15.760 Introduction to Operations Management

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Operations Management Group,
MIT Sloan School of Management
Bio

– French, Eng.D in Production Systems from Ecole des Mines de Paris

– PhD (2000) in Operations Research from MIT

– Research: Online sales channels, dynamic pricing, e-procurement, manufacturing revenue management, order fulfillment, product introduction

– Experience in Electronics, Aeronautics, Transportation and Software
Class Outline

• Class Introduction: Concepts & Outline

• Organization
  – Material
  – Assignments/Grading
What is Operations Management?

OM = Strategy Execution!

TIME

QUALITY

COST

FLEXIBILITY
Why Study OM (1)?

Dell Vs. Compaq, HP

Toyota Vs. Ford, GM

Amazon Vs. Barnes & Noble

JetBlue, Southwest Vs. American Airlines
Top Management speaks the language of MONEY

Mid-Mgt., Associates, Workers speak the language of THINGS

OM merges physical and financial analyses, and requires great care to people issues!
Why Study OM (2) ?

Set of responsibilities:

1. DESIGN
2. PLANNING
3. CONTROL
4. IMPROVEMENT
Why Study OM (3) ?

- Boeing
- Microsoft
- Intel
- Massport
- Johnson & Johnson
- Southwest
- Lucent Technologies
- Amazon
- United Technologies
- AT Kearney
- Dell
- PRTM
- McKinsey & Company
Components of Operations Management

Product

Process

Supply Chain
Product Definition

- Product Type (Good or Service)
- Strategic Positioning
- Product Architecture
Service Vs. Manufacturing Operations

- **Intangibility** (Explicit and Implicit)
  
  “We manufacture perfume; we sell Hope”
  
  PERCEPTION Vs. EXPECTATION, ADVERTISE & MATERIALIZE

- **Perishability** (no inventory buffer)
  
  Can’t inventory seating room!
  
  CAPACITY PLANNING/FLEXIBILITY, PREVENTION/CULTURE

- **Heterogeneity** (supply and demand variability)
  
  Consider medical service delivery!
  
  HIRING, TRAINING, PLANNING, CUSTOMIZATION

- **Simultaneity** (of production and consumption)
  
  No safety nets for quality problems…
  
  HIRING, TRAINING, HR, PLANNING, CONCURRENT ENGINEERING

Slide courtesy of Prof. Charles Fine, MIT.
Process Definition

- Type (Discrete or Continuous)

- Process Architecture
  - Technology
  - Physical Flow
  - Information Flow

\{ Process Flow Diagram \}
Supply Chain Definition

• Supply Chain Architecture
  – Physical & Information Flow
  – Integral/Modular Relationships
  – Incentives

• Coordination
  – Delivery
  – Inventory
  – Information Systems
Class 1 Wrap-Up

1. **Operations Management** = **Strategy Execution**

2. **Strategic Product Definition:**
   Quality + Cost + Time + Flexibility

3. **Operations Management Components:**
   Product Devlpt. + Process + Supply Chain

4. **Operations Management Activities:**
   Design + Planning + Control + Improvement

5. **Service Operations Features:**
   Intangibility + Perishability + Heterogeneity + Simultaneity
## Course at-a-glance

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<td>31-Mar</td>
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2002 - Jérémie Gallien
Organization

• Course uses Sloan's class server (15.760 BC H2)

• Course Materials:
  – Course Packet (Cases and Readings)

• Grading
  – Class participation  30%
  – Book review        10%
  – Case write-up      30%
  – Simulation         30%

  \[\text{in teams of 3}\]

\[\text{individual}\]

• Professional Standards