Digitization will disrupt all industries

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Key points

- 25 Years of PC dominance (1981-2006)
- Mobile as the platform for innovation (1996 – today); Indian consumers "leap frog" generations
- Programming moves from cottage industry to factory automation; Computer Center to Data Center; Computer Science to Data Science
- Use de-monetization as an example

25 Years of
PC dominance
(1981 to 2006)

- Mainframes and dumb terminals; master & slave
- IBM PC, LAN; <u>computers start communicating</u>
- Business centric to desktop consumer centric
- Emergence of Microsoft, Adobe, Autodesk
- Office suite, Desktop publishing, CAD, Personal Laser printers
- Net banking, Office automation, Media houses – all offices have desks & desktops
- Emergence of Indian software services industry

Mobile as a platform for innovation (1996 onwards) – Indian consumers "leapfrog"

- Mobile telephony from Motorola
- Feature phones, Smart phones (Phones start computing)
- Consumer centric to the point of "personal", "always on" "known identity", "known location" for EVERY human being on the planet
- Emergence of Nokia, Apple, Samsung / SMS, YouTube, Facebook..
- Apps for everything – Weather, Travel, Ticketing, Banking, News,..
- TV as first screen, PC as second screen and Mobile screen as third screen for 50 million Indians; for 850 million mobile screen was their first screen!
- Coins & currency, Cheque, Demand Draft, Bankers Cheque, Wire-transfer, SWIFT, Credit card, ATM, Debit card, Phone Banking, Net Banking, POS, Mobile Apps, Wallets to PayTM & BHIM for 200 million Indians; for 900 million Coins & currency straight to PayTM & BHIM!

Programming moves from cottage industry to factory automation

- PC-centric programming was a cottage industry - manpower intensive; Code / Test /Annotate almost line by line
- Apps ecosystem has very high abstraction
- Cottage industry needed "expert artisans"; factory <u>automation</u> needs "blue collar workers"
- In the last decade we saw the emergence of Data Centers; Computer Centers paved the way for them
- In the coming decade Computer Science will be dominated by Data Science
- Shift of emphasis from "carrier" to "content"
- MIPS & Megaflops of computing power is important; but ability to search, fetch, analyze, summarize and visualize petabytes in microsecond will be far more important! Analytics & Big Data will dominate the next decade

De-monetization as example

- Impacted each & every Indian citizen (1.22 Billion) – no postal / electronic mail. WhatsApp, FB Post, Tweet could have such a reach; in other forms users may opt to ignore, but in de-monetization they could not! Yet there was no violence, law & order, or "coup"!

- Look at 10 Key developments
  1. All ATM's did not operate for 48 hours
  2. De-monetized notes deposit into a/c only (no exchange across the counter); limits enforced on the amount; to be monitored a/c, branch, bank-wise
  3. ATM will dispense limited account every day / every week
  4. Usage charges waived for select channels – Card, PoS, Apps
  5. PayTM sees the highest growth; best ever product launch in human history; BHIM

  6. Constant measure (though inconsistent reporting)
  7. Damage kept under control – away from key festivals, monsoon, quarter / year end, peak Wedding season; All other channels work – cheque, credit / debit card, Net Banking, POS, Apps
  8. Mammoth Logistics exercise involving plane, train, truck
  9. Re-calibration due to size difference
  10. Prime Minister starting & ending

All ATM's did not operate for 48 hours

- Every bank has central switch to disable
- NPCI has central switch for Inter-bank
- Both regular and White-label ATMs operate in India
- ATM network is throughout the length and breadth of this very diverse country with very different levels of infrastructure maturity
- Thru proper planning the Government could re-fill and start good number of ATM/s though it took time
- **Well run network is the key**

De-monetized notes deposit

- Only deposit; no exchange across the counter (every note is captured)

- Limits enforced on the amount (thanks to core banking & Jan Dhan) – nearly 100 million a/c

- Government wanted reports a/c wise, date-wise, branch-wise, bank-wise (core banking, analytics capability at IT departments, thanks to data warehousing projects)

- **Well run network is the key**

ATM will dispense limited account every day / every week

- All ATMs on bank IP network, policy control was possible
- Core banking with multiple channel support made it possible
- Though there were lots of complaints, there were no technical glitches
- **Well run network is the key**

Usage charge waiver

- Government decided to incentivize "shift to digital challenge" by waiving charges for no-cash transactions

- Connectivity, core banking provided measurability

- Toll-charge waiver could be measured and compensated, though approximately

- Huge shift to no-cash channel (PayTM, other wallets, Net, PoS) from hundreds of million citizens across the country; with the Prime Minister, IT / Education Ministers mobilizing citizens, professionals and students it became the biggest "evangelism" in the country

- **Well run network is the key**

PayTM becomes a "verb" from "noun"

- PayTM (Wallet company) adds 100+ million new customers in week, unheard of in human history

- Prime Minister of the country was inadvertently the de facto sales guy for the product

- PayTM could scale (with practically no major glitches; there were problems, but manageable)

- Mobile networks, core application scalability for web-scale tested out thru "Billion Sales Day" by Amazon and Flipkart

- **Well run network is the key**

Summary

- Digitization will impact all industries
- Natural evolution of computing & communication technology
- Automation, Big Data, Analytics, Artificial Intelligence, Security / Privacy, Scale are all important; but technology is mature enough to manage all such issues, if the "business goal" is clear, if the leader has guts and does not waver, yet humble enough to tweak
- True lessons for every business leader
- Any questions?