Operations Management

Faculty – CP Garg, IIM Rohtak

What is Operations Management ?

What is Operations ?

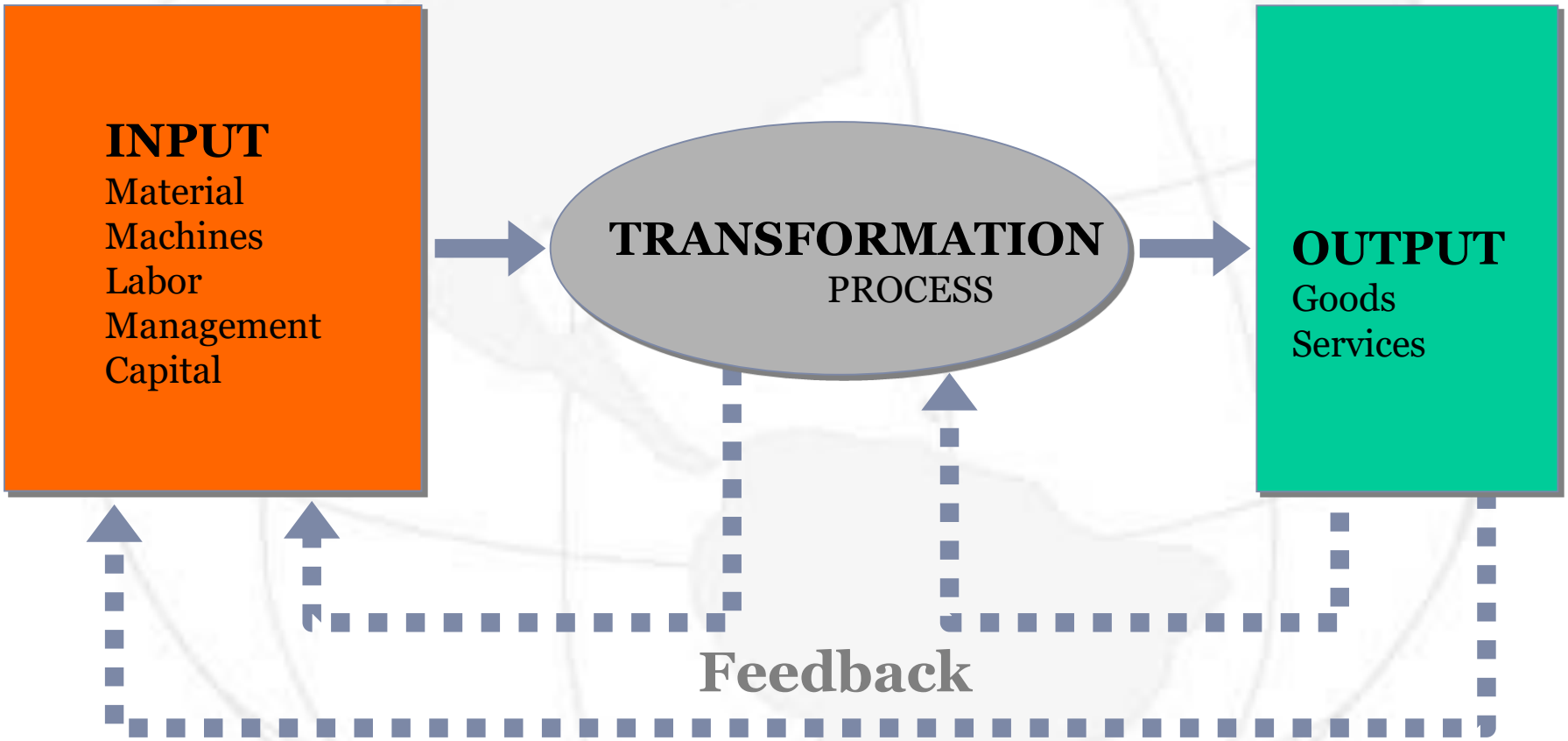

INPUT
Material
Machines
Labor
Management
Capital
TRANSFORMATION
PROCESS
OUTPUT
Goods
Services
Feedback

exhibit 1.2 Input–Transformation–Output Relationships for Typical Systems

System	Primary Inputs	Resources	Primary Transformation Function(s)	Typical Desired Output
Hospital	Patients	Doctors, nurses, medical supplies, equipment	Health care (physiological)	Healthy individuals
Restaurant	Hungry customers	Food, cook, waiters, environment	Well-prepared, well-served food; agreeable environment (physical and exchange)	Satisfied customers
Automobile factory	Sheet steel, engine parts	Tools, equipment, workers	Fabrication and assembly of cars (physical)	High-quality cars
College or university	High school graduates	Teachers, books, classrooms	Imparting knowledge and skills (informational)	Educated individuals
Department store	Shoppers	Displays, stocks of goods, sales clerks	Attract shoppers, promote products, fill orders (exchange)	Sales to satisfied customers
Distribution center	Stock-keeping units (SKUs)	Storage bins, stockpickers	Storage and redistribution	Fast delivery, availability of SKUs
Airline	Travellers	Airplanes, crews, scheduling/ticketing systems	Move to destination	On-time, safe delivery to destination

Operations Management means managing jobs with multiple activities

Competitive Advantage through value addition

- **involving all the people**
- **across all functions**
- **at all times**

Operations Management

Definition :

The management of an organization's productive resources or its production system, which converts inputs in to the organization's products and services.

OR

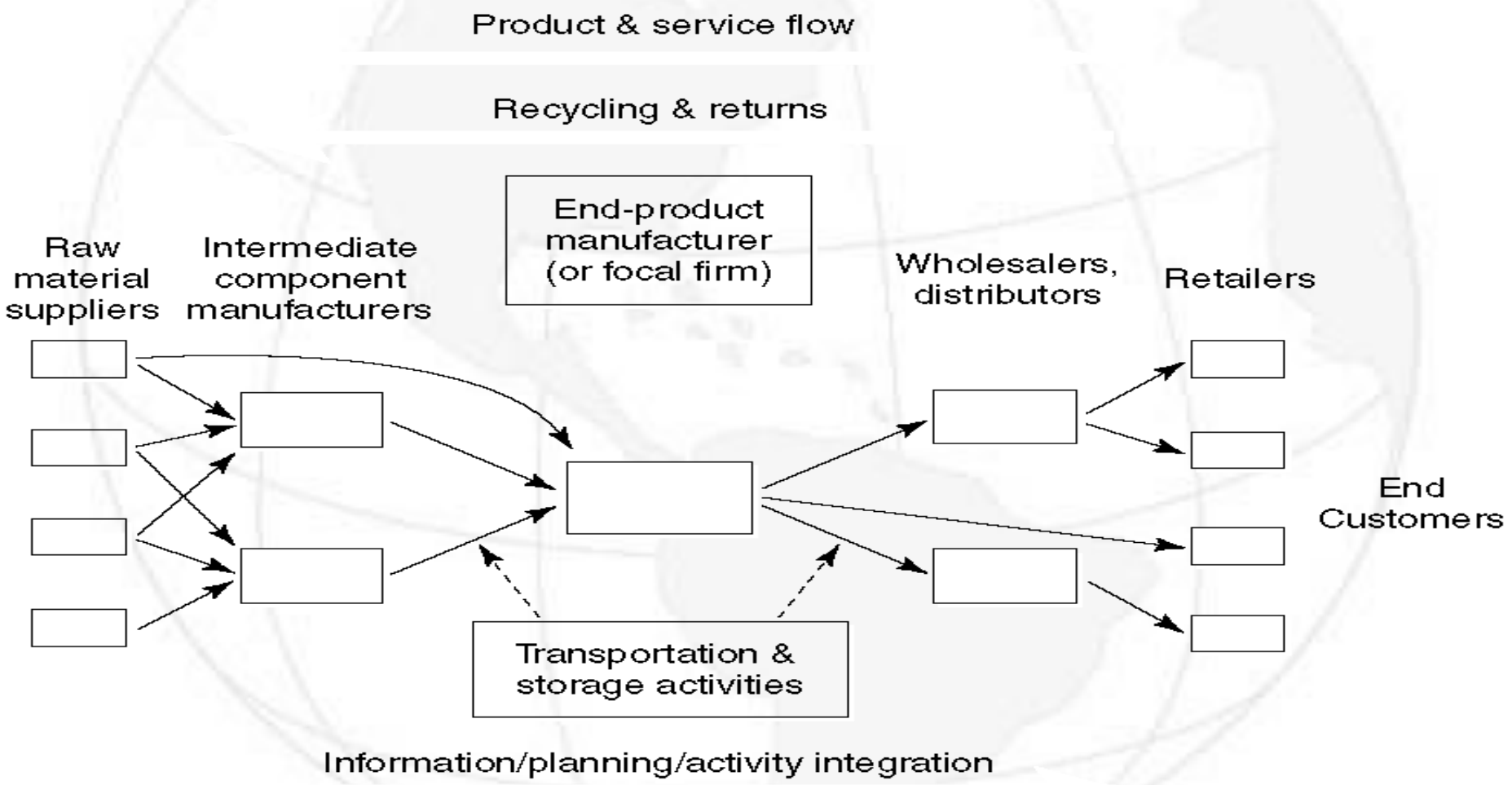
The design, operations and improvement of the production systems through integration of all its resources to meet customer's needs.

What makes a company successful ?

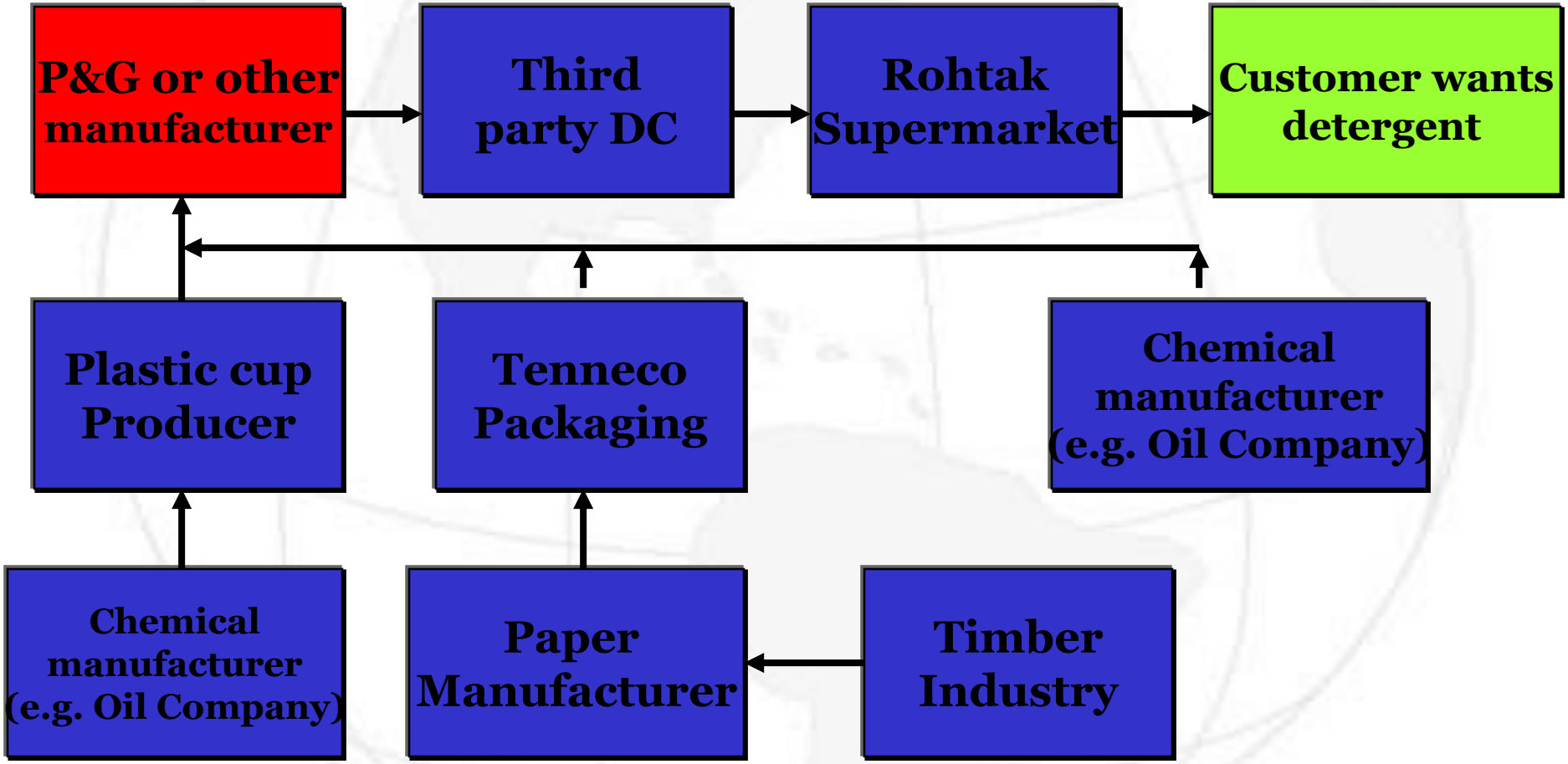
The first job we have is to turn out quality merchandise that consumers will buy and keep on buying. If we produce it efficiently and economically, we will earn a profit, in which you will share.

- **William Cooper Procter**, grandson of the founder of P&G, told his employees in 1887.

What is a Supply Chain?



Detergent supply chain:



Supply Chain Management

- Supply Chain –A connected series of organizations, resource and activities involved in the creation and delivery of value, in the form of finished products and services to end customers.

- **SUPPLY CHAIN MANAGEMENT IS ALL ABOUT HAVING THE RIGHT PRODUCT IN THE RIGHT PLACE,AT THE RIGHT TIME, AND IN THE RIGHT CONDITION.**

It’s all about collaboration

Quiz

- **Components assembled to make a DELL computer are sourced from ---**

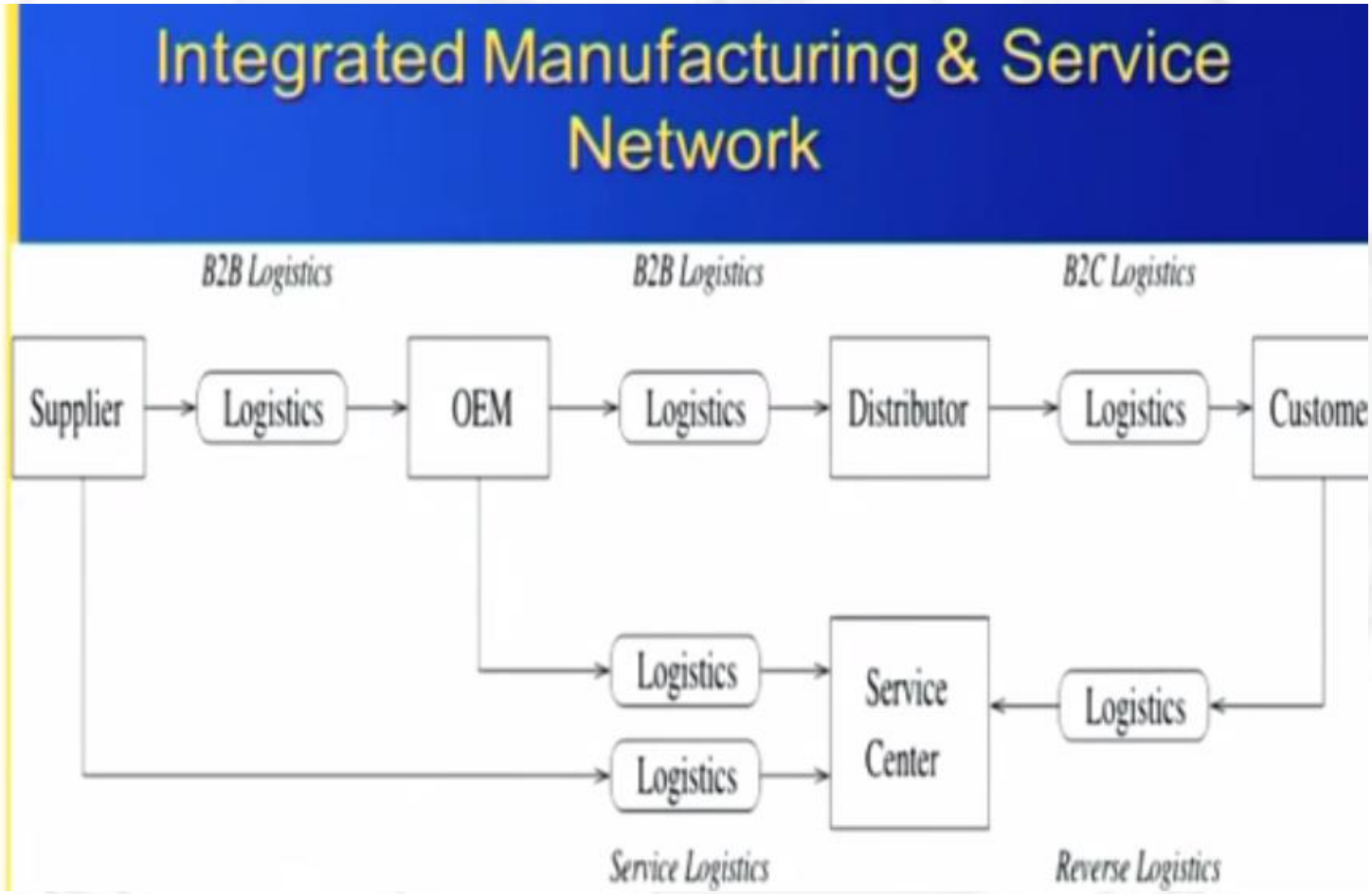
- **In India, it takes ----for the conversion of iron ore into a Main Battle Tank.**

- **Poor coordination wasted --- annually in the food industry in USA.**

Answers to Quiz

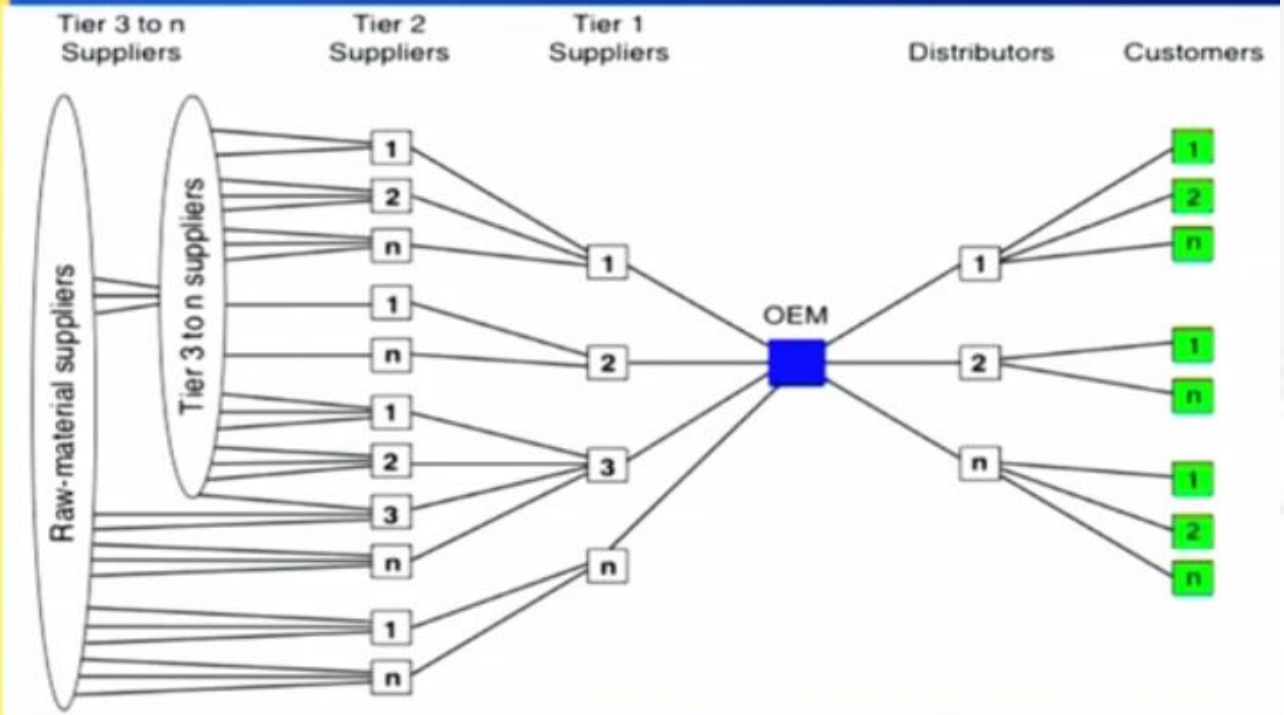
- **47 Countries.**
- **approx. 60 Months**
- **$ 30 billion**

Supply Chain Management



Global Supply Chain Management

Multi Tier Supply Chain Network



Source: National Research Council Staff (2000). *Surviving supply chain integration: strategies for small manufacturers*. Washington, DC: National Academies Press. Adapted from Lambert et al., 1998.

SCM Issues

- Multiple partners in an extended supply chain
- Global nature of the business operations
- Increased need for coordination
- Increased need for collaboration
- Increased need for cost reduction
- Increased need for speed
- Coordination and Integration is key to success

Operations and Supply Chain Terms

Operations

Manufacturing and service processes used to transform resources into products

Supply Chain

Processes that move information, finance and material to and from the firm

Decision Making Areas

Design and Planning

- Product Design
- Capacity Planning
- Process Design
- Facility Location
- Facility Layout
- Job Design & Trg.
- Product Quality

Operations & Control

- Aggregate Planning
- Materials Planning
- Inventory Control
- Maintenance
- Scheduling
- Logistics
- Distribution

Operations Management

Need for Study

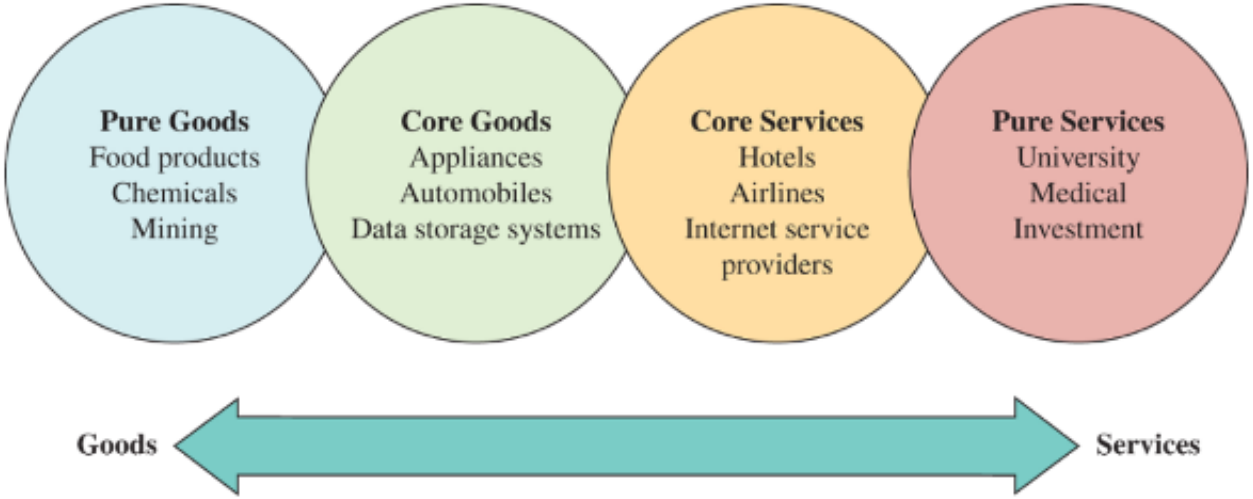
1. Business Education for modern approaches of all business functions
2. Systematic way of looking at processes
3. Presents interesting career opportunities
   - ✓ Direct supervision of operations
   - ✓ Indirect involvement through SCM, Quality Assurance, BPR and Inventory Consulting

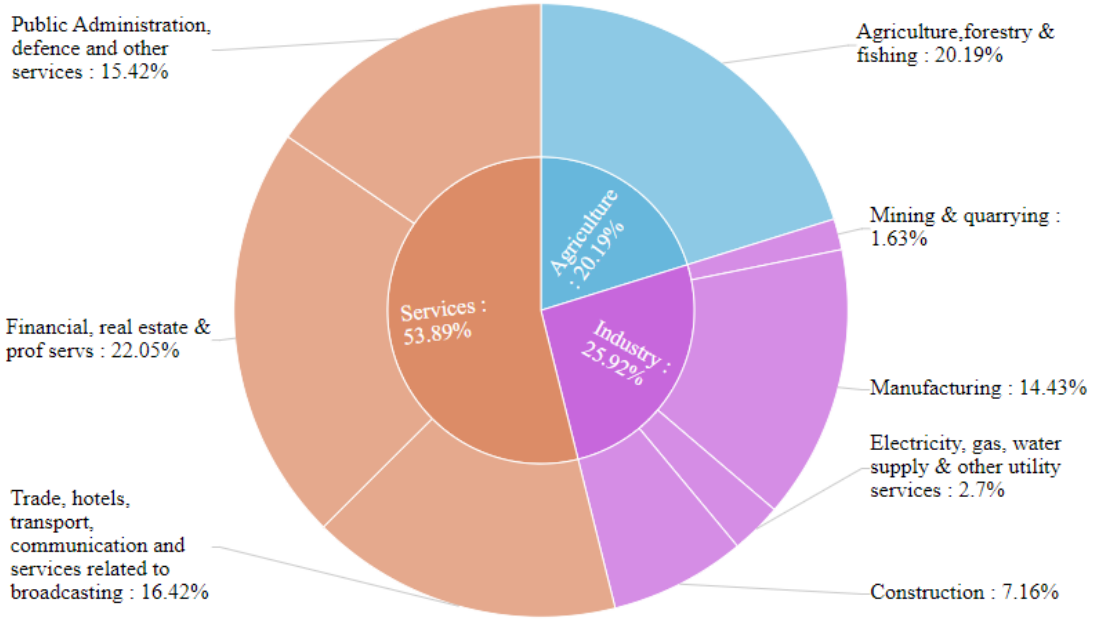
Operations Management

Decision Making areas

1. Strategic Decisions
   - ✓ For Products
   - ✓ For Processes
   - ✓ For Facilities
2. Operating Decisions – Production Planning
3. Control Decisions for operations, workforce, quality, overheads,maintenance

The Goods–Services Continuum





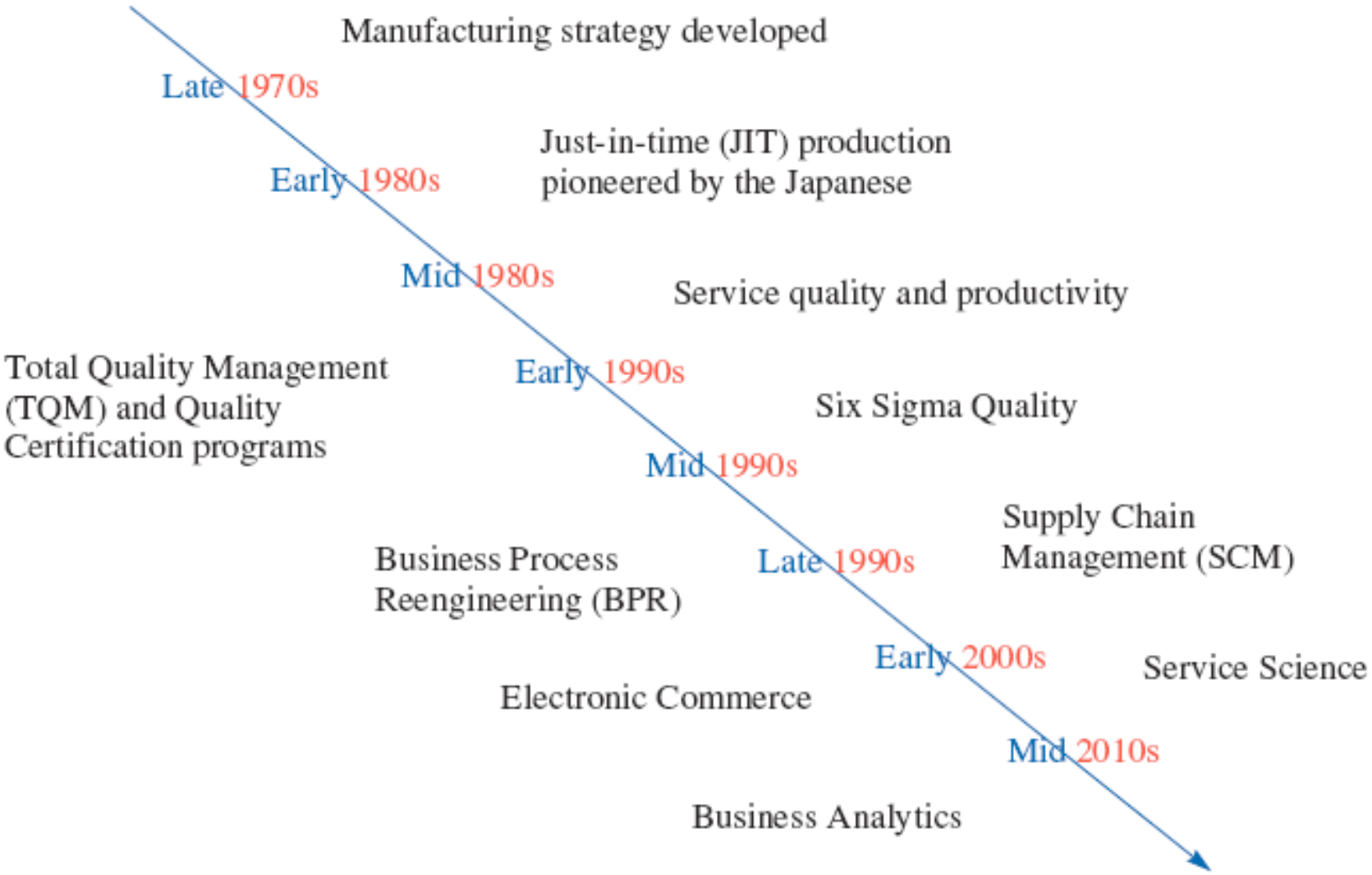
Sector-wise GDP of India – 2021

Operations Management

Product and Service Systems

Products are tangible assets, hence are physical outputs of a process. Services being intangible, involve customers' direct contact and location of the service facility

Time Line Depicting When Major OSCM Concepts Became Popular



Operations Management

Operations as a System

It is a combination of inputs, with conversion process and controlling process as sub-systems.

Inputs

✓ Primary Resources – Men, Materials, Machines, Money and Time

✓ Market - Customer Needs, Competition, Product Information

Operations Management

✓ External Environment – Legal/Political, Social, Economic and Technological

Conversion Sub-systems

✓ Production Processes – Design of Methods, design of Services and Quality Assurance

✓ Manufacturing, Warehousing, Transportation, Retailing / Wholesaling.

Control Sub-system – feedback mechanism

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Outputs – Products and Services

Indirect Outputs

- ✓ Taxes
- ✓ Wages and Salaries
- ✓ Technical Development
- ✓ Environmental Impacts
- ✓ Social & Safety impacts

Operations Management

Do the Right thing First Time and Every time – **Dr. Deming**

Efficiency, Effectiveness, and Value

- **Efficiency -** doing something at the lowest possible cost
- **Effectiveness -** doing the right things to create the most value for the company
- **Value -** quality divided by price
  - **Quality -** the attractiveness of the product, considering its features and durability

Operations Strategy

- The Means by which operations implement by firm.
- Corporate Strategy helps to build a customer driven firm.

VISION (What company going to do)

MISSION (What steps they are taking)

Corporate Strategy

Operations Strategy

Operations Management

Operations Strategy as a subset of Corporate strategy

(Both resources based)

Operations Management

- Human Assets Management
- Market Research
- Design and Planning – failsafing/integrated approach
- Flexible manufacturing / outsourcing
- e-procurement and vendor partnership
- Delivery / Outsourcing / RFID
- Supply Chain Integration (IT involvement)

Operations Management

- Human Assets Management
  - Selection and Recruitment as per QR
  - Training – Cultural & Job Specific
  - Motivation – Monetary & Recognition
  - Job Description / Empowerment / Ownership
  - Synergy at work

Operations Management

Happiness hides in life's small details.

If you'r not looking it becomes invisible

– JOYCE BROTHERS

Factors Affecting Operations Management today are-

1. Reality of global Competition.
2. Quality, Customer Service and cost challenges.
3. Rapid expansion of advanced technologies.
4. Continued growth of the service sector.
5. Scarcity of operations resources.
6. Social responsibility issues.
7. VUCA World

Current Issues in Operations and Supply Chain Management

1. Coordinating the relationships between mutually supportive but separate organizations
2. Optimizing global supplier, production, and distribution networks
3. Managing customer touch points
4. Raising senior management awareness of OSCM as a significant competitive weapon
5. Sustainability and the triple bottom line
6. Managing in VUCA world

CASE: Narayana Health—An Innovative Healthcare System in India

Dr Devi Shetty is an icon of modern entrepreneurship in healthcare of millions of poor Indians. He pioneered and championed an absolutely unheard model for treating India's poorest people, for whom money was always a constraining factor in healthcare. For example, an open heart surgery, which normally costs ₹2.50 lakhs with over ₹2,500 per month in post-operative care and medicines, common man lacks resources to manage this. Most of the similar heart speciality hospitals in India are beyond the reach of common people as they function in a corporate-style. This does not allow a poor patient to enter into their system. Dr Shetty's *Narayana Health* offers a welcome-note to these poor and yet it is a sustainable and an effective business model. Till 2013, Narayana Health (NH) was known as Narayana Hrudayalaya.

Narayana Health or Narayana Hrudayalaya (NH) is now one of the largest private hospitals in India. It performs more heart surgeries per year than the leading hospitals in the U.S., with matching quality and effectiveness. Dr Shetty has developed a scalable, low-cost model, in which those who can pay are paying for themselves but the hospital is able to treat patients who otherwise cannot afford such healthcare. Majority of other Indian corporate-type modern hospitals just do a lip service to these poor. NH group currently has about 5900 operational beds. It is spread across 23 hospitals, 7 heart-centres and a network of primary care facilities across India. It provides advanced healthcare in over 30 specialities, including cardiology and cardia surgery, cancer care, neurology and neuro-surgery, orthopaedics, etc. On an average, 343 daily surgeries or procedures are done. It has an ambitious plan to expand in the coming seven to ten years so as to become the largest healthcare player in the country.

Strategy of NH to Drive Development and Growth

NH has developed a four pronged strategy for development and growth. It is as follows:

1. *All Healthcare Needs Under One Roof:* NH has branded itself as a recognized and proven centre of excellence in cardiac and renal sciences. Despite the fact that only six core specialities contribute to about 89 percent to group's revenues, NH is committed to provide entire healthcare system under one roof. Its main revenue generating specializations are: Cardiac and Renal Sciences, Oncology, Neuro Sciences, Gastro and Intestinal Sciences, and Orthopaedics.
2. *Adopting Technology, Improving Lives:* NH is always keen to adapt disruptive technology for having excellence in the profession. Through technologies like satellite-based communication systems and many others, it has focused on becoming a true Pan-India healthcare provider.
3. *Leverage upon Operational Synergies:* Providing affordable healthcare is a key to all the planning within the NH system. NH has focused on its supply chain to manage cost. Economy of scale has worked in favor of its profitability.
4. *Tailor-made Engagement Framework*: NH maintains a healthcare ecosystem that is very inclusive in nature. It also ensures optimal utilization of resources.

Strategy of NH to become Cost Effective

Dr Shetty dreams to make cardiac surgery affordable to the poor and the children by creating a chain of heart hospitals in every state of India. The root of this dream lies in an initial generous funding by his father-in-law, who put just one condition to Dr Shetty. No poor and children would be turned away for the lack of money in NH. Developing NH as one of the best equipped hospitals of world was not very difficult for Dr Shetty. He got the best collaborators. Indian Space Research Organisation (ISRO) provided satellite services to link small local hospitals in the country with NH so that immediate advises for a heart attack patient may be sought by local hospitals from NH. During operation of an infant, anaesthetics in the U.S. can support the surgeons in operation theatre of NH. Telemedicine is now possible for people located in remote places too. Biocon has supported NH in offering new drugs, which are considerably cheaper than conventional ones. The attrition of doctors is almost

NH is not like a typical government hospital which lacks doctors and equipment. It now symbolizes the best-in-class healthcare delivery system. Therefore, when the rich people come here, they pay the normal charges as NH provides the best care. On the other hand, NH does not turn away the poor for the lack of money. NH Business model has some similarity with that of Wal-Mart. It takes advantage of volume in its favor. It conducts an average of 150 surgeries every day and treats an average of around 80,000 outpatients every month. It is much higher than other Indian hospitals of similar size. Dr Shetty himself provides consultation to almost two patients per five minutes. But, all of them are well examined and diagnosed by an expert support team before they meet Dr Shetty. A large number of pathological tests per day per machine brings down per unit cost due to economy of scale. Some of the expensive machines are on rent from the suppliers so as to save the immediate capital expenditure. However, these suppliers earn regularly by supplying reagents, needed to run the same machine, on use basis. Again, high volume helps in bringing down the rental cost. Lean staff further helps in bringing down cost and reducing corruption.

The initial investment, or capital cost, in a healthcare industry is quite high. It is up to ₹ one crore per bed for a high-end hospital. On the other hand, a typical 200 bed NH hospital has been built at a cost of ₹350 million with pre-fabricated materials, which means only ₹17.5 lakh per bed. To save cost, many non-value added costs have been cut. For example, in place of centralized air-conditioning (AC) for the entire hospital, AC is used at critical places like operation theatres, Intensive Care Units (ICUs), and a few patient recovery rooms[1,2].

Many State governments have understood and supported Dr Shetty's dream for heart care for the poor and the needy. For example, Karnataka State Government supports India's largest Micro Health Insurance Programme called Yeshaswini at a monthly premium of ₹10, to over three million farmers.

Dr Shetty feels lucky to have treated Mother Teresa. As narrated in an interview, Dr Shetty recalls that one day, Mother, who at that point of time was recovering in the intensive care unit of the hospital, saw Dr Shetty examining a blue baby. She told Shetty, "Now I know why you are here. To relieve the agony of children with heart disease, God sent you to this world to fix it". Of course, this must have been the touching moment for this paediatric cardiac surgeon and perhaps the best compliment any professional has ever received for the purpose of his being in the profession. No wonder, he keeps a wall-hanging of Mother Teresa in his office with the following word written below: "*Hands which help are better than the lips that pray*". He says, "When you do your work without expecting anything in return, just for the joy of bringing happiness to others, that's when you'll realize it is not your hands, which do the job, it is the hands of God".

Questions

1. Discuss the need and approaches towards low-cost health delivery in India.
2. How can we implement lean system in services like healthcare?
3. Discuss critical success factors for NH in India. Can these be replicated in other services?