "By the end of December that year, we had 1.2 million active customers – really tremendous. What that really meant is that we hit the tipping point – it became viral after that, and that was the key."

Somewhat paradoxically, serving the unbanked and under-banked through mobile money and related fintech is a tougher challenge in India since it has a relatively more developed financial system, reducing relative benefits for a large part of the population. This is where the government has a role to play. In particular, public policy can try to reduce the costs of adoption through a variety of measures. Let us examine a few of these.

As noted above, user coordination facilitated by social networks – which act as channels of information and influence – is crucial to the success of mobile money adoption and subsequent development of higher-value services. An important policy consideration, then, is to enhance the process of information dissemination through networks. To this end, the government can consider seeding appropriately identified nodes belonging to networks in poorer areas with access to hardware and know-how. A public subsidy towards development of mobile-money and related apps in local languages, as well as voice-enabled apps, can also be beneficial in reducing the initial adoption costs. Targeted public subsidies can also complement markets is a push towards greater use of smartphones in poorer communities. Greater smartphone access for poorer sections of society would lead to faster spread of mobile money and related financial inclusion benefits.

The Class of Macro Policies: Let us now turn to the macro policy class. As Porteous (2006) noted, two broad properties of the legal and regulatory environment matter for the success of mobile money. First, the environment should be certain – i.e. should instill confidence that legislation will not change suddenly. Second, it should be open – i.e. allow entry and innovation. Using World Bank financial inclusion data to test performance across 35 countries against a variety of measures of certainty and openness, Gutierrez and Singh (2013) find that conducive, legal and regulatory frameworks are strongly associated with greater adoption of mobile money for the banked as well as the unbanked. This bodes well for India, which scores well on both openness and certainty.

Gutierrez and Singh also find that for the poorest sections of the population, interoperability across platforms leads to greater use but stronger consumer protection measures discourage participation. A policy towards developing greater interoperability across platforms is particularly important for India, as its current landscape comprises a large number of mobile money and fintech firms using several platforms. The negative effect of consumer protection is unsurprising since directives such as KYC required documents that the poorest sections often lack. However, such measures are important for the long-term success of mobile money since they promote safety, which is especially important for the poorest users who are often the most vulnerable. The only solution therefore is that even the poorest must have necessary identification papers, and India's drive to issue Aadhaar cards to all should be very effective in this regard.

An interesting natural experiment on the value of openness can be seen by comparing Kenya, where take-up of mobile money is near universal, with Nigeria, where it has failed to take off. Several commentators point to the difference in regulatory openness as the likely cause. While in Kenya it was

⁵See GSMA (2016).

⁶As narrated in "Story of M-Pesa," TechChange (2013), available on YouTube.

Safaricom that developed M-Pesa, Nigerian regulators have allowed only banks to develop mobile money platforms, barring telecom companies. The banks, it would appear, have been unable to reach the unbanked and under-banked in a way that telecom companies have been able to in other countries. A further confirmation of the key role of openness comes from the experience of Ghana⁷, where take-up rose significantly only after 2015, when a bank-only restriction similar to that in Nigeria was removed.

Facilitating Mobile Money and Fintech Through Regulation: While openness indicates an absence of barriers to entry, a separate question is the extent to which regulators are willing to facilitate the use of alternative credit rating data arising through mobile phone transactions. Given that in India 9 out of every 10 jobs are in the informal sector, which provides little scope for access to credit and insurance through traditional channels, alternative ratings have immense potential for affecting financial development. However, allowing mobile money operators to develop such products might lead to a more complex and challenging financial landscape, rendering the existing regulatory regime inadequate. This seems to be a concern of the regulators in countries such as China and India, where regulators have sought to limit the development of alternative credit rating. The Chinese government has recently curbed the reach of its two mobile payments giants – Ant Financial (Alipay) and Tencent (WeChat Pay, Tenpay) – whose dominance in mobile transactions and related fintech threatened to take a significant part of business away from banks.⁸ Presumably, the government was concerned that existing regulation might not be able to control the emerging “bank-like” sector.

In India, payments banks launched by telecom companies have been allowed a narrow remit limited to basic account transactions only. The concerns prompting such limits are likely to be similar to those in China. However, extending the reach of credit and insurance products using alternative-data-based rating is one of the most exciting developments around mobile money which regulators should nurture rather than thwart. While such developments would certainly present regulatory challenges, the solution must be to develop better regulation. Hopefully, as the mobile money sector flourishes in India, regulators would seek to control risk by bringing mobile-money and fintech providers under the same risk-based capital regulation regime as banks rather than by imposing arbitrary restrictions that deter new opportunities for financial development.

Mobile Money and The Use of Cash: Let me conclude by commenting on the much-touted connection between mobile money and a cashless economy. There is in fact no evidence to suggest that the spread of mobile money reduces the use of cash by significant amounts. Indeed, it is not even clear that “cashlessness” is particularly desirable in economic terms. To understand the reasons, consider what cash is used for. Cash is a medium of exchange and can also be a store of value. It is the latter use that gives rise to problems: for the unbanked, cash is the only way to store value, which exposes them to the risk of theft; for others, it might be a way to store undeclared income. Mobile money has the potential to change the store-of-value problem for the unbanked, which can also lead to other benefits by generating access to hitherto unavailable credit and insurance products. However, there is no reason for mobile money to replace cash as the medium of exchange in low-value transactions. Even in Kenya, the most mature global market for mobile money, where 90% of the adult population subscribes to M-Pesa, over 80% transactions⁹ are nevertheless carried out in cash (Flood 2018). This is all the more relevant for India given that its informal sector accounts for around 90% of all jobs, with salary payments as well as other exchanges relying almost exclusively on cash.

Finally, while mobile money has the potential to solve the store-of-value problem for the unbanked, it cannot address the other problem of storing undeclared income. To that end, economists would advocate gradual abolition only of high-value currency.¹⁰ But any move towards removing cash without formalising the economy first would lead to a substantial loss of output. Mobile money offers, for

⁷See Klapper and Popovic (2018).

⁸See *The Economist* (2018).

⁹Other estimates in the media suggest this number could even be as high as 90%.

¹⁰See Rogoff (2016) for this and related monetary policy concerns.

now, a step towards formalisation of the economy and obsolescence of cash. With technological advancement, one day all individuals and businesses might be connected on an e-credit platform making cash redundant, but that day is far off yet.

CONCLUSIONS:

1. Widespread adoption of mobile money requires social coordination. Social networks play an important role as channels of influence and information from adopters to the rest, facilitating the coordination process. The government should identify relatively central nodes in local networks in poorer areas, and seed such nodes with mobile technology and know-how for using financial services. Further, targeted subsidies should be used to encourage the use of smartphones in networks comprising the financially excluded.
2. The spread of mobile money and related fintech products through the telecom sector should be encouraged rather than seen as undesirable competition to the banking sector and thwarted. For this to happen it is crucial that once a payments regulator is instituted, telecom-based mobile money providers should be brought under the umbrella of the same risk-based capital regulation regime as banks. The newly licensed payments banks should then be allowed to make loans and offer other fintech services which they are currently barred from.

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TOURISM SECTOR – PROSPECTS AND CONSTRAINTS

Dr. SIDDHARTHA ROY

- Tourism industry has immense potential to be a strong driver of employment intensive growth for India.
- - Amongst emerging economies, India has 2nd largest tourism industry after China.
 - NITI Aayog aims to achieve 3% share in international tourism by 2022-23.
 - Tourism sector ranks No.3 amongst foreign exchange earning sectors.
- To qualify for the 3% target, India needs tough strategies such as: awarding infra-status for projects, lowering the GST rate, speedy approvals, creating awareness and an effective communications strategy.

AN OVERVIEW:

Tourism has the potential to become a strong driver of employment intensive growth in a country such as India. The sector's contribution to GDP, foreign exchange earnings and employment are recognised by India's successive Five Year Plans, and more recently, by NITI Aayog. Development of tourism has its forward and backward linkages with industry segments such as hotels, transportation, food and beverages, construction, infrastructure and general services including IT and digital services. Tourism can also be a major catalyst of development for remote and backward areas like hilly regions and forest areas. From that point of view it can be a harbinger of inclusive growth and provide livelihood and income benefits to marginalised communities, Albeit there is a need to ensure that tourism in the ecologically sensitive areas like Himalayan tracts, the forest areas of central India and unexplored sea beaches, do not lead to environmental degradation by way of over construction, overcrowding etc. Sustainable tourism is a key issue.

ANALYSIS & DISCUSSIONS:

Contribution of the Tourism Sector

According to WTTC (World Travel and Tourism Council), the direct contribution of tourism (domestic + foreign) to GDP in India was 3.7% in 2017. The total impact on GDP that is direct plus indirect and induced put together was around 9.6% of GDP or \$234 billion in 2017. Should one take a conservative stance and stick to UN statistics division's approved Tourist Satellite Accounting methodology and consider direct impact alone, even then, at 3.7%, the impact is quite significant. To put things in perspective, contribution of the 'steel sector' to India's GDP is 2%. Amongst the Emerging economies of Asia (i.e. excluding Japan) India has the second largest tourism sector after China.

Exhibit 9: Tourism Sector in Asia

Country	Tourism Sector (\$ billion)
China	402.3
India	91.3
Thailand	42.2
Indonesia	19.4
Malaysia	15.2
Vietnam	13
Pakistan	8.8
Bangladesh	5.3
Sri Lanka	4.5
Cambodia	3.1

Source: Indian Tourism Statistics; Gol

In terms of job creation, tourism has a significant impact on overall employment generation.

Exhibit 10: Impact of Tourism on Employment (million)

	2013	2014	2015	2016	2017
Direct Employment	23.94	24.48	24.91	25.51	26.15
Total Impact (Direct + Indirect)	37.57	38.07	39.01	39.63	40.53

Source: WTTC, India Report 2018

Should we consider direct employment alone, 5% of India's employment in 2017 was generated by tourism. If we consider direct and indirect together, then it would be up to 8% of the overall employment.

PRESENT SCENARIO

The Domestic Sector

Once we separate outbound tourism i.e. Indians going abroad, tourism in India can be grouped under two essential components – domestic sector and international arrivals.

In a growing middle income economy such as India, more people enter the burgeoning middle class every year, consequently travel and tourism as an activity is getting deeply entrenched into the consumption pattern.

Exhibit 11: Domestic Tourism Growth

Year	Visits (million)	Growth Rate (%)
2000	220	
2005	392	12.2
2010	748	13.6
2015	1432	13.8
2016	1615	12.8

Source: India Tourism Statistics 2018

Domestic tourism which is growing at around 13% per annum (2000 to 2016) is expected to play a key role in overall development of the tourism sector. In 2017 the contribution of domestic tourism to overall tourism GDP of the country was 87%.

International Tourism Segment

During the last two years, India's share in international tourist arrivals was around 1.18%, Niti Aayog has an objective to achieve a 3% market share by 2022-23.

Exhibit 12: Share of India in International Tourist Arrivals

Year	World (millions)	India (millions)	India's Share	India's Rank
2015	1195	13.28	1.11	24
2016	1239	14.57	1.18	26
2017	1323	15.65	1.18	26

Source: UNWTO and India Tourism Statistics; Gol

Assuming that international tourist arrivals in the world as well as in India grow at (2000 to 2017) trend rates, India's share will be 1.63% by 2022-23. This further assumes foreign tourist arrivals to India will remain unaffected by the economic downturn due to recession in the source countries. Several of the countries are advanced economies. In other words, it is unlikely that the scenario of 2008/09 will be replicated. Given this scenario, Niti Aayog's objective of obtaining a 3% share, although laudable,

appears a bit overstretched. At this stage one also needs to keep in mind that a part of the international visitors to India are NRIs.

Exhibit 13: International Tourist Arrivals (in million)

Year	NRI	Foreign tourists	International Arrival
2015	5.26	8.02	13.28
2016	5.77	8.8	14.57
2017	5.51	10.04	15.55

Source: UNWTO

The NRI component has been range bound, this needs to be taken into consideration for future projections. Attempts have to be made to increase their number particularly amongst second and third generation NRIs.

In other words to reach the stated 3% target, the country will need breakthrough developments such as marketing the attractiveness of our destinations, implementing a more friendly visa regime and having in place stronger IT infrastructure etc.

Should one examine India's position in terms of international tourism receipts then the situation is somewhat better, in fact our ranking improves too.

Exhibit 14: Share of India in International Tourism Receipts

Year	Share (%)	Rank
2015	1.73	14th
2016	1.85	13th
2017	2.05	13th

Source: Based on UNWTO data

When we juxtapose this information with the international tourist arrival data, we note our value share of 2.05% is better than the volume share of 1.18%. In other words, visitors to India, spend relatively more compared to visitors going to other countries. On account of this, India had a steady share gain in international tourist receipts since 2000. This is no mean achievement.

Exhibit 15: Yearwise share of India in international tourist receipts

Year	Percentage
2000	0.73
2005	1.1
2010	1.56
2015	1.73
2017	2.05

Source: UNWBased on UNWTO data

It may be useful to add that some countries such as Spain (5.11%), France (4.56%) and Thailand (4.32%), which are frontrunners in the tourist business, have a higher share in international tourist receipts. To double our receipts share to at least 4% in another 5 to 7 years could be a worthwhile target. In the 2017-18 budget the revised spending estimate for overseas promotion and publicity was Rs 295 crore. This went up to Rs 454 crore in the 2018-19 budget which is a welcome step; the emphasis on overseas promotion ought to continue.

At this stage it needs to be mentioned that tourism sector's performance as a foreign exchange earner is better than some of the key merchandise export sectors. As a sector, tourism ranks third amongst foreign exchange (FE) earning sectors.

Exhibit 16: Forex from Tourism in India

Year	Earnings (\$ billion)	Growth (%)
2014	19	-
2015	21.01	6.7
2016	22.92	9.1
2017	27.31	19.1

Source: Ministry Tourism, GoI, RBI

At this stage it may be interesting to find out the key sources of foreign tourist traffic to India. Around 66% of the total international visitors are accounted for by the following countries.

Exhibit 17: International Tourists (originating countries)

Country	Contribution as % of Total international visitors
Bangladesh	21.49
USA	13.72
UK	9.83
Canada	3.34
Australia	3.23
Malaysia	3.21
Srilanka	3.03
Russia	2.78
Germany	2.68
France	2.49

Source: India Tourism Statistics; GoI

Our marketing segmentation focus needs to match the offerings in terms of leisure, wellness, experience etc. with the appropriate geographic requirement. India has vast cultural and natural attractions, 35 heritage sites, geographical diversity, forests beaches, mountains which should ensure major potential for growth in terms of international tourist arrivals.

Competitiveness of the Tourism Sector

At this stage it needs to be recognised that in terms of tourism competitiveness index 2017, India is at 40th position, albeit there has been improvement in ranking by 12 places amongst 136 countries. The key areas of concern are health, hygiene; security including women's safety, human resources for tourist trade needs upgradation and training, better tourist service infrastructure with a stronger IT backbone. These areas need to be addressed for steady improvement in competitive ranking.

Two areas where India ranks well are price competitiveness and international openness. There is little doubt that visa on arrival and e-visa has made significant impact. Similarly for e-medical visas, some rules need to be streamlined; the number of visits need not be restricted to three, as there could be an urgent need for health checkups. Tourism is an area wherein the government and the private sector have to work together for unlocking the extant potential. There is a need to boost the image of the country as a "premium holiday destination which one must experience".

Awareness about the country and its holiday offerings need to be created amongst both advanced countries and in Emerging Asia. This needs to be done in the respective local language. To create this awareness Incredible India, heritage trails etc. initiatives in international media are indeed useful. At the

same time India needs to expand her infrastructure in terms of airport connectivity and improved road networks. Many of the tourist destinations are located in the interiors and hence connectivity would be extremely important. This infrastructure creation should involve banking facilities, ATMs, credit card acceptance and telecom connectivity in distant tourist spots. The extension of UPI facilities backed by a robust telecom infrastructure is an immediate priority. Tourist traffic normally is divided into two parts leisure and business. For business traffic or MICE connectivity, hotels, conference infrastructure etc. are extremely important; it is a matter of concern that business traffic has started declining in recent years.

Exhibit 18: Percentage Distribution of Leisure and Business Tourism

	2013	2014	2015	2016	2017
Leisure	78.9	83.5	83.2	94.6	94.6
Business	21.1	16.5	16.8	5.4	5.4

Source: Based on Indian Tourism Statistics, Gol.

CONCLUSIONS:

If India's tourism sector should remain on a high growth trajectory in the future, we must create and be consistent in raising awareness about the sector's various offerings; additionally, infrastructure building and all-round skill upgradation are some of the imperatives. In order to facilitate communication and a better understanding of the product, one could visualise the increasing use of virtual reality and augmented reality in the travel planning stage.

Some of the above stated features can help customise individual/group requirements and offer variety at a premium. This premium segment apart, India can also score well in the "value for money" segment. The international tourism competitiveness study 2017 acknowledges the benefits of this segment in India. According to the said study, one of the key advantages of the Indian tourism sector is its relative price competitiveness. In order to retain this feature, we believe the GST rates on tourism linked products and services must be kept at the minimum.

NITI Aayog's "Strategy for New India @ 75" documents have suggested that tourism related projects above one crore should be considered infrastructure projects wherein all benefits that apply to infra projects will likewise apply here also. Such tourism projects require to be approved by the government at the earliest. This will enable tourism related activities, hotels, resorts, equipment, parks etc. to avail of the priority lending facility. Multiple clearances and approvals required from Central and state government agencies for the tourism sector need to be streamlined. Further, a single window clearance system would be ideal. Infrastructure and connectivity framework including ATMs, card acceptance, use of UPI-based facilities and telecom connectivity should be well structured and in place prior to the government's announcement of five new tourist circuits, particularly the Buddhist circuit, as many of the spots are not well connected. The use of CSR (corporate social responsibility) funds and adopting a heritage scheme are welcome.

There is a need to manage the political fallout of new tourism projects. The involvement of local workforce with provision for suitable training, availability of credit and business upgradation facilities for local entrepreneurs will not only create employment but also generate support from amongst local stakeholders. Community capacity building will be key to the success of tourist projects in the future. Culture and heritage are central to India's tourism offering, Niti Aayog's suggestion for building new museums is a welcome suggestion, budgetary provision should be made along with the recommendation. The museum should have facilities for cultural performance, handicraft stores etc. Participation of the public and private sector (preferably via the PPP route) in developing and managing some of the areas in tourism projects will certainly be a healthy move.

- Global trade is getting redefined. A digital platform based economy is challenging the traditional regulatory framework of trade policy.
- Recent economic data expects domestic consumption-led growth in India to catapult India's economic growth trajectory over next two decades.
- Trade policy should leverage investment scale and consumption pattern to build competitiveness and brand identity for Indian products and services globally. The new foreign trade policy must be nimble, responsive, easy to implement, such that responses to changing trade ecosystems can be quickly rolled out.

AN OVERVIEW:

This section focuses on exploring new ways of looking at India's foreign trade policy – as a tool to increase India's competitiveness in global trade. This topic is analysed in the:

- current and emerging context of trade tensions;
- growing influence of digital economy;
- changing role of a global multilateral trade organisation like the WTO;
- possible change in India's status as a developing economy, and
- change in consumption patterns.

The established framework of global trade is getting redefined on various counts:

- (i) Increased protectionism by key economic powers,
- (ii) India moving up the development matrix thus losing the trade policy maneuverability,
- (iii) Growing influence of digital-platform-based economy challenging the traditional regulatory framework.

As India Loses its Developing Country Status, the foreign trade policy which has been guiding India's market access in past few decades needs to undergo a fundamental change to ensure India's competitiveness in the global economy. Incentives, exemptions and subsidy-based trade policy initiatives will need to give way to market driven, competitiveness enhancing instruments of trade which are more acceptable in the multilateral global framework of the WTO.

ANALYSIS & DISCUSSIONS:

Key Forces Shaping India's Trade Policy

1. **Demographic Influence:** India's economic growth trajectory over the next two decades, which is expected to be driven by domestic consumption led growth, is different from the last three decades of China's growth story, which was export-led growth supported by massive production capacity building. If consumption is the growth driver for India, then a major contribution of consumption would come from the rising economic surplus in the hands of urban population. Economic data indicates that per capita GDP in urban India would move to USD3200 by 2020 and that urban India is likely to contribute 70%-75% to the GDP. Given that more than 70% of the GDP contribution would come from urban India, product preferences in urban areas would drive the consumption pattern and the trade policy needs to have a distinct focus to encourage building production capacity targeted to service the particular consumption needs of the emerging, urban India. Trade policy should leverage the scale of investment and pattern of consumption to build competitiveness and brand identity for Indian products and services in the global market.

2. **Key Themes of The Urban Consumption Pattern would Include:**

- a) urban consumption – premium end of consumer staples and four wheelers;
- b) urban services – consumer banking, private healthcare, telecom data services and internet;
- c) infrastructure – urban infrastructure services and real estate.

Trade policy of the future should focus on leveraging the strong brand of domestic industry in this sector to penetrate the global market. Market share of key players in this space should get an impetus from the emerging contours of trade policy. India Brand Equity foundation report mentions about India being the Mecca of small cars manufacturing and export; the competitiveness of India's small car manufacturing should logically extend to environment friendly electric and hybrid cars also. An illustration would be that the world is expected to have another 900 million cars produced over next 10-to-15 years. Trade policy should endeavour to strengthen the complete ecosystem and supply chain of car manufacturing to ensure that India's cost effective manufacturing base produces more than 10% of the future cars.

3. **Promoting a Digital Economy:** Digital economy (includes internet platforms, e-commerce and digital content firms) has the power to rapidly and exponentially increase market penetration of products and services in the global market. In such cases legislative and procedural frameworks generally apply. Trade policy and related think tanks need to master the art of understanding the disruptive power of such business models for penetrating global markets at a rapid pace. United Nations Conference on Trade and Development (UNCTAD) data indicates that the number of digital companies in the top 100 MNEs (multinational enterprises) has more than doubled, the assets of digital MNEs have increased by 65%, their operating revenues and employees are up by about 30% versus flat trends for other top 100 MNEs. It is also important to notice that digital MNEs make about 70 per cent of their sales overseas, with only 40 per cent of their assets based outside their home countries. The impact of digital MNEs on host countries is less directly visible in physical investment and job creation, but their investments can have important indirect and productivity effects, and contribute to digital development. This trend is relevant from India's trade policy that seeks deeper penetration in the global marketplace.

In this case the policies of trade, investment, IT and manufacturing will have to align and create a symphony of sorts by creating deep and stable data connectivity network, significant governmental push to digitisation of technologies in global supply chains across all industries, attracting large investments in centralised "big-data-enabled" production and greater services outsourcing. Involvement of multi-skilled expertise in such comprehensive and coordinated policy development is important.

A comprehensive digital development strategy should cover investment in digital infrastructure, in digital firms, and in digital adoption by firms across all industries. Promoting investment in local digital content and services is crucial to speed up digital development. Promoting investment in information and communication technologies (ICTs) across all firms, as well as business linkages and participation in global value chains, should be an important part of digital development policies. Tariffs and taxes on devices, and taxes on internet usage also influence the effective costs of ICT adoption for firms. Facilitating access to cloud services can lower such costs. Skill development – potentially in partnership with global digital MNEs – is also important to allow local firms to interact digitally with MNEs and access e-value chains.

While promoting investment in digital development, policymakers need to address public concerns. This requires up-to-date regulations in such areas as data security, privacy, intellectual property protection, consumer protection and the safeguarding of cultural values. Where digital transformation causes disruption in other sectors or generates negative social or economic impact, they need to put in place policies to mitigate these effects. Governments need to find a balanced approach that accommodates both public concerns and the interests of private investors. Investment policymakers should take a more proactive approach in the formulation of digital development strategies.

4. **Rise in Unilateral Decisions on Trade Barriers and Corresponding Global Trade Tensions:**

Rising nationalism and unilateral action in increasing specific trade barriers by the US, China, Russia and India is the new force emerging in the global trade space. Trade policy would have to deal with such uncertainty and develop suitable tools of intervention so as to convert such tension into opportunities for gaining greater market access for Indian goods. This may require the government to explore the option of Indian consulates and embassies across the globe to become active nodes for business registration, licensing, verifications, certifications, clarifications, policy awareness outreach programmes etc. so as to provide a platform for quick and closer engagement with the global business with the message that India is keen and eager to come forward and participate.

Opportunities that can be realised through such initiatives could be many. Business would like to explore options of alternate locations for manufacturing in case production from the current locations is hit by a trade barrier. In such cases, India should become an important alternate location. The new foreign trade policy will have to be more nimble, responsive and easy to implement so that response to changing trade ecosystems can be rolled out quickly.

CONCLUSIONS:

We Believe India's Future Trade Policy Must Focus On ...

1. Stronger Participation in the Global Value Chain of Goods

India, being a cost advantage country, has been a beneficiary of global outsourcing of software development and BPO related services. But the cost advantage has not delivered a similar scale of growth for goods exports. India has not been able to integrate in the global value chain of goods in the same manner as it has in the global value chain of services. Foreign trade policy should be able to deliver greater integration with the global value chain so that the natural cost advantage of the country converts into scale of business, greater employment opportunity and increased value addition in India.

But foreign trade policy in isolation may not be able to deliver the above objective – coordinated multidimensional trade policy should integrate the need for development of scalable global manufacturing facilities, need for high speed, hassle free connectivity for goods, people and data, stronger implementation of intellectual property (IP) rights etc. As global value chain manufacturing is very time sensitive, it is important for customs laws and other laws dealing with compliance, relating to import and export of goods, to become temporarily admission friendly; semi-finished goods entering through the global value chain should be administratively and procedurally handled in a very facilitative manner so that entry, conversion and export be eased and compliance should not decelerate the velocity of trade.

An illustration of the possible opportunity to be realised could be around increased barriers for supply of Chinese origin goods to the US. This could throw up the opportunity for finishing of semi-finished goods brought from China into India and exported to the US after finishing operations in India in a manner that (Chinese) origin requirements are met.

Better participation in global value chain in goods, improved infrastructure and coordinated trade agreement policy framework would also allow India's goods gain better market access through the instrument of trade agreements.

2. Being Integrated and Comprehensive on Goods, Services and Investment

The current foreign trade policy framework was conceived and articulated in the early nineties immediately after the balance of payments crisis. Services as an industry was at a nascent stage in India, the software export sector was in its infancy, hence the focus of foreign trade was on export of goods and an increased share for India in global trade. Times have changed since then. The services sector contribution to India's GDP has risen, has matured and is globally competitive but lacks a comprehensive, robust policy platform to provide the thrust to increase the share of India's trade in services.

A coordinated comprehensive policy platform for services export would also mean equitable and fair treatment through the policy instrument of trade agreement. The framework of trade policy should cover all the aspects relating to goods and services – tariff and non-tariff, in a coordinated, well thought out, harmonious manner.

3. Relying on Data-and-Digital-only Procedures and Compliances

Increased velocity of trade can itself be a competitive advantage; and velocity of trade has a direct linkage with hard and soft infrastructure available to facilitate global trade – an important element of soft infrastructure of data-and-digital-only trade policy procedure and compliance. All the effort of making an online application, scanning and uploading the supporting documents, deliver incremental results but does not free up the trade process from paperwork, which reduces the velocity of trade. In order to make speed a competitive differentiator, a disruptive change is required in the focused area.

Data-and-digital-only procedures and compliance should be the expressway for faster and responsive supply chain of goods. Proof of concept should be evaluated for key products like small cars where compliance should only be driven by data and not by documents. The time from factory-gate-to-ship loading should be monitored and brought down dramatically. IGST (integrated goods and services value-added tax) and drawbacks claimed on such export should be processed as the ship sets sail thus releasing the capital locked in supply chain quickly and increasing the speed of cash moving in the small car export supply chain.

4. Reducing Friction in Trade Movement

Focus of the trade policy should shift from export incentives like SEIS, MEIS and similar scripts-as-cash schemes to reduce friction in global trade by building up robust trade infrastructure – physical, procedural, administrative and legal. This would require coordinated action from various ministries and, likely, going by the success of GST related decision making on the platform of the GST Council, a similar transformative Global Trade Council be set up with representation of key Central government ministries and ministers of all state governments to underline the increased emphasis on a coordinated action plan by all stakeholders.

The framework for trade policy should expand to include all aspects of international trade – ports, roads, warehousing, conveyance, special economic zones (SEZs), taxation and finance.

Policy measures should be able to support and neutralise trade transaction friction at the deeper end of the supply chain rather than its current ability to influence the beginning or the end of global supply chain.

5. Identifying New Trade Policy Performance Parameters

Previously, performance of the trade policy was measured on the value of exports leading to an increase in India's share in global trade and job creation. However, for the future trade policy our vision should centre on:

- (i) **Growth of Scale** – Thrust on key sectors/products that have an existing large domestic and export base already yet retaining the potential to deliver orders of magnitude; the growth base is big like small cars, pharma, gems and jewellery, petroleum, garments etc.
- (ii) **Growth of Potential** – Focus on key sectors, products, services that can deliver more than 20% YoY like banking, software, digital economy (digital content, internet platforms etc.)
- (iii) **Economic Value Addition in India** – Increase in share of higher value-added products and services in the export basket versus natural produce export, which typically has low value addition in India.

6. Other Areas of Focus

(i) **Thought Leadership** – Proactive engagement with academia and think tanks

Businesses should get deeper, proactive thought leadership support from trade policy experts in academia and think tank bodies who simulate and model the trade policy after considering the impact on various measures. Globally we have seen that there have been interest groups / sponsors of various instruments of increasing market access at the lowest tax cost while professing the cause of the 'larger good'.

(ii) **Information Technology Agreements** – Were conceived in the early nineties, in-depth research and modelling was conducted to evaluate its possible deep linkages with economic growth of developed world sponsors, a smart logic was crafted to convince the global community of the larger good by rolling out the agreement. India signed the ITA-I but realising the damage it has done to India's IT equipment manufacturing industry, India has resisted signing the ITA-II.

(iii) **WTO Ministerial Declaration on e-commerce** – Along similar lines as the ITA agreement, the WTO ministerial declaration on e-commerce has largely benefitted the biggest brands / corporations like Amazon, Netflix, Google, FB, Apple. It is important for India's trade policy to think of a long term policy strategy, so as to ensure that India becomes the breeding ground for rolling out and scaling up of large, global businesses over the next decade and ahead.

INFRASTRUCTURE

INNOVATIVE FRAMEWORKS FOR FACILITATING FINANCE INTO INFRASTRUCTURE SECTORS

INDRANIL PAN
SAUGATA BHATTACHARYA

- Political will, fiscal compulsions and regulatory risks are extremely unfavourable for private investment in infrastructure
- However in last 3 years the GoI and RBI have initiated measures to resolve finance and non-finance issues facing such development - creating in NIIF, promoting InvIT and IDF to raise long term funds; clearly these measures remain inadequate
- Primary need is to mitigate risk in financing. Clarity in government policies, land acquisition strategies, improved environmental needs and regulations can create confidence among investors funding infrastructure projects.

AN OVERVIEW:

Need for Big Ticket Increase in Funding

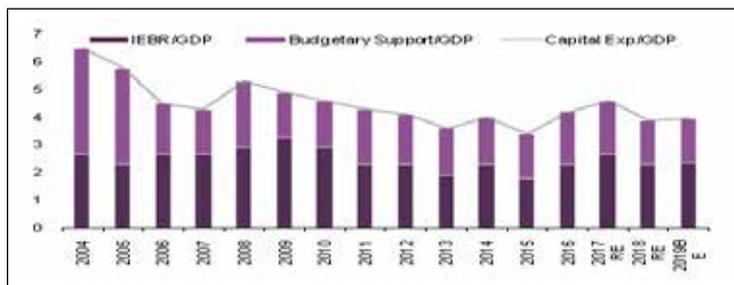
An S&P global research report *The Missing Piece in India's Economic Growth Story: Robust Infrastructure*, August 2016, has stated that a 1% additional spending out of real GDP is likely to boost India's GDP by at least 2%. Indeed India's poor infrastructure has been its bane for a significant period; even though some progress is evident, it continues to be the government's key bottleneck in the achievement of its ambition of 8% sustainable growth. This in turn affects the employment generating capacity of the manufacturing sector.

Among many issues that constrain infrastructure development in India (read political and regulatory risks, frequent changes in tax rules, revenue benchmarks etc.), financing of infrastructure in India has consistently remained a critical hindrance, despite attempts towards easing of flows through FDI, ECBs and other means.

ANALYSIS & DISCUSSIONS:

Due to fiscal compulsions, the government has steadily been moving away from dipping directly into its budgetary resources (Exhibit 19) for infra-spending. We note the ratio of budgetary spend/GDP of 3.8% in FY2004 has dropped to around 1.6% as per FY2019 BE (budgeted estimates). It was expected that private participation in infrastructure development would rise. Also, the government had been thrusting infrastructure spend out of direct market borrowings by quasi-government entities (or extra budgetary support i.e. IEBR).

Exhibit 19: Budgetary Support in Favour of Infrastructure Development



Source: India Budget documents: Various years

Exhibit 20 highlights the major focus areas of expenditure of the government, wherein there appears to be an increased allocation towards the transport sector (railway, roadway etc).

Exhibit 20: Outlay for Various Sectors in Budget 2017-18 (Rs billion)

	FY16	FY17	FY18 RE	FY19 BE
Agriculture and Allied Activities	236.94	501.84	565.89	638.36
% of GDP	0.2%	0.3%	0.3%	0.3%
Rural Development	902.35	1138.77	1356.04	1380.97
% of GDP	0.7%	0.7%	0.8%	0.7%
Energy	211.23	309.64	416.82	411.04
% of GDP	0.2%	0.2%	0.2%	0.2%
Transport	874.13	1022	1070.92	1345.72
% of GDP	0.6%	0.7%	0.6%	0.7%
Education	672.39	720.16	818.69	850.1
% of GDP	0.5%	0.5%	0.5%	0.5%
Health	341.31	390.05	531.98	546.67
% of GDP	0.2%	0.3%	0.3%	0.3%
Urban Development	201.8	369.46	407.54	417.65
% of GDP	0.1%	0.2%	0.2%	0.2%

Source: India Budget documents: Various years

Funding for infrastructure projects has become risky since historically projects in India have suffered large time and cost overruns due to various factors such as delays in securing land and environmental clearances, fuel supply shortages, ineffective dispute resolution processes, rising input costs etc. The present government has diligently attempted a resolution to some of these stalled projects, but the scale of the problems has led to delays. This probably feeds back into the funding perspective as the risk of project implementation continues in India, despite best efforts.

Effective Policy Responses for Risk Mitigation/Increasing Funds Flow to Infrastructure

Over the last few years, the government and the RBI have initiated several measures to resolve financing and non-financing issues facing the infrastructure sector. These include measures such as creation of the National Investment and Infrastructure Fund (NIIF), promoting Infrastructure Investment Trusts (InvIT) and Infrastructure Debt Funds (ID F) to raise long term funds, as well as introducing reforms in PPP models and contracts to improve the enabling environment. However more needs to be done. To revive the investment momentum in infrastructure, government should expedite implementation of the various recommendations of the High Level Committee on Financing Infrastructure (2014), Committee on Revisiting and Revitalising the public private partnership (PPP) Model of Infrastructure (2015) and the NITI Aayog's Strategy for New India @ 75 (2018).

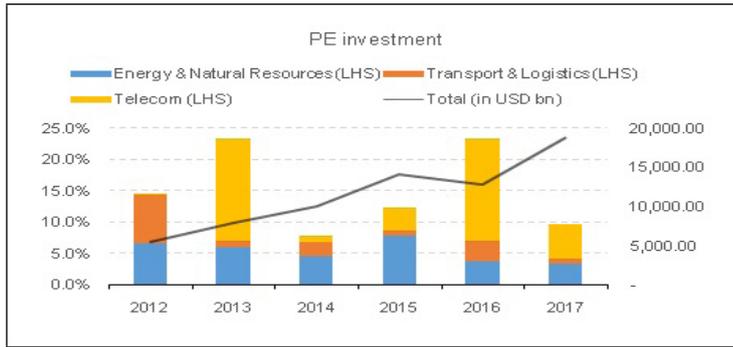
We review some of the steps taken and suggest measures below:

Increasing Flow of Equity Capital

The challenges faced by infrastructure projects for land acquisition, requisite approvals, forest and environment clearances are well documented, and have led to a number of stranded projects.

These stranded projects have increased the need to source equity required due to cost overruns and for new projects. Revenue risks from infrastructure projects (due to economic cycle or otherwise) have further constrained the flow of equity into infrastructure. Exhibit 21 highlights that despite an increase in private equity flows into the Indian economy, share of the same into infrastructure has been minimal. More importantly, if we set aside the Telecom sector, we note that funds flow into Transport and Logistics and Energy have been low. One reason is that PE investors are finding it difficult to exit from projects, which necessarily means that the overall sentiment has changed towards investing in operational assets rather than in greenfield infrastructure projects.

Exhibit 21: Private Equity Investments in India (USD mn)



Source: Infrastructure Financing: Emerging options in India, FICCI & Centrum; Sept 2016

PRESENT SCENARIO

Given the greater need for equity capital of infrastructure projects, the government has introduced several measures to accelerate equity capital flows to infrastructure projects –

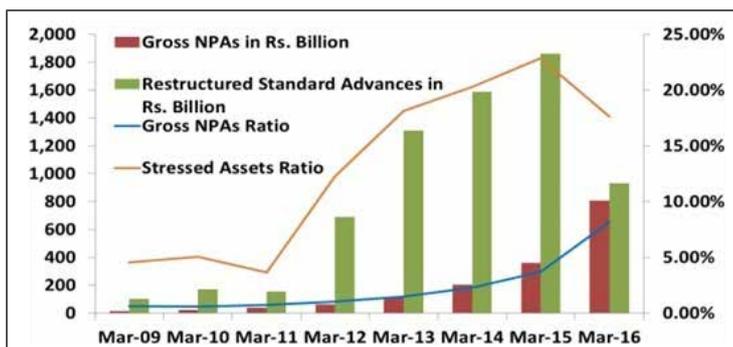
- (a) In 2015, the government permitted promoters to divest 100% of equity after two years of completion of construction for all BOT road projects. The main objective was to help existing promoters to unlock their capital and make additional funds available for investment.
- (b) In the Union Budget 2014-15, the government announced creation of Infrastructure Investment Trusts (InvITs), an innovative structure to finance infrastructure projects. Since then, government has introduced several measures to promote InvITs such as rationalising the capital gains regime for sponsors, permitting foreign investments under the automatic route, providing a complete ‘tax pass through’ status etc. Although only three InvITs are functional currently, several players have shown interest in raising funds via this route.
- (c) Going forward the government should leverage IIFCL to provide subordinated debt to partly fulfill the equity needs of infrastructure projects. According to the High Level Committee on Financing Infrastructure recommendation, IIFCL should provide subordinated debt up to 10% of the approved project cost with a moratorium of at least 12 years for repayment of principal.

Increasing Long-Term Debt Fund Flows

Although a few specialised NBFCs did focus on infrastructure financing, commercial banks remain the predominant providers of finance to the infra sector. Outstanding bank credit to this sector which stood at Rs1.09 trillion in April 2006, increased to Rs9.9 trillion in February 2016 but dropped to around Rs9.6 trillion in October 2018. This is mostly owing to banks having to deal with NPAs on these infrastructure loans as well as the government having placed 11 banks on Prompt Corrective Action (PCA) to rectify their stressed balance sheets. YoY growth in infrastructure lending by banks is now at 8%, a far cry from the 20% in earlier years!

Since a major share of the liabilities (deposits) of banks is short term in nature, banks tend to provide loans for a much shorter tenor than what the infrastructure project requires. For instance, banks normally lend for a tenure of 12 to 15 years even when the concession period of PPP projects is beyond 30 years. Not aligning the compressed repayment schedules with the back loaded expected cash flows of the projects over the loan period was a key reason for the higher level of stressed assets in the infrastructure sector (Exhibit 22).

Exhibit 22: NPAs and Stressed Assets in Infrastructure Sector



Source: N S Vishwanathan: Issues in infrastructure financing in India

We note bond markets in India continue to remain underdeveloped, constraining the availability of long-term market financing for the infrastructure sector. On the other hand, while developed markets have a strong municipal bond market whereby local bodies can raise funds for their own infrastructure needs, the local entities in India are unable to do so as their financial conditions remain poor, also, they lack proper financial reporting, which hampers their credit rating.

In 2012, the government and the RBI created a framework to set up Infrastructure Debt Funds (IDF) with the objective of helping banks – the dominant source of debt capital – to refinance their infrastructure exposure.

- (a) To enhance the flow of long-term debt funds into IDFs, regulators of domestic pension and insurance funds should incentivise channelling a larger proportion of their investible resources into these funds. Further, to accelerate the flow of foreign debt for financing infrastructure, India Infrastructure Finance Company (IIFCL) can provide guarantees for bonds issued by infrastructure companies in order to enhance their credit rating. With the availability of investment-grade paper, long-term foreign investors would be interested in making larger investments in infrastructure bonds.
- (b) The general insurance companies in India are mandated to invest 5% of their corpus into infrastructure funding. On the other hand, the life insurance companies are mandated to invest 50% into government securities (G-Secs, both state and Centre) while the remaining investments are into approved and non-approved securities. Appropriate projects with requisite backstops should be structured to incentivise life insurance companies, with their access to longer term funds, to invest around 5-10% of their investible corpus into infrastructure space.

Raising Public Investment to Crowd-in Private Sector Investments

As indicated earlier, the government has increased public investment in infrastructure in the last few years. The total allocation for infrastructure development in 2017-18 stands close to Rs 4 trillion, including Rs 2.4 trillion for the transportation sector. In the Union Budget 2018, the government merged the Indian Railways' budget with the Union Budget; this is likely to facilitate multi-modal transport planning between railways, highways and shipping. Since 2015, the government has ensured a major boost to investment in the railways. Total capital outlay for the railways for 2017-18 has been pegged at Rs 1.3 trillion.

In August 2016, a Toll-Operate-Transfer (TOT) model was approved to monetise publicly funded national highway projects. The NHAI and other state agencies would be able to expedite the bidding process for operational projects that can be awarded under this model. This was expected to help attract long-term institutional investors globally who are generally averse to taking construction risks.

Developing the Municipal Bond Market

The infrastructure needs of local bodies have generally been met through grants and aids. For the interest of financing last mile infrastructure development, enablers should be built for the local bodies to raise funds themselves. In 2015 SEBI had indicated that the Urban Local Bodies (ULBs) with investment grade rating and with no default in the past 365 days can issue bonds. But it also says that these bodies need to have transparent accounting practices based on State Accounting Manual or the National Municipal Accounting Manual.

However, Local Municipal Bodies lack publicly available indicators such as fiscal performance, debt, contingent liabilities etc. which hinders proper credit assessment for such bodies. This has led to only limited issuances from the municipal bodies in India and a lack of critical size of issuances has also not encouraged the banking sector to participate in these issuances. There is probably an urgent need to set the accounting standards right for these local bodies as a first step towards developing Municipal Bond Markets.

Building State Capacity for Project Preparation, Accelerating Policy & Contractual Reforms

Inadequate project preparation by authorities not only results in delays but is often the cause of mid-course scope changes and disputes. Therefore, government authorities must ensure that robust Detailed Project Reports (DPRs) are prepared during the project development phase. Well developed projects can also help government agencies to curb aggressive bidding by establishing a range in which bids are likely to be viable and discourage extreme bids.

- (a) The recommendation of the High Level Committee on Financing Infrastructure on the criteria of project bidding and awards must be considered to restore the practice of shortlisting of bidders to ensure competition and credible bids. The government must also work towards obtaining clearances during the preparation phase before placing the projects for bidding.
- (b) The government must ensure that project authorities discharge their obligations in compliance with the conditions of the contract. Grants payable by the government to private developers which are not disbursed in a timely manner impose additional costs on the private sector and also undermine the sanctity of contracts, notwithstanding increasing disputes.
- (c) A balanced and equitable sharing of risks is essential for PPP projects. Various committees have highlighted the need for reforming the provisions of PPP contracts, including flexibility to deal with unforeseen events. Provisions related to termination payments, exit and divestment clauses for concessionaires, cost escalations on account of delays in government approvals etc. may be revised based on extensive stakeholder consultations. Over the last few years, the government has introduced many amendments to improve the confidence of developers and lenders. For instance, premium payments to the authority from the developer now start only from the fourth year after the completion date as compared to first year previously.
- (d) An independent and empowered institutional mechanism to expeditiously resolve disputes is needed. The government should expedite setting up of the 3P-India institute proposed by the Finance Minister in the Union Budget 2014-15 to foster an effective PPP environment. In addition, 3P-India could also develop suitable PPP models to attract private sector investments in sectors such as the Indian Railways and social infrastructure.

Reinforcing Dispute Resolution Mechanisms

Given the long term nature of infrastructure projects and involvement of multiple stakeholders in project execution, it is inevitable for projects to face challenges and roadblocks in execution that cannot be envisaged initially. Lack of an effective dispute resolution mechanism not only derails project timelines but also negatively impacts investor sentiments, thus deterring investments.

The number of disputes in PPP projects has shown a significant increase from 56 cases (pertaining to Rs 8 billion) in 2013 to 116 cases (Rs 115 billion) in 2015. As per available data, over Rs 210 billion worth disputes regarding 870 cases are pending for resolution in the roadways sector alone, concerning both PPPs and public funded projects. A key factor behind the difficulties facing the construction sector is the pendency of claims from government bodies. An estimated Rs 700 billion is tied up in arbitration. Over 85% of the claims raised against government bodies are still pending and the average settlement time for claims is estimated at more than seven years. Arbitration awards are almost invariably appealed against, resulting in long drawn disputes that often last three to 10 years

CONCLUSIONS:

In our understanding, risk mitigation in financing infrastructure is a primary need to attract long term funding into infrastructure projects. Clarity in government policies, clear land acquisition strategies, environmental needs and regulations can go a long way in creating confidence among investors to fund infrastructure projects.

<http://www.vccircle.com/news/infrastructure/2016/11/24/infrastructure-investment-trusts-may-raise-around-3-bn-india-mid-2018> accessed on Feb 17, 2017.

Other Key Suggestions to Enhance Funds Flow into Infrastructure are Summarised Below:

- (a) The Gol must focus on monetising operational projects which are generating revenues. This is particularly true for toll road projects, but may be considered for airports as well. It should encourage NHAI and other state agencies to expedite the bidding process for operational projects that can be awarded under the Cabinet approved Toll-Operate-Transfer (TOT) model. This could help attract long-term institutional investors globally who are generally averse to construction risks.
- (b) Consider extending the increasingly successful Hybrid Annuity Model (HAM) structures to other infra segments.
- (c) Explore options to provide credit enhancement, expanding scope of PCE mechanisms. To enable the flow of long-term non-bank credit to infrastructure, a suitable existing or de novo institution may focus on guarantee operations for bonds issued by infrastructure companies to raise their credit rating to 'AA' or 'AAA'. Institutions such as IIFCL may be renewed for this.
- (d) Encourage regulators of domestic pension and insurance funds to channelise a larger proportion of their funds through IDFs, subject to prudential considerations.
- (e) Utilise innovative financial structures, including mezzanine instruments, to increase the flow of equity finance into infrastructure projects.
- (f) Create enabling atmosphere for local bodies to raise money for their own needs.
- (g) Gol to set up an effective dispute resolution mechanism. It must expeditiously institute amendments in the Arbitration and Conciliation Act, 1996 as proposed in the Budget 2017-18. Government must also encourage project authorities to discharge their obligations in compliance with conditions of the contract.
- (h) Government should expedite setting up of the 3P-India institute (to support Public Private Partnership) as proposed by the Finance Minister in the Budget 2014-15. 3P-India may be entrusted with the task of restructuring PPP contracts. It could also develop suitable PPP models to attract private sector investments in sectors such as the Indian Railways and social infrastructure.

- India's power sector is in a surplus due to stagnant demand and oversupply. Further, the entire business model is changing – from regulated to distributed and decentralised.
- The GoI is thrusting RE as an alternative source with an aim to target of 175 GW by 2022; however efficient integration into the extant grids will spell economic viability.
- Need of the hour is a comprehensive policy that considers a mix of power generation, energy demand and fair power distribution ensuring cheap and reliable power for all.

Power is one component of infrastructure that is critical for the economic growth and welfare of nations. Development of adequate infrastructure is the mainstay for sustained growth of the Indian economy. The Indian power sector is presently undergoing significant transformation in the context of various reform measures introduced by the government and evolving socio-economic conditions.

India's power sector is among the most diversified globally. Power generation ranges from conventional sources – coal, lignite, natural gas, oil, hydro and nuclear power to viable non-conventional sources such as wind, solar, agricultural and domestic waste. Installed generating capacity at end-March 2018 is 336 GW and excludes 60-90 GW of captive generation capacity.

The Indian power sector is currently facing a surplus situation owing to stagnant demand, and oversupply due to capacity addition. A generating capacity addition of 195 GW over the last decade has transformed the national deficit of 12% to a surplus. On the supply side, this is led by the government's push towards greater renewable energy (RE) deployment (and subsequent price drop) leading to historic lows for thermal PLFs. India's emission reduction commitments under COP21 has lent strong impetus to the growth of renewables capacity in India. India has an objective to set up a renewable power generation capacity to meet an RE target of 175 GW by 2022. This includes 100 GW from solar, 60 MW from wind, 10 GW from biomass and 5 GW from small hydro power plants. This addition will have significant implications not only on grid integration but also on conventional power generation plants.

In terms of demand, the financial situation of distribution companies (discoms) is precarious. The Ujjwal Discom Assurance Yojana (UDAY) was launched on 5 November 2015 by the government to improve the health of discoms; and 32 states and Union Territories have signed up. The scheme suggests improvement via four initiatives –

- (a) improve operational efficiency by reducing technical and commercial losses,
- (b) reduce cost of power
- (c) reduce interest cost of discoms, and
- (d) enforce financial discipline on discoms through alignment with state finances.

However, sustainability of the UDAY scheme is yet to be seen. This puts at risk around 50 GW of conventional power plants which are at various stages of development due to lack of power purchase agreements (PPAs) and fuel supply assurances. With rising complexity in doing business, key structural changes are required to ensure competitiveness of the power sector in India. Simultaneously, a complete ecosystem transformation is required for ease of investment in new capacities. We believe the following measures will promote development of the sector and enhance competitiveness.

Enhancing Competitiveness – Maintaining a Level Playing Field

There is a need to create a comprehensive policy for the industry by considering all factors such as generation mix, energy demand and thereby ensure cheap and reliable power for all. The challenges and solutions need to be understood jointly by the stakeholders, public and private partners to ensure sectoral growth. The government must ensure resource allocation to public and private sectors on an equal footing e.g. allocation of coal and gas to all utilities and the Section 62 tie-up for PSUs as well as private utilities. It should maintain a level playing field for power generators who have met revised environment norms versus those who have not through rewards, tender preferences etc.

The government could introduce a scheme such as the 'Gram Ujjvala Yojana' where private companies can be invited to create infrastructure in 10-20 selected villages for generation and distribution with viability gap funding. An institution similar to Solar Energy Corporation of India (SECI) could be created for the purpose. The transmission projects could be bid on the basis of Ultra Mega Power Projects (UMPP) where in all ROW(Right of Way) and route survey could be done in advance for removing uncertainties and bringing in better competition to gain optimum costs.

Additionally, there is a need to maintain a level playing field between different sources of generation. At present, the price of RE is supported by different policy interventions such as 100% power offtake, free inter-state transmission charges etc. With capital costs to set up renewable energy plants reducing, the government could consider re-evaluation of these interventions to enhance competitiveness of the sector.

Introducing a Balanced Tariff Design

Distribution and retail supply of power is the most crucial link in the power sector value chain. Economic viability of this segment has major ramifications on viability of the entire sector. While the country has seen significant reforms in the generation and transmission segment through introduction of competition and participation of private sector in a big way, distribution continues to be plagued by legacy issues, despite the unbundling and corporatisation of state electricity boards (SEBs). A key reason for the distribution segment being slow on the path of reforms is the fact, that historically, the tariff design of power has been a sensitive politico-commercial issue. Delays in tariff revisions have resulted in the absence of cost reflective tariffs, and finally led to difficulties in introduction of retail competition and offering the supplier of choice to consumers. Numerous steps can be opted to ensure a balanced tariff design:

- Transparency with ease of understanding for retail consumers through simplification of tariff categories and slab structures
- Appropriate cost allocation with clear segregation of cost of energy, retail supply cost and transportation (i.e. wheeling) costs
- Tariffs that reflect the cost of efficient voltage level for consumer categories
- Subsidies to needy categories must be well targeted and direct
- Tariff structures to facilitate smoothening of demand curve (through time of use metering/ tariffs)
- Lastly, regulated tariffs should be such that they provide a level playing field to the incumbent utility, else competition in the sector will remain a distant dream.

Integrating with Renewables

Renewable energy generation from wind and solar has increased substantially during the last few years and forms a sizeable proportion of total generation today. At present, the total installed generation capacity in India is 330 GW, out of which the installed capacity of renewable energy sources is 57 GW (Source: CEA, MNRE). India has set an ambitious target of 175 GW of renewable generation capacity addition by year 2022, which includes 100 GW from solar, 60 GW from wind, 10 GW from bio-power and 5 GW from small hydro power projects. While there is significant focus on renewable power generation, we need to efficiently integrate renewable power into existing power grids in India until the grid scale battery technologies become economically viable.

Thermal generation must ramp down in the morning when solar generation comes into service and ramp up in the evening when solar generation reduces. Similarly, flexible generation like reservoir based hydro and gas-based plants are required to be pressed into service in order to meet evening peak demand. However, thermal plants operating at PLF of around 50% will result in fixed cost per unit becoming double in addition to the rise in heat rate. This means that cycling of thermal plants to integrate renewables is hardly any solution. In fact, a number of thermal plants may even need an economic shutdown during low demand periods. Several options are possible to integrate renewables effectively with the grid.

Renewable energy integration imposes increased cyclic duty on all conventional thermal generating units, whereas existing coal-based capacity would have to undergo capital expenditure to build frequent ramp-up or ramp-down capability. Old coal fired plants originally designed for and operated as base load units, may be required to operate on a more flexible basis with load variations and two shift operations. The plants would be shut down when solar generation picks up and would need to be restarted to meet evening peak demand when solar generation reduces.

The evening and morning valleys could be met by reservoir-based peaking hydro, which can easily meet the increasing requirement of ramping up and down and therefore, have full flexibility. Finally, pumped storage units (PSU) can play a major role as flexible generation resources meet peaking power demand and maintain system stability.

Digitalising Operations

While most companies scramble just to keep up with the relentless rate of innovation, the companies on the digital frontier continue to push the boundaries of technology use.

Industries can no longer afford to sleep through this storm and remain ignorant of the digital shifts happening around. That is the reason why almost all industries are testing the waters by applying numerous and disparate attempts before adopting any such idea in toto.

Power sector utilities, mostly thermal generation plants today, are challenged by complex industry dynamics – volatile market conditions, increased competition, stringent operational boundary, tighter regulations, changing workforce and constrained budgets. Business environments have little or no tolerance for inefficient operations and the associated cost overruns, missed generation targets, or safety/environmental incidents. The challenge for many plants – definitely for older ones as well as ageing and vintage assets - is how to help keep facilities running better, longer, cost-effectively and competitively.

Analytic-based digitisation is transforming the power sector in unprecedented ways bringing in a host of opportunities and challenges. While opportunities include new sources of value creation, higher cost efficiencies and differentiated business models, there are multiple challenges such as disruptive competition, customers changing power utilities, significant cost of inaction, unutilised vast data available etc. that utilities must deal with.

Even though globally utilities are at various stages of 'analytic digital', investment in this space is witnessing an upward shift. Digitalisation coupled with industry trends such as decentralisation and changing generation portfolios is expected to result in a larger change. Indian utilities have also realised the significance of digitalising the business as evident from a 5% CAGR increase in digital spend from 2011 to 2018. Going forward, Indian power players are aspiring to become 'new age utilities' that leverage digital applications across the value chain.

Companies that rapidly adopt and build skills in new technologies such as IoT, Analytics, Big Data, AI, blockchain etc. are likely to remain competitive.

- Manufacturers could use data analytics to optimise factory operations, boosting equipment utilisation and product quality while reducing energy consumption.
- Use of RFID tags for asset tracking could be used to optimise supply chain costs and streamline logistics.
- New technologies like Lora could be adopted for asset verification and store management. New technologies need start-ups and thus start-ups doing research in digitalisation for assisting manufacturing need separate incentivisation by way of angel capital, tax breaks, viability funding etc.
- Manufacturing companies are increasingly using sensor driven data to create an IoT network of its machines leading to higher efficiency, reduction of costs and reliability centered maintenance. Connected technology has streamlined and simplified processes.
- Productivity and quality need a big push in the manufacturing sector. Our benchmark versus global standards needs to perk up. There are IoT platforms available for digitising operations. These will bring analytic based cost optimised operations. This will also lead to a competent workforce. These useful package services could be made tax free to encourage adoption and thus increase productivity and quality.
- AI and machine learning algorithms are transforming the way the manufacturing industry collects information, performs skilled labour, and predicts consumer behaviour. Smart factories with integrated IT systems provide relevant data to both sides of the supply chain more easily, increasing production capacity.
- In the power sector, distribution utilities need to evolve to become Smart Discoms by leveraging digitalisation for meeting customer expectations in cost, quality and convenience. This is necessary from the point of view of being a part of smart city which is the expectation of all big cities.

Incentives or interest free loan could be brought in by regulators to help the discoms in digitalisation. Digitising customer services will do away with a majority of brick and mortar structures. This will provide service and reduce the cost of products. Safety standards: robotics and advanced tools must be introduced to enhance safety. The sectors need research centres to evolve new safety tools and equipment designed with a hands-off approach to ensure safety.

Building Capability

It is estimated that India's power generation capacity will double by 2027 (from 336 GW in 2018 to 640 GW in 2027). Concomitant with this massive demand for additional power, will be the demand for additional skilled manpower. It is estimated that the power sector will need an additional 1.5 million skilled manpower by 2025. Meeting this demand for additional skilled manpower in the entire chain of power sector and downstream value added services will be a challenge for the sector.

With the evolving power sector, companies will have to re-train their employees to not only have technical skills but also commercial and management acumen to be competitive. The sector today is not only changing generation mix-wise, but the entire business model is changing – from regulated to distributed and decentralised. Thus, the skills required to succeed in this environment is very different from the existing skill base. Coupled with an ageing workforce and new data driven technologies, it has become even more important for companies to focus on capability building. The government is cognizant of this and has launched a massive campaign called the "Skill India Mission" to counter this problem. But the government's efforts alone will not be enough, and the public private partnerships in this regard should support the government in effective deployment of this mission. The government could provide an enabling environment by rapidly overhauling the course materials, making it relevant to today's environment.

SMART CITIES: AN ENabler FOR INDIA'S ENHANCED COMPETITIVENESS

DEEPAK GORAY

- Smart Cities is an extremely nascent concept in India. They refer to efficient transportation of people and goods and a reliable and efficient supply of energy making them extremely livable.
- Gol has announced: (a) 100 smart cities under the Smart Cities Mission and 500 smaller towns under the AMRUT mission; and (b) Make in India campaign, which includes key new initiatives designed to facilitate investment and build best-in-class manufacturing infrastructure.
- Efficient collaboration between city, state and national government as well as India's citizens will realise Smart Cities.

INTRODUCTION:

The trends in India over next 20 years - population growth and the rural to urban migration, pose severe strain on existing urban habitat infrastructure. Adopting right fit Smart Infrastructure is the key enabler for city authorities makes for Smarter Cities that provides citizens with the Quality of Life, Environmental Sustainability and Economic Competitiveness. Typically a Smart City would entail a host of sub components Energy Distribution &, Smart Grid, Intelligent Building Management Solutions, Citizen Safety & Security, Integrated Command & Control Centers, Mobility solutions - Metros, Intelligent Traffic Management, Water and Waste water automation, Predictive Clean Air tools and integrated City development. The future of smart cities will be shaped by the Internet of Things as a networking technology and by smart data as a resource..

As the world moves towards Industry 4.0, India must move with it – by turning to smart technology that can maximize quality, productivity, speed and efficiency, and gain a vital competitive edge in cost and innovation. Smart City Development is a huge positive for the manufacturing industry primarily because these thriving living sustainable ecosystems help to attract and retain talent and also bring in competing investments.

These City Infrastructure technology enablers coupled with a Political Will, Right Governance, Transparent Procurement norms-QCBS, SWISS Challenge models, Strengthening ULB finances, Innovative funding models to attract private investments, Skill Development and integrated approach between various Ministries, will support the faster development of SMART Infrastructure to make Cities Smarter & the key enablers for India's enhanced competitiveness.

ANALYSIS & DISCUSSIONS:

India is undergoing rapid growth, with urbanization on the rise all across the country. As emerging technologies continue to develop, more opportunities arise for cities to leverage new technological processes and data sources for new and existing public infrastructure. Estimates suggest that urban population is set to grow to more than 500 million by 2030, and the contribution of India's urban areas to its GDP will be 75% by 2030 (up from 63% in 2018).

Thus the key challenge with rapid urbanization essentially would be to improve the quality of life boost economic activity and increase sustainability, as the economy continues to grow. Cities must be more responsive and resilient to attract talent to build local and national economies. Investments in Smart Infrastructure which makes Cities and towns smarter will help citizens balance Quality of life, Environment Sustainability and Economic Competitiveness.

Intelligent infrastructure encompasses of a digital ecosystem to make cities and countries more livable and sustainable. Today the number of connected devices has surpassed the number of humans on the planet. These intelligent devices generate massive amounts of data transforming life and business

across all sectors. However, much infrastructure has yet to be transformed by the information age. Instead, in most places, trains, power systems, buildings, buses, and roads have hardly changed in nature. Some digital systems have been incorporated but we have only just begun to unlock the potential of fully digitized, electrified, information-enabled, intelligent infrastructure. Doing so will be key to meeting the India's present and future sustainable development challenges. Secure energy supplies, flexible mobility, and energy efficient building control: the requirements for a modern and sustainable infrastructure are growing. Digitalization enables the implementation of innovative solutions that make urban areas better places to live.

CURRENT SCENARIO:

Building smart infrastructure in India is more complex than in its western counterparts. Most of the cities and towns do not have access to basic infrastructure, let alone digital infrastructure. In addition, there is a lack of power accessibility; India has the largest un-electrified population in the world. This is a major factor that pegs India back in its competitiveness, according to the World Economic Forum (WEF).

The report further classifies India as one of the 35 countries in a "factor driven" economy. What this means is that in spite of the huge infrastructure deficit, India outperforms Sub-Saharan and other countries on the GCI. One of the reasons for this is possibly India's unconventional path of economic development. India is heavily dependent on the service sector to drive its economic growth thereby leapfrogging over the manufacturing-led stage of development. India's manufacturing sector with an 18% share of overall GDP compares poorly with its Asian peers. This is in spite of various strengths that the country possesses like a large domestic market base, a regulated monetary system, strong base of entrepreneurs. The manufacturing sector lags due to a lack of enabling infrastructure as well as restrictive labour laws.

But despite the challenges India has moved up to 40th place on the Global Competitiveness Index (GCI) in 2017-18, from 71st place in 2014-2015. This was largely due to improvement in infrastructure, health and education post 2014, when the newly elected government increased public investment and sped up approval procedures to attract private resources.

THE ROAD AHEAD:

The Indian government estimates that an infrastructure investment of \$4.5 trillion will be needed till 2040 to meet the current infrastructure deficit. The Indian government has also set a goal of increasing the share of manufacturing sector to 25% of GDP from its current 18%. It is estimated that by 2025 India's manufacturing sector can grow to be a \$1 to \$1.5 trillion dollar sector.

Creating Smart Infrastructure to make Cities Smart will require a collaborative effort between city, state and national governments, as well as from India's citizens. Coupled with the delivery expertise of the private sector, smart technologies will be the differentiator in improving the overall quality of life. Smart infrastructure uses advances in sensors, controls and software. This allows cities, service providers and citizens to access the full potential of both existing and new urban infrastructure systems.

Moving towards building smart Infrastructure would propel us towards an efficiency-based and then an innovation based economy. This is provided that we are able to overcome macroeconomic roadblocks such as currency weakness, global trade protectionism, rising inflation, and political stability.

The Indian government is cognizant of the fact that to be future-ready, infrastructure development is essential across all parts of the country. As of today, there are 100 Smart cities under the Smart Cities Mission and 500 smaller towns covered under the AMRUT mission.

Smaller cities will play a key role in sustaining the growing urbanization levels in India, as the larger cities are already reaching levels of population saturation. In addition, since most of the rural population migrates to bigger cities, it causes an unaffordable level of living with unjustified housing prices and a lack of basic living standards. This is why it is important to look at India as a whole. Satellite towns

like Gurgaon and Manesar were set up to offer superior employment options, education, health care & other social infrastructure. They provide an alternative hub of economic activity, and offset the strain on the current large metros.

Smart Infrastructure will help bridge the gap between its innovative strength and technological readiness, thereby leveraging it across the wider economy. With intelligent buildings, intermodal transportation solutions, distributed energy systems and intelligent grids, we create value through digital connection. Thereby, we can create cities of the future, making us globally competitive.

Smart cities will be characterized by power grids that will be able to balance electricity supply and demand. This will start with buildings that learn occupants' energy needs, integrate vehicle batteries into their energy forecasts, respond to changing weather conditions, and automatically alter their behavior to maximize their efficiency. The world's most advanced buildings have brains – a kind of central nervous system that balances and reconciles competing interests such as energy minimization, occupant comfort, and grid stability.

Buildings can become generators instead of consumers of energy. Consider this fact: An estimated 15 billion square feet of space is expected to be constructed in the upcoming years. If 40% of the energy is consumed in buildings, consider the savings brought about by a green or smart building that consumes 30% less energy than a conventional building.

India's energy use has almost doubled since the turn of the century. And the country will contribute more than any other to the rise in global energy demand over the next 25 years. Whether it's residential and office buildings in New Delhi, technology complexes in Bangalore, or transport systems in Mumbai – the modern world depends on a safe, clean and efficient energy supply

In addition to the power grid, the transportation infrastructure is also critical to the success of the manufacturing industry. India's highways and railroads are currently over-capacity, and the congestion adds to the inefficiency of the manufacturing sector. Many manufacturers are dependent on the airline industry, for both supplies of their raw materials as well as delivering their end products to consumers. This is a significant cost to their business, impacting the margins of the overall industry – especially as oil prices continue to rise. Investing in a smart transportation network in cities and across the country would reduce the travel time between locations and provide a cheaper logistical option

To maintain and improve our standards of life, one of the critical areas that need to be urgently addressed is the optimization of water usage as well and reduction of waste. This is measured as Non-Revenue water, and refers to water that is lost (through avenues such as leaks, theft and inaccurate meters) before it reaches the customer. Currently, India's non-Revenue Water is 34% - significantly higher than the global average of 28%. Smart infrastructure would be particularly useful in cities which continually face water shortage issues. Better infrastructure improves manufacturing, which in turn leads to better infrastructure - thus creating a cycle of improvement. It is widely agreed that automation makes manufacturing processes more efficient and leads to fewer defects.

CONCLUSIONS:

The consortium approach for smart cities is the way to enhance India's competitiveness. A consortium approach can bring a depth of expertise as well as integrated thinking across sectors, right from the planning stage through to the execution of projects. The government has hinged these developments on private sector investments, but the private sector is reluctant to pursue these opportunities, due to challenges in dealing with multiple authorities and taking on a higher level of risk. In order to provide a level playing field with technology as a key driver, we need innovative business models, both for procurement and financing. Innovative business models are needed for the private sector to participate. It is also imperative for the government to be a risk taking partner which provides guarantees, subsidies. These business models could be a consortium approach, quality cum cost based approach (QCBS) basis for evaluation, O&M along with lifecycle costs, SWISS challenge mode and Hybrid annuity models to name a few.

Enablers

- *Emphasis on integrated approach to Smart Infrastructure Planning and Implementation – appropriate technology leveraging Digitalization.*
- *Integrated approach from Central and State Ministries.*
- *Transparent Procurement with emphasis on “Right fit” technology, life cycle QCBS, consortium approach with O&M.*
- *Strengthen revenue sources of ULBs – Allow them to retain share of the taxes collected to build infrastructure.*
- *Attract Private Funding - Innovative models to entice private sector investments.*
- *Leverage Digitalisation / IOT.*
- *Positive regulatory environment – Heavy Deterrents to violation of rules.*
- *Capacity building- Skill Development for all verticals and services.*

Siemens has been helping to build the infrastructure of this country since the last 150 years. There is significant untapped potential in smart infrastructure, which is where we hope to make a difference with our expertise. Our focus areas are in the digitalization of cities and power grids, and we are committed to develop India’s infrastructure to meet global standards.

Sources of Information: Information from Public Domain, Government data, Consultant Reports on India’s Urbanization, Siemens internal Strategy team reports, COC Cities London data.

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INCLUSION

- India significantly lags its Asian neighbours in 2 key components of human capital – Education and Health.
- Govt acknowledges the above stated findings of NAS and ASER, and pledges to ensure ‘right to learning’ as a Central object of the Right to Education Act.
- Compulsory education and enforced child healthcare to be a unified objective; modernising our public schools; imparting better English education and raising Govt spend on education/health.

AN OVERVIEW:

Human capital is a fundamental building block of labour productivity and long-term competitiveness, which in a globalised world translates into matching the efficiency of rival nations. For India, the competitors are China and other Asian neighbours. Various studies indicate that while India’s unit labour cost of manufacturing is similar to that of China, and significantly lower than that of other Emerging and Organisation for Economic Co-operation and Development (OECD) countries (e.g., 16% of Germany), India’s manufacturing export has remained low (and dismal in comparison with China). Despite economic liberalisation’s positive impact on industrial output and export, our productivity has grown very timidly (Dougherty et al. 2009). There are many short term and long term factors, such as regulation, business environment, infrastructure and human capital, to name a few, that appear to hold back India’s productivity growth.

In this chapter, we look at the human capital scenario – more specifically education. First, we will look at the current scenario, and then separate the long-term issues from the ones that can be rectified over a shorter time frame (say by 2025). It is the latter set of issues that we are mainly concerned about here. The long-term issues can limit the gains to be made by government intervention. For the sake of completeness, I will briefly mention the long-term issues that we need to be aware of.

ANALYSIS & DISCUSSIONS:

One important lesson of the Millennium Development Goal exercise is that the ‘demand’ for education remains stubbornly low, so much so that despite significant expansion of school facilities all over India, the tendency to drop out is still significantly high at the secondary school level. Why is this so? Several issues seem important. There is a misperception among parents, Banerjee and Duflo (2011) argues, that time spent at school has lower future returns than time spent at learning some work skills. This perception does not fit with the overwhelming evidence contrary to that produced by the returns to schooling literature globally. While the problem of misperception is not unusual among the many developing countries nations, India is the only large economy to exhibit this problem.

Our school level interventions seem to be failing for factors relating to the labour market and informal sector. Some studies have shown – and it is not generalisable to the whole economy – that workers who start working early in the informal sector often manage to transition into formal sector large firms based on their long experience rather than education. In other words, informal sector is not always a subsistence sector; it can be a pathway to large firms and good jobs at the end, and if so, then dropping out of school is worthwhile from an individual’s point of view (Saha and Sarkar, 1999). This picture, as said above, holds mainly for older children; one would expect that at the primary school level, interventions should have a more positive impact. Indeed, a recent study (Shah and Steinberg, 2017) confirms this hypothesis.

There are specific factors that seem to matter for girls’ continuation at high school. Lack of proper toilet facilities, cost of travelling to school, risk of sexual assault in public places, and negative social attitude to girls’ education all create enormous barriers for girls. Despite all this, it is very heartening

to see that this is one demographic (girls) that stands out in every aspect of educational achievement: girls are coming to school and staying at school at a much greater rate than before, thanks to vast improvements in road networks (Pal, 2010).

More importantly, how the school investments interact with social attitudes, labour market incentives, roads and industries is not well understood. The relationships are complex, and research has thrown up some surprising insights. For instance, it has been seen that after Green Revolution, the returns to education improved in Northern India (Foster and Rosenzweig, 1996), which suggests that technological intervention in industry or agriculture can unleash strong incentives to learn. Another study shows that globalisation led to greater schooling of girls in some backward caste communities in Mumbai (Munshi and Rosenzweig, 2006).

While many external factors may continue to block the progress in education, there is still much achievable both at the primary and secondary levels by designing the interventions correctly.

PRESENT SCENARIO:

It is not very comforting that between 1951 and 2011 India's literacy rate has improved by less than 1% a year to reach only 73%, while China, Malaysia, Vietnam and Sri Lanka have all reached a literacy rate close to 100%, although a few decades ago their literacy rates were comparable to or even lower than India's. By the current progress, India needs another thirty years to catch up with its Asian competitors.

To make the matter worse, there is huge gender disparity. In 2011 only 64.6% women were literate against 80.9% males being literate. The adult literacy rate (for the age group above 15) among the STs is just 51.9%, substantially behind other population groups (Government of India, 2016a, 2016b).

One good news is that the literacy rate among children is nearly 100%; so, one may expect that twenty years from now Indian workers' productivity is likely to be at par with their East Asian counterparts. Unfortunately, that expectation seems to be unfounded. As various studies indicate, when it comes to literacy and numeracy skills, Indian children are learning very poorly, remaining at least 2 to 3 years behind the East Asian children.

There are two types of evidence on 'what children are learning' – one from the government run National Achievement Survey (NAS) conducted by NCERT and another conducted by the NGO Pratham, called Annual Status of Education Report (ASER); they measure different aspects of learning and are not comparable to each other. But some interesting facts have emerged. NAS (2015) reports that girls are now outperforming the boys, and there is no significant disparity between rural and urban India with respect to children's performance in language, mathematics and environmental studies. As before, SC/ST children are performing below others. But surprisingly, between 2010 and 2014 the average performance of all children has fallen (NCERT, 2015). ASER focuses exclusively on the deficiency of learning. Their 2016 report on rural children shows that between 2014 and 2016, children's reading ability has improved at the primary level, but not at the higher levels. If anything, the situation has been somewhat worse for the age group 13-14 (ASER, 2016).

But their report also reveals a stunning picture of learning deficiency. Only 9.8 percent students of class I meet or exceed the expectation of being able to read grade I text or grade II text. The remaining 90.2 percent class I students fail the reading test, out of which a whopping 46.1 percent can't even correctly identify letters/alphabets. Among the older children, the picture is not better either. Only 13.4% class II students can read grade II text. Another 17.3 % of children of class III and 19.2% of children in class IV fail to read beyond grade I text. Even among the eighth graders, 13.0% students cannot read grade I text. Clearly, something needs to be done and needs to be done soon.

It is heartening to see that the latest NITI Aayog document titled Strategy for New India @ 75 acknowledges the above mentioned findings of NAS and ASER, and pledges to ensure 'right to learning' as a Central object of the Right to Education Act (Government of India, 2018, p. 114). The document also envisages an electronic national education registry to track every student's performance to ensure school completion up to Class X.

What are the reasons for learning so little or retaining so little of classroom lessons? Several factors come up, such as poor teaching and absenteeism by teachers (Chaudhury et al., 2006), late start in schooling and lack of supplementary teaching. The issue of shirking by teachers has been addressed in the incentive literature and the solution seems to be a mix of better pay and better monitoring; see Duflo et al. (2012) for more on this. On the issue of late start and insufficient teaching inputs, the question comes down to money. The education literature affirms that an early headstart gives many children an advantage that seems to persist through later years of schooling (Currie et al., 2002).

But Desai and Vanneman (2015) argue that some children are late bloomers, even though early start is beneficial for a majority; so additional resources are needed to help those students who are not blooming on time. The same argument can be extended to later years in high school for students, who for whatever reasons fall behind.

So, effectively the issue comes down to introducing pre-schooling (a key factor of attraction for private schools) at government schools, and tracking children's performance throughout and deploying resources to help the weaker students until they graduate out of the high school. We will make some suggestions in this regard.

Health For All

Health is another story of disappointment. By the key indicators of child health, height-for-age and weight-for age, there is significant disparity between the rich and the poor. The infant mortality rate (IMR) of India is much higher than all its South Asian neighbours. Although India has done very well to reduce its IMR from 50 (per 1,000 live births) in 2009 to 42 in 2012 and then to 38 in 2015, it is still not good enough. In 2015, IMR was 31 in Bangladesh, 27 in Bhutan, 29 in Nepal and 8 in Sri Lanka, and just 9 in China. Our efforts to immunise the children are awfully inadequate. In the first year after birth only 71.3% babies are given DPT, and its follow up booster is given to only 41.4% children. Women in their adult lives carry on the ill effects of poor immunisation and low nutrition from childhood in the form of low BMI resulting in lower birth weight and low immunity of their babies. The percentage of women with low body mass index (BMI) was 35.8% in 2005-06, almost same as in 1998-99, and the percentage of women suffering from anaemia was a whopping 55.3% in 2005-06 (in 1998-99 it was 51.8%).

It is probably clear at this point that versus our Asian neighbours, we significantly lag in two key components of human capital – education and health. Both reflect some stubborn problems: (i) failure of the public education and health care systems, (ii) failures are on many dimensions – outreach, reliability, management, quality and spreading awareness, (iii) some problems are intergenerational transmitting through poor maternal health, and cultural issues relating to the treatment of women, (iv) exclusion of weaker sections of the societies (such as SC and ST).

It would be unfair to say that the government has not done much. In fact, since liberalisation, the government has adopted a series of measures, notably Sarba Shiksha Abhiyan campaign, setting up of primary schools in rural areas, mid-day meal at every school and finally passing of the Right to Education Act (RTE) in 2009. Polio has been (almost) eradicated, and IMR has fallen; earlier our IMR was shamefully high close to some poorest countries. Many studies indicate the mid-day meal has encouraged regular school attendance, which suggests that the private sector can also join in to improve the mid-day meal programme. There is at least one primary school within a kilometre or so of every village. These are progresses.

But the main issue is that successive governments (both Centre and states) have failed to formulate an integrated strategy to improve education and health together. This is imperative, because there is proven complementarity between the two. Even more crucially, within health or education each, success depends on the coordination and cooperation between multiple participants – such as doctors and nurses, teachers and parents etc. There is also an assumption that it is primarily a parental responsibility to see that the child is admitted to a school or in good health. This assumption is valid for educated and/or well-off parents, but for the uneducated parents it is impossible to make the right decision at the right time. Therefore, the state must intervene in a pro-child manner.

Government of India's Objectives

The Government of India has launched the New Education Policy, after the draft policy has undergone a nationwide public consultation (Government of India, 2016b). The policy document has identified 13 themes ranging from learning outcomes and child health to teacher training. A welcome development is that the child's learning and high school completion both have taken the top spots of the policy agenda, as seen in the latest NITI Aayog document (Gol, 2018).

We should aim to achieve the universal primary education by 2025 for all demographic groups, SC&ST, girls and religious minorities. Their learning achievement must also reach a measurable level – at least 50 percent of the students of that grade must be able to demonstrate the corresponding level of numeracy and literacy. And we should aim to achieve the health outcome of the Sri Lankan level by 2025.

CONCLUSIONS:

Now we make some modest policy recommendations.

- 1) **Integration of Healthcare and Primary Education:** Compulsory education and compulsory child health care (immunisation, BMI, height and weight check-ups, nutrition monitoring and so on so forth) should be a unified objective, thus forcing all schools – private or public – to liaise with health professionals and monitor child health everywhere, especially for the poor and in the rural areas. The latest announcement of the Government on universal health insurance (the so-called Modicare) does not go into the issue of the child health in coordination with primary schooling. But there is promise for child health through households; but clearly that remains to be seen.
- 2) **Save Public Schools From Being Merely the Poor Man's option:** We know that private school is an irreversible reality in India. Private education has spread rapidly in India and in many cases cost effectively (EdInvest, 2000). Even for low income children there are low cost private schools (Tooley and Dixon, 2003; Desai et al., 2008). There is also some evidence to suggest that private schools are better schools, and do a better job in teaching English, mathematics and science (Kingdon 1996; Singh, 2015). But this is not generalisable. Several studies both for India and other countries show equivalence or superiority of public schools (Pal and Saha, 2018; Chudgar and Quin, 2012). Therefore, we should not see private investment in education as a substitute for public investment in education.

Instead, we should make every effort to save our public schools, modernise them and make them as good as private schools. For this, the government needs to be flexible and depending on the grassroots conditions should adopt any array of changes. In addition, we should aim to develop private public partnership in education, based on the ground reality.

Here I suggest a few measures:

- i) Introduce better English education (a key reason for parents to turn to private schools) – reading, writing and some speaking, for which the teachers can be trained. As such the functional literacy of English is improving automatically due to the usage of smartphones; so, there is no reason why government schools cannot teach English better.
- ii) Like the private schools, start KG classes because research shows that early start makes a difference to later age learning.
- iii) Have remedial classes for weaker (i.e. falling behind) students from grade eight to ten to prepare them for the secondary board exam. This is the time many children drop out, as they fear failing in the final exam. Private tuitions are not affordable for everybody. This is also an area to develop partnership with private companies; all options including remote learning, paying private tuition companies to tailor their service for weaker students can be explored. The government's proposed idea of individualised tracking system is a welcome development and its details should be thoughtfully worked out.

- iv) We should also have a catchment area-based admission policy for our primary and high schools and then each primary school should be treated as a feeder to a designated high school nearby. Uncertainty over admission into a government run high school often drives parents to go for an integrated private school.
 - v) The private sector can also run the mid-day meal programme in schools for low income children, especially where the government money is insufficient or the school is non-formal. Such activities can easily be recognised as acts of corporate social responsibility (CSR). This will incentivise the private sector to be a partner of the government where suitable and the programme can be run uninterrupted and/or lifted to a higher standard.
 - vi) Introduce vocational education at high schools. The private sector can help in designing the vocational education programme based on the industry needs. The NITI Aayog document (Gol, 2018) makes a clear cut suggestion of giving a choice to the students and parents to branch out to a NSQF-aligned vocational education at the post-secondary level. This is a very good development.
 - vii) We need more mixed gender schools to overcome the gender divisions and social prejudices.
- 3) **Government Spend Must Increase:** Government spending has been on the rise, but often the government is obsessed about advertising the spending figures, and not assessing the outcomes of spending. The suggestions made above are meant to improve the outcome. Still, as a nation we are spending less than the international standard. We should increase the government spending on education to 5% of GDP, and on health to 3% of GDP.

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FISCAL POLICY

- The Narendra Modi government clearly aspires to create large scale transformation in social welfare and social capital.
- Initiatives in public infrastructure, steps such as digitisation, formalisation of the economy including demonetisation, the resolve to address rising bad debts in banking bear this out.
- Time to embrace bolder tax initiatives – eliminate a plethora of incentives and deductions, moderate rates, significantly reduce tax controversies and resultant litigation and kick-start an economic revival like in the USA.

AN OVERVIEW:

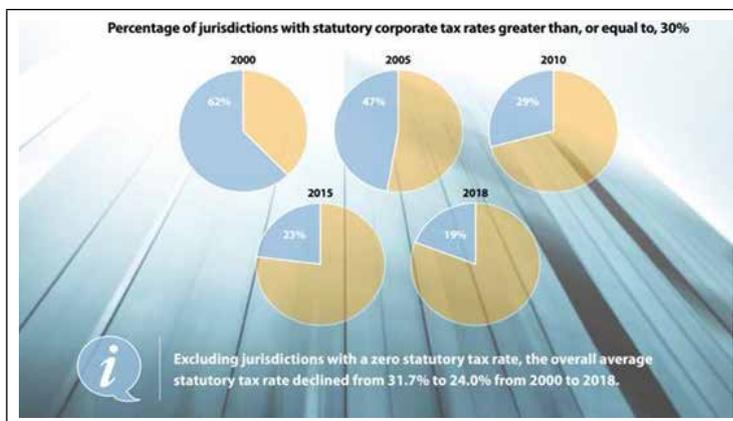
Tax policy in India has been a subject matter of great attention and debate in the context of the aspiration to have faster economic growth, create more employment and lift more people out of poverty. Given the seemingly contradictory objectives of growth with equality and the need to balance a moderate tax system with increase in the tax base, it is no surprise that there are divergent views on the future course for India's tax policy. However, there has been a reasonable consensus (both said and unsaid) on the need to maintain moderate rates of direct taxation since the late 1990s. Undoubtedly, the ushering in of overall far reaching economic reforms in the early 1990s impacted the subsequent thought processes as far as tax policy was concerned. One of the early policy directions in this regard came from the Kelkar Committee which for the first time unveiled far reaching reforms agenda for indirect taxation which finally culminated in the introduction of the Goods and Services Tax (GST) well over a decade later. The Kelkar Committee recommendations also found an echo in an earlier (failed) attempt to revamp India's Direct tax (DT) law until recently when a fresh attempt was made to revisit the direct tax law in line with international best practices, while keeping in mind India's own economic needs. At the time of writing this piece, the Expert Committee set up for suggesting the new DT law is drafting its final recommendations.

ANALYSIS & DISCUSSIONS:

To come specifically to the point of economic and fiscal agenda of the Modi Government, we have witnessed a clear desire to aspire for a large scale transformation in the space of social welfare and social capital. This is borne out by the initiatives taken in the areas of public (especially rural) infrastructure, accessibility to gas connections, supply of electricity, construction of toilets, affordable houses and universal banking. The overarching initiative has been the steps taken towards digitisation and formalization of the economy. This has been accompanied by a desire to find a resolution to the mounting bad debts in the banking sector through the introduction of Insolvency and Bankruptcy code (IBC). With recent adversarial global developments namely US trade policies, firming up of crude oil prices and early challenges to global growth, the Finance Minister has an unenviable task of maintaining the target fiscal deficit below 3.5 percent as well as the target growth rate of over 7 percent of the economy in 2019-20. It is fair to state that just like the private sector, the modern government today also has to function in a world characterized by volatility, uncertainty, complexity and ambiguity of economic and fiscal conditions (VUCA). An interesting question which, therefore, arises is the course India should take with regard to overall tax policy in such VUCA times. This article attempts to outline some suggested policy interventions to help address some of these seemingly conflicting and intractable challenges which any government of the day is likely to face in the evolving area of tax policy.

1. **Simplification of Tax Laws** – Though this has been used as a cliché many times, the fact of the matter remains that direct tax law has become too complex with a plethora of cumulative amendments and clarifications. In the case of the GST law, there has been understandably an evolutionary process in place as more and more clarifications are sought to be addressed. Be that as it may, there is an urgent need for technical capacity building in the Revenue department to facilitate real time clarifications on contentious technical issues as and when they arise. At the same time, such clarifications should be commercially pragmatic and not devoid of business realities. Here, the quality of the legislation as well as changes thereto is equally critical so as to avoid ambiguity as far as possible. Whilst good attempts have been made in providing clarifications on many legacy issues, it is felt that enhancement in the technical strength of the Revenue Boards is required to keep pace with the changes in business and the issues which keep arising.
2. **Reduction in Tax Litigation** – Along with the need to legislate better and clarify sooner than later, there has to be a concerted attempt to reduce the plethora of accumulated tax cases at various levels and to also ensure that unnecessary litigation does not get initiated. Here, there is a need for innovative and bold ideas for settling cases at an early stage itself at the assessment or first appellate level and only those cases should be allowed to travel to the courts where finer interpretation of the law is involved. This needs a paradigm shift not just in the thought of the Revenue department but the tax payers as well. Since, by all accounts, a majority of the tax revenues get collected through advance taxes and tax deducted at source (TDS), it would be beneficial to the Revenue if fewer business tax returns are selected for scrutiny and the quality of the audit is improved without jeopardizing the interest of the Revenue. This, by itself, will result in considerable streamlining of tax controversy and litigation.
3. **Enabling Tax Policy for Growth** – Whilst the current tax law is full of legacy incentives and exemptions towards certain economic development goals, time has now come to streamline and eliminate most of these legacy exemptions and focus on just a few (e.g., R&D or innovation related). This will give some elbow room to the Government to finally bring down the business tax rate to a uniform 25 percent as was promised way back in 2014. In this connection, it is useful to bear in mind that there has been a progressive moderation in corporate tax rates globally due to increase in competition in attracting investments. An analysis below brings out this phenomenon quite starkly.

Exhibit 23: India's Corporate Tax Rate is Already High



Source: OECD Corporate Tax Statistics Database, 2019

Exhibit 24: Corporate Tax Rate Trend Globally

Global corporate tax trend

Jurisdiction	Corporate Tax Rate (2005)**	Corporate Tax Rate (2016)**
India	36.6	34.6
G20	31.5	28.6
OECD	28.2	25

** Simple average

Source: OECD Corporate Tax Statistics Database, 2019, India Budget Documents.

- In the United Kingdom, further phased reductions in the corporate tax rate to 17% and then to 15% are planned in the next three years.
- The US has reduced the corporate tax rate down to 21% and introduced territorial system of taxation with participation exemption.
- Singapore applies a tax rate of 17%.
- Vietnam and Thailand have corporate tax rates at 20%.

It is interesting to note that as per the OECD Database of Corporate Tax Rates, of the 94 jurisdictions covered, India has the highest statutory tax rate at 48.3%, which includes a tax on distributed dividends. USA, till recently, was the second highest at 43 percent. As is now well known, the US has brought down its corporate tax rate to 21 percent and has, thus, jumped several places to become one of the most attractive jurisdictions from a tax rate perspective.

Similarly, there is a case for substituting the Minimum Alternate Tax (MAT) on companies with the far simpler Alternate Minimum Tax (AMT). The current scheme of MAT has resulted in innumerable interpretations specially due to the fast changing principles of accounting and the link between the MAT provisions and the books of accounts has resulted in unnecessary taxation on notional income basis. All these measures will necessarily require a steady expansion of the tax base in India and an increase in the tax GDP ratio.

The Revenue Department has initiated a number of non-intrusive analysis based measures to try and assess the 'tax gap'. In other words, there are serious attempts to ensure that a potential tax in a particular sector is duly collected if it is found on the basis of data with the Revenue that the requisite tax has not been paid by that sector. However, the system of setting revenue targets for tax officers is still archaic and is simply based on incremental targets which are not necessarily aligned to a proper tax gap analysis and potential for collecting tax revenue in a particular sector/location.

CONCLUSIONS:

All in all, time has come for India to embrace a bolder tax policy initiative by reposing a lot more trust with the taxpayers, making business tax assessments as non-intrusive as possible, enhancing technical capacity to be able to give clarifications on technical issues on a real time basis, streamlining and eventually eliminating a plethora of incentives and deductions, moderating tax rates and significantly reducing tax controversies and resultant litigation. It is hoped that the Government will see this opportunity of tax reforms kick starting the levers of the economy.

OTHER THOUGHTS

- How relevant is gender diversity and an inclusive approach to such growth in the context of Vision India 2025?
- Recognising talent and enforcing skill training with government support is a surefire way to result in the per capita income of an average Indian being a happier one.
- The rural-urban economic divide can be harnessed by leveraging the category of middle aged women and offering to further their employment careers.

The NITI Aayog's Strategy for New India @75 envisages creation of an enabling environment, sans institutional and structural barriers. It also aims to enhance the female labour force participation rate to at least 30% by 2022-23 and emphasises on ensuring gender-sensitive thinking for legislation and policies. This article provides a snapshot of this thought.

AN OVERVIEW:

Gender diversity has clearly taken centre stage in all economic, corporate and social forums. Although this subject is important, the question that really arises is: Is this enough? And, should we look forward to something more to make this work; and actually have an "inclusive" approach? Often, we have seen that when matters are thrust on us, it never really gets the attention that ideally should have been made available. Now the next question that arises in our mind is: How is this relevant in the context of India - Competitive 2025?

ANALYSIS & DISCUSSIONS:

PRESENT SCENARIO: What Ails Competition?

We all know the fact that for competition – and this could be at any level, forum – one important aspect is that we need people, members and skilled people; be it a sports arena, the corporate world or the neighbouring locality. A sense of satisfaction can be derived only when one has achieved the feeling of having given their best performance, no matter what the result. Hence, if we approach the subject of competitiveness, we will consider talent, performers, and if not, at least some star performers who would eventually make the feat worth the while. Having stated that, one would like to consider the fact that we do have performers, and whether having the same set of people competing and being spoken about adds any amount of fun or would it be true that we need to see some new talent being infused every year or at least once in a few years that would make the feat (which includes sports as well) interesting and worth your while.

While this is well understood, let us look at the economic and social environment around us and take a quick dipstick in terms of how this is really meant to happen and would this occurrence not require a change in the mind set? Are we really geared to take on this task and ensure that this is implemented? Or is this just another topic which appears to be making headlines but in reality does not result in value creation or any contribution that can be witnessed in real terms?

Clearly the objective is to tap talent irrespective of whether the situation is rural, urban, gender, age, full time or flexile, as long the intent is to make this strategy work. Now how does one go about making this look viable before we even think of implementing it? Mind you, any project that has social and economic impact, the government too is an entrepreneur, and hence support from the government is of utmost importance. If one were to look at the relevant statistics, we will see that the per capita income of an average Indian is clearly not a happy one.

CONCLUSIONS:

We have, as a country, been at the forefront, when it comes to being in the top slots of the Emerging economies – although not merely for the population but also in terms of the demographics – and this clearly is an eye opener. We must, and rightly so, focus on the future generation. Should we accept this facet, it would then be imperative that we have the future generation follow, or at least take a lead from, the current generation. How do we go about this? Consider the experienced retirees from the corporate matrix and the social world who have tremendous knowledge ... can we leverage this pool of talent to mentor our future generation leaders and entrepreneurs? We do have programmes to address this, however, few and far between, and not at all substantial wherein we can look at introducing mentorship also on a common platform along with the start-up programme and make mentoring accessible to the budding start-ups and overcome the shackles of merely the elite having access to such resources.

Setting up a few learning and development centres under the public private partnership (PPP) route, and which also include training facilities, can provide initial support to the vast number of budding entrepreneurs. This very organisation can also focus on skill development programmes for talented entrepreneurs under the umbrella of the respective national institutes. A broader vision and coverage beyond the urban population too is what would clearly add to the working population and provide for an additional or alternate source of income to people.

In this backdrop, it could be gainful for employment if one were to extend the reach to women, particularly those in their middle ages, who essentially want to make a comeback in their working life, be it a professional career or for that matter in business or some other useful employment source. Clearly this is one category which has not been tapped fully, or, may we say not even tested, forget being tapped fully. Given the reach of digital technology, and the very nascent nature of Digital India, one can leverage this category of the population rather effectively as we have often heard the adage, “when you employ a man you feed him, however, when you employ a woman, you feed a family!”

The fact that the rural-urban divide is stark, this strategy could be used to bridge the differences that exist and could reduce the economic divide. Institutions could empanel this category by not only creating a capacity for the employee workforce, but aided by technology they can leverage the skill sets and create learning and development centres to also train the future generation including providing education to this class of the population which is sincere, hardworking and once employed will clearly enhance GDP of the country's economy. Vision India 2025 will truly mean that we have a well balanced, economy with superior per-capita income and GDP.



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ANNEXURE

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