Innovation in India

N. Viswanadham

Innovation In Emerging Markets

Contents

- Innovations for India
- Your role
- Conclusions

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Why India ?

Relevant Indian Market Characteristics

- Large young population, High-growth market
- 28 States + 7 Union Territories + 18 languages
- Protected economy, liberalized to attract FDI.
- Politics & Social issues are important for Business
- Large Rural Populations (800M)
- Increasing Middle Class
- 25% of population are poor and malnutritioned

Innovation For India

- Affordability, Availability, Awareness
- Food, Buildings, Education,….

Successful Innovation
Innovations leading to commercial success

Wider Innovation Outlook: Create Block Buster Industries

- Traditional Innovation is discovery & invention followed by commercialization of products & services.

- Wider innovation Framework: includes Both new to market & new to the world innovations

  - In Business models (like Outsourcing)

  - Institutions (Policy, Regulation & Governance)

  - Resources (Shale Gas, Search Engines)

  - Innovations due to Convergence (Finance with Mobile) as well as Co-evolution (Globalization) .

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"I invented nothing new, I simply assembled into a car the discoveries of other men behind whom were centuries of work." Henry Ford

- Ford and his engineers combined people, materials, and manufacturing equipment from the bicycle, carriage, granary and brewery, and meatpacking industries.

- Ford exploited the emerging infrastructure of railroad roadways, & gasoline distribution

Innovations in Products

Product Innovation

- Hyundai, customized small-car Santro, to suit Indian market conditions with 90% local components.

- Nano is   a fuel efficient one lakh car.

- General Electric announced two products;
  - $1,000 handheld electrocardiogram device
  - Portable, $15,000 PC-based ultrasound machine.

Nano is a Great Example of the Blue Ocean Strategy

- Nano is innovative on multiple levels from its engineering & to its manufacturing to marketing .
- Tata's collaborated with Bosch and Delphi, in early-stage design, challenging them to be innovative and develop low cost components
- Nano shows a new world order in auto industry.

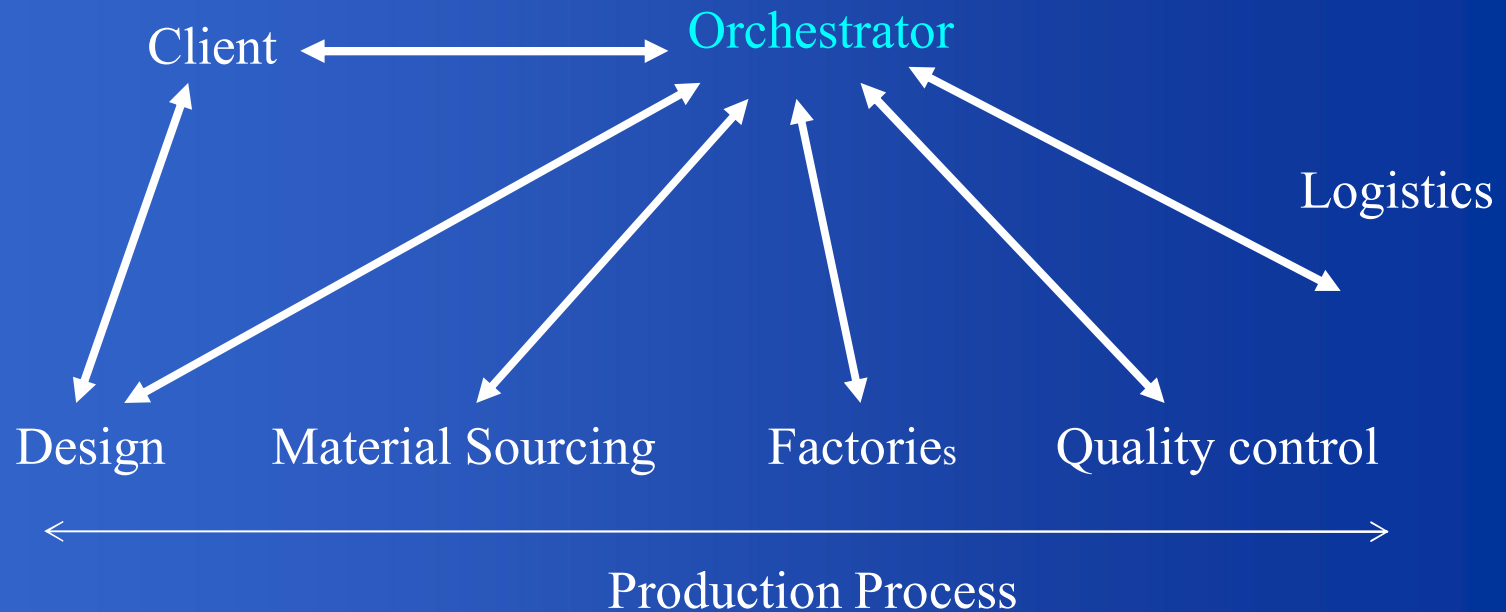# Pricing the Product

- Tata's set $2500 (One lakh INR) as the price and then worked backwards, with the partners to build a $2500 car that would reward all with a small profit

- **Do not ask how large the market is but estimate how large can it be made to be with an appropriate 'intervention'** Reliance

Business Model Innovation

- Reconfiguration of activities of a company.

- Southwest (Low Cost) Airline applied interstate bus transportation model to the airline industry.

- McDonald applied assembly line techniques to the fast food business.

- Power by the Hour: aircraft engines are paid for the number of hours they are in the flying aircraft

- XEROX Sells Printing Solutions not Copying Machines

- Pay per use models: Cloud, Cyber cafe

Do not own all assets – Orchestrate : New Mantra in Businesses

Client ←——————→ Orchestrator

Logistics

Design   Material Sourcing   Factories   Quality control

←———————————————————————→

Production Process

Innovations Delivery Infrastructure

Suez and Panama Canals have altered the Global trade

Innovation In Emerging Markets

EUROPE

EAST ASIA

Suez Canal

AFRICA

10,000 KM

16,000 KM

Indian Ocean

LOGISTICS INNOVATIONS

NORTH AMERICA

Atlantic Ocean

8,000 KM

Panama Canal

Pacific Ocean

SOUTH AMERICA

21,000 KM

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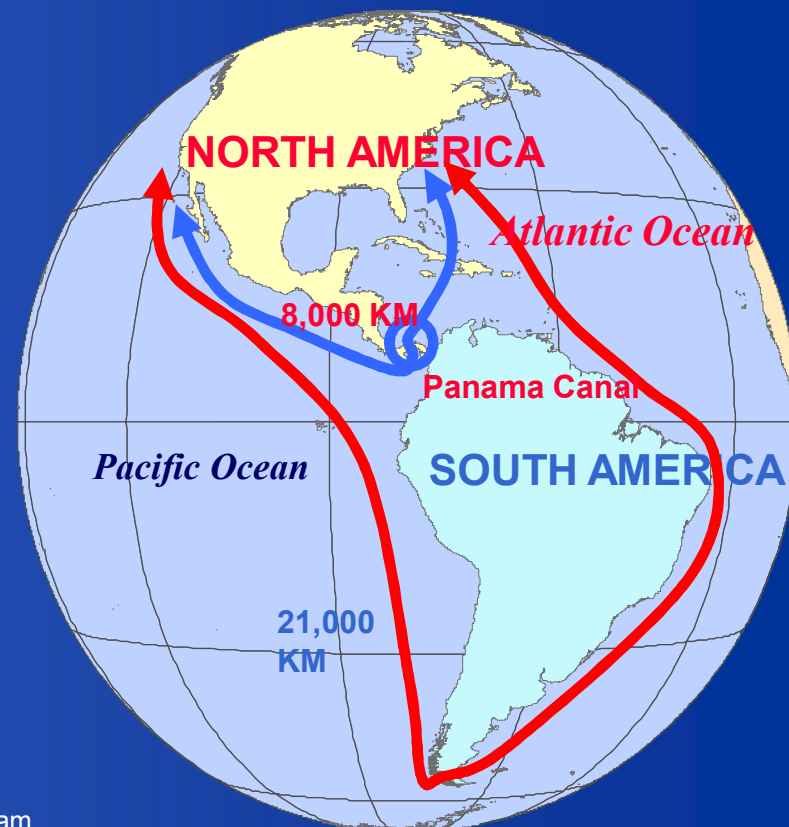
Innovation Catalyzed by Cloud and Big Data

- The cloud delivery models helped start ups to access services following pay peruse model.

- Other Industries such as health care, Finance, Educations get disrupted by Cloud.

- Recommenders help consumers by selecting products they will probably like and might buy based on their browsing, searches, purchases, and preferences

- Retailers are developing predictive models for price discounting, advertising, and couponing

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Innovations in Resources

IT Resources

- Search Engines, Wireless communications & Internet are biggest innovations of recent times. Google, Yahoo and several other have become house hold names

- Their convergence created On Line Libraries, Wikipedia, Online markets, Online deliveries of digital products, Advertising, Working from Home, Video Conferencing, Interconnected camera system for security, Cloud computing

- Cell Phones are devices using you can access all the above facilities from anywhere anytime.

Indian Auto Clusters – Small car Hub

HIMACHAL PRADESH
International Cars & Motors Ltd. (Plant 01)
TVS Motor Co. Ltd. (Plant 03)

UTTARAKHAND
Atul Auto Ltd. (Plant 03)
Bajaj Auto Ltd. (Plant 04)
Mahindra and Mahindra Ltd. (Plant 05)
Tata Motors Ltd. (Plant 05)

PUNJAB
Swaraj Mazda Ltd. (Plant 01)

RAJASTHAN
Ashok Leyland Ltd. (Plant 03)

GUJARAT
Atul Auto Ltd. (Plant 01,02)
Indus Elect-Trans (Plant 01)
General Motors India Pvt. Ltd. (Plant 01)

MAHARASHTRA
Ashok Leyland Ltd. (Plant 05)
Bajaj Auto Ltd. (Plant 01,02,03)
Fiat India Automobiles Ltd. (Plant 01)
Force Motors Ltd. (Plant 01)
Mahindra & Mahindra Ltd. (Plant 01, 02,04)
Mahindra Renault Pvt. Ltd. (Plant 01)
Mercedes-Benz India Pvt. Ltd. (Plant 01)
Piaggio Vehicles Pvt. Ltd. (Plant 01)
Premier Ltd. (Plant 01)
SkodaAuto India Pvt Ltd.
Tata Motors Ltd. (Plant 02,03)

KARNATAKA
Toyota Kirloskar Motor Pvt. Ltd. (Plant 01)
TVS Motor Co. Ltd. (Plant 02)
Volvo India Pvt. Ltd. (Plant 01)

HARYANA
Hero Honda Motors Ltd. (Plant 01,02)
Honda Motorcycle & Scooter India Pvt. Ltd. (Plant 01)
Maruti Suzuki India Ltd. (Plant 01,02,03,04)
Suzuki Motorcycle India Pvt. Ltd. (Plant 01)
Yamaha Motor India Pvt. Ltd. (Plant 02)

UTTAR PRADESH
Honda Siel Cars India Ltd. (Plant 01)
LML Limited (Plant 01)
Scooters India Ltd. (Plant 01)
Tata Motors Ltd. (Plant 04)
Yamaha Motor India Pvt. Ltd. (Plant 01)

JHARKHAND
Tata Motors Ltd. (Plant 01)

WEST BENGAL
Hindustan Motors Ltd. (Plant 01)

MADHYA PRADESH
Eicher Motors Ltd. (Plant 01)
Force Motors Ltd. (Plant 02)
Hindustan Motors Ltd. (Plant 03)
Kinetic Motor Co. Ltd. (Plant 01)

TAMIL NADU
Ashok Leyland Ltd. (Plant 01,02,04)
BMW India Pvt. Ltd. (Plant 01)
Ford India Pvt. Ltd. (Plant 01)
Hindustan Motors Ltd. (Plant 02)
Hyundai Motor India Ltd. (Plant 01,02)
Royal Enfield Motorcycles Ltd. (Plant 01)
Tatra Vectra Motors Ltd. (Plant 01)
TVS Motor Co. Ltd. (Plant 01, 04)

ANDHRA PRADESH
Mahindra & Mahindra Ltd. (Plant 03)

LEGEND
Domestic Players
Foreign Players

- Indian automotive industry has grown in clusters, Manesar in North, Pune in West, Chennai in South, Jamshedpur-Kolkata in East and Indore in Central India

- Location advantages Infrastructure, access to pool of workforce , and supportive state government policies play a role in attracting auto investments.
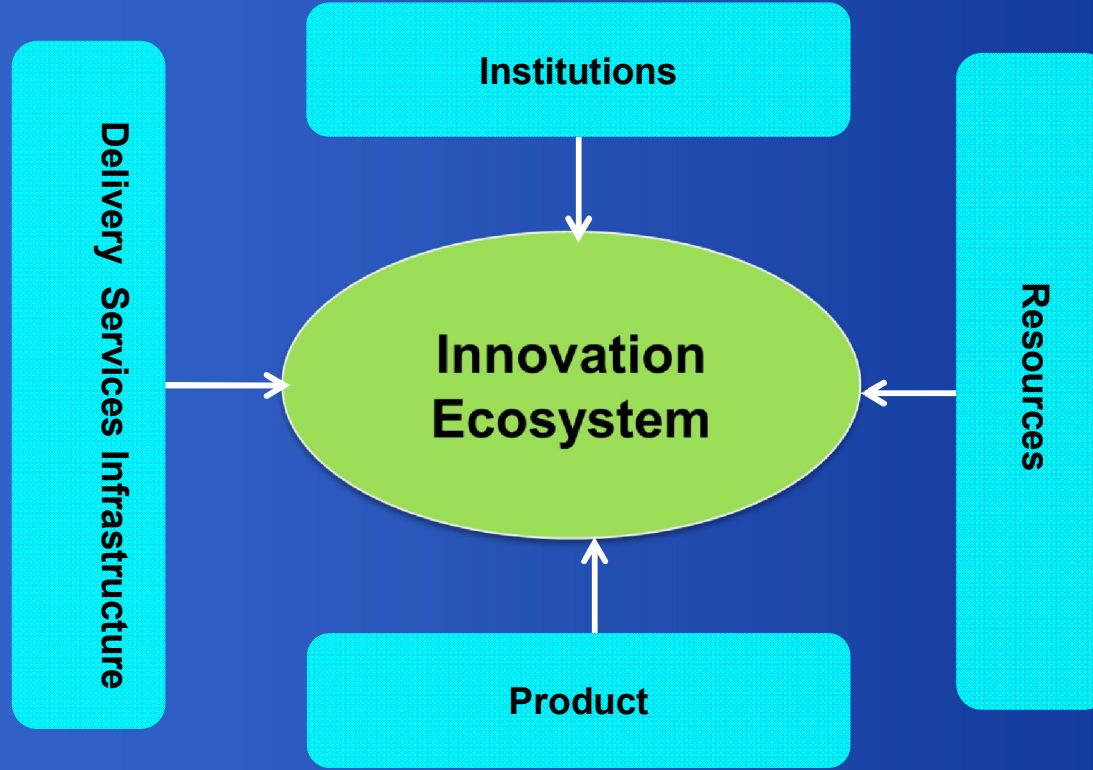
Innovations in Institutions

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Deregulation as Innovation

- Many successful services companies owe their existence and success to the opening up of markets by the governments.
  - Companies such as Airtel, Jet Airways in India and South West, E-bay and others in USA
- The opening up of markets has enabled these new entrants to succeed through innovation either in terms of processes or products or new business models

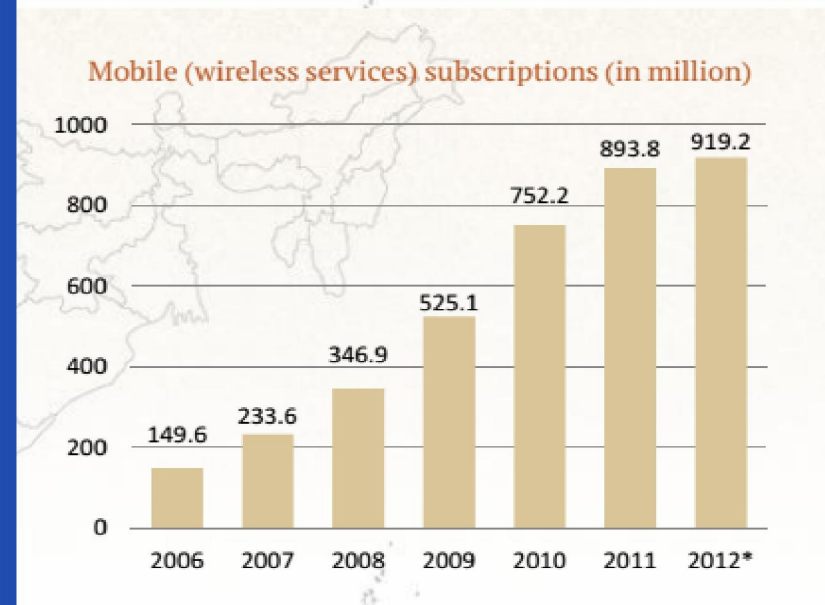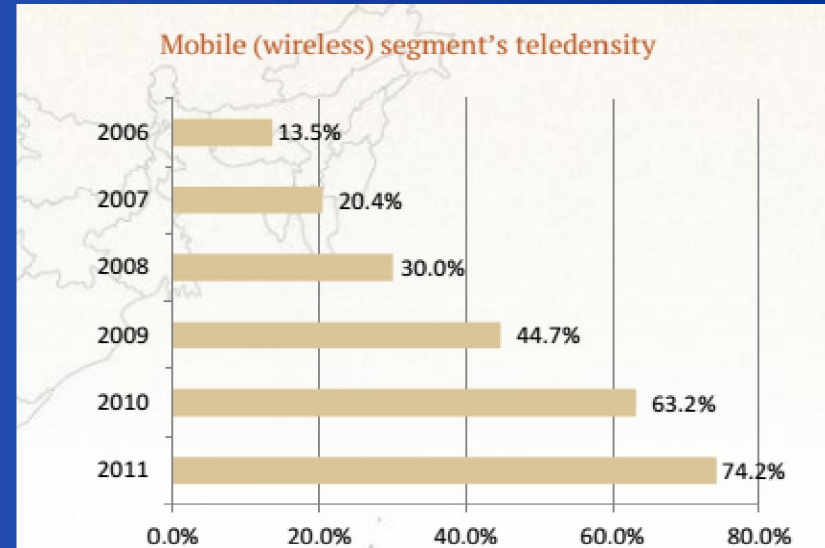Block buster industries are generally results of co-evolution & convergence of several innovations

Indian Telecom: Booming industry

- Current Teledensity :74.2%
- Subscribers: 919.2 M
- Deregulation of the Industry: FDI, Private & Foreign Service Providers
- Innovative Business Models: Airtel (Outsourcing) ; Reliance (Market estimation); Prepaid SIM
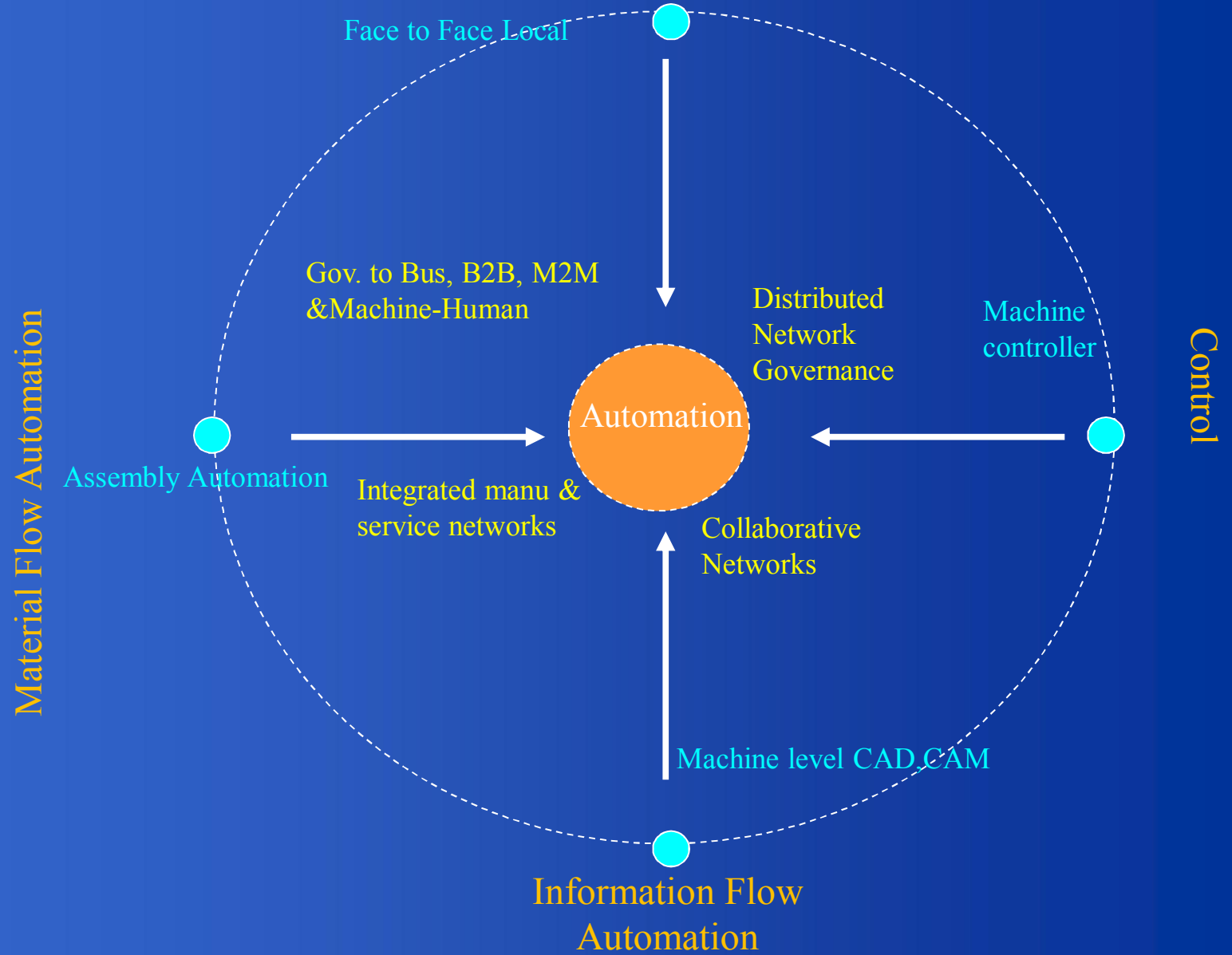- Network of Infrastructure, Mobile Manufacturers & Service Companies

Mobile (wireless) segment's teledensity

Year	Teledensity
2006	13.5%
2007	20.4%
2008	30.0%
2009	44.7%
2010	63.2%
2011	74.2%

Mobile (wireless services) subscriptions (in million)

Year	Subscriptions
2006	149.6
2007	233.6
2008	346.9
2009	525.1
2010	752.2
2011	893.8
2012*	919.2

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Global Supply Chain Networks

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Institutions

Local Manufacturing & Controlled Export

Free Trade Enabled Global markets

Globally Distributed Networks

Vertically Integrated Localized Enterprises

Resources

Delivery Service Mechanisms

Paper Communications & Truck Transport serving Local markets

Internet enabled 3 PLs Serving Global markets

GSN

Modular Global Production Networks

Products Produced & Integrated Locally

Supply Chain

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Automation

Relationship Automation

Face to Face Local

Gov. to Bus, B2B, M2M &Machine-Human

Distributed Network Governance

Machine controller

Control

Material Flow Automation

Assembly Automation

Integrated manu & service networks

Automation

Collaborative Networks

Machine level CAD CAM

Information Flow Automation

Be Entrepreneur

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Food Security: 100M Urban Poor

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Vocational Training through NREGAS

| Processed Food Products | | Distribution Center | | | Households | | Consumers |

- Processed Food Products
- Cereals
- Meat & Diary Products

- Distribution Center
- Distribution Center
- Distribution Center

- Kitchen
- Kitchen

- Households
- Mid Day Meals
- Hawkers

Consumers

IT Backbone on Cloud
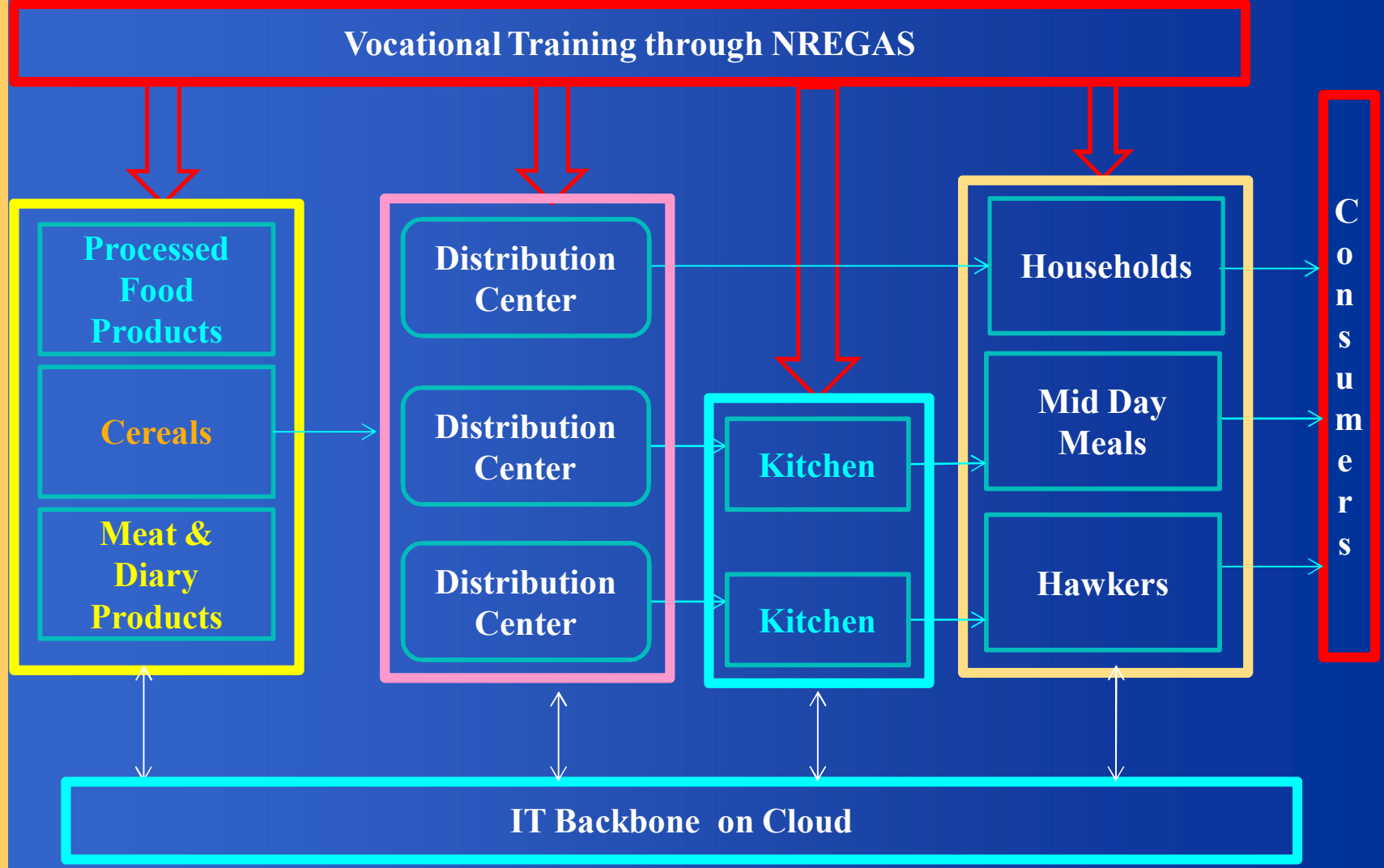
Youngest Billionaires

Twitter profile picture of @nickdaloisio

- Nick D'Aloisio, 17, had sold

  his news-condensing mobile app for $30m to Yahoo.
- The world's biggest youngest billionaire, 28, is Facebook founder Mark Zuckerberg,
- Dustin Maskowitz Face Book
- Robert Pera 34, worked for Apple & Created Ubuquiti Networks (wireless and Internet for emerging markets)
- Sean parker, 32 co-founded Napster
- Yang Huiyan, 30 years, Hon Kong real Estate

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Be a Researcher

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Nobel Laureates of India

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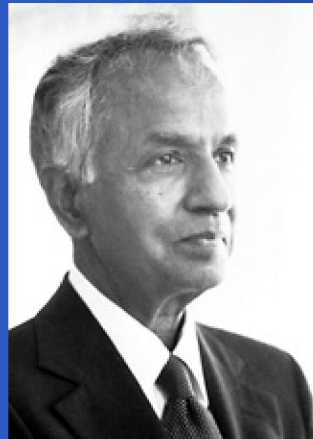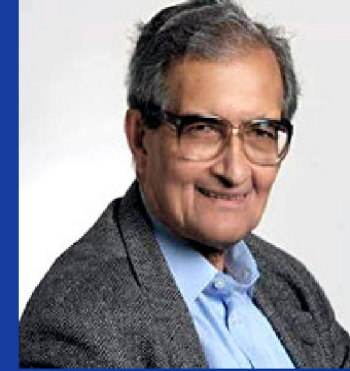
Social Networking with Research Community

- Grab every opportunity to meet with the "movers and shakers" in the field
  - Attend local, international conferences
  - Attend summer schools (Yahoo, Microsoft, …)
  - Apply for six-month internships in research labs after you are about half-way through your thesis
  - Attend talks even those that appear only peripherally related

- **Remember Strength of Weak Ties**

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Sadhana – The Realisation of Life
Rabindranath Tagore

- "India chose her places of pilgrimage wherever there was in nature some special grandeur or beauty, so that her mind could come out of its world of narrow necessities and realise its place in the infinite (God or Human Welfare)."

- When you trek to a University, there should be a purpose hidden behind the journey – to turn your mind away from the distractions of the outer world, and focus it on discovering the profound things that would change the lives of millions (NV)

Mahatma Gandhi; Harijan, 18-1-1922

- *The best, quickest and most efficient way is to build up from the bottom . . . Every village has to become a self-sufficient republic. This does not require brave resolutions. It requires* **brave, corporate, intelligent** *work. ..*

- If we interpret *brave* as **entrepreneurial and risk taking** attitude, *corporate to mean setting & meeting strategic goals and objectives*, **intelligen**t with *IT enabled governance models,* **called smart nowaday**s, we implement Mahatma's vision. (NV)

African Proverb

- **"If You Can Talk, You Can Sing; If You Can Walk, You Can Dance"**
  - If you are college student president you can be a party president
  - If you are a good researcher you can be a good candidate for noble prize

Suggestions

- Be an expert in your area but know your surroundings.

- Gain confidence that you are no less than others

- Have a long term map of your career

- Network with leaders and industry

- Be aware of the societal needs

- **Good Luck. See you as PM or NL or Industrialist or Reformer**

Sadhana – The Realisation of Life
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- "India chose her places of pilgrimage wherever there was in nature some special grandeur or beauty, so that her mind could come out of its world of narrow necessities and realise its place in the infinite (God or Human welfare)."

- When you trek to a temple or a monastery, remember the effort is not in vain. There is a purpose hidden behind the journey – to turn your mind away from the distractions of the outer world, and focus it on discovering the profound truths of the inner world