

Digitization impacts everyone

Media Briefing
IIITB HP Aruba Network University
Bangalore
January 18, 2017

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
- More jobs & opportunities
- Networks as key infrastructure – easy to build, far easy to manage; wealth for some in “building”, wealth for all in “owning & operating”

25 Years of PC dominance (1981 to 2006)

- Mainframes and dumb terminals; master & slave
- IBM PC, LAN; computers start communicating
- 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)

- 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,..
- Payment / Banking reinvented ATM to PayTM
- India could survive demonetization – no coup!

Indian consumers “leap frog” generations

- Mainframes never entered mainstream
- Computer meant Personal Computer
- 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 to PayTM & BHIM!

Programming moves from cottage industry to factory automation

- PC-centric programming was a cottage industry
- Manpower intensive
- Code almost line by line
- Test line by line
- Annotate line by line
- Apps ecosystem has very high abstraction
- Cottage industry needed “expert artisans”; factory automations needs “blue collar workers” who manage the machines to produce rather than producing directly
- Much larger number of factory workers can be “trained”

Computer Center to Data Center; Computer Science to Data Science

- 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

More jobs & opportunities

- Mainframes created jobs for computer engineers in tens of thousands
- PC's created millions of jobs for software engineers
- Mobile & IoT will create jobs for hundreds of millions of “data centric” jobs (do not know their designations yet)
- Many hundreds of PayTM like companies will be created too, right in India
- For India, both export-led growth and consumption-led growth (with concomitant productivity growth) will ensure we will fire the economic growth on all cylinders!

Networks as “key” infrastructure

- Networking & connectivity will be the “new” electricity!
- Need to “build” the infrastructure in a manageable & maintainable way
- Wired & Wireless, Telecom/ Computing networks, Voice & data, static & dynamic data, time-independent & real time, content & control data ... all need to be handled with scale, security / privacy
- Manageability and measurable manageability of complex networks will be important for all industries – BFSI, Manufacturing, Retail, Transportation, Auto, Core industries, Travel & hospitality, Education, Healthcare & Government

Summary

- Digitization will change every industry in the next two decades the same way ERP changed every industry in the past two decades
- Mobile would be the “platform”
- IoT will merge into networks seamlessly
- Data & Analytics would be the “new computing”
- Building manageable networks and operating this new utility would create huge opportunities for businesses and professionals. Governments / business houses / policy planners must take note of
- Need to stay with a leader who understands today & tomorrow