B8107: Service Operations Management

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Course Description:

The service sector represents the largest segment of most industrial economies. For example, in the U.S., it accounts for approximately 78% of GDP and 80% of employment. Operational excellence is critical for success in many service industries today, and its importance is increasing due to industry deregulation (e.g. transportation, banking, communications, energy, health care), global competition and rapidly evolving information technology. However, understanding service operations is not easy. Services are intangible, highly variable, not storable or transportable and often involve distributed operations with a significant amount of customer contact. This means that most service operations look quite different than manufacturing operations, and they often require specialized analytical frameworks and tools.

In this course, we will examine approaches for achieving operational competitiveness in a service business and introduce several tools for analyzing service operations. We will apply these approaches and tools to cases from service sectors such as health care, banking and financial services, transportation, restaurants, hotels and information-based services. In addition, you will have the opportunity to apply the methodologies from class to a group project on a topic of your choice.

The course addresses both strategic analysis and operational decision making, with emphasis on the later. Among the topics covered are: the service concept and operations strategy, service delivery system design, capacity management, response time (queueing) analysis, yield management, productivity and quality evaluation and management, and the impact of new information technologies. The current trend in off-shoring will be examined both from service provider's and customer's perspective. The course is intended for students interested in consulting, entrepreneurship, venture capital, non-profit management or general management careers that will involve significant analysis of a service firm's operations.

Prerequisites:

The prerequisites for the course are Managerial Statistics B6100, Business Analytics B6101, and Operations Management B6102.
Method of Instruction:
The course involves a mixture of lectures and case discussions. A course pack with readings and cases will be distributed. Additional readings and assignments will be handed out in class as needed. The workload consists of case preparation, class participation, and a final group project presentation.

Method of Evaluation:
Your grade in the course will be based on both your individual and group efforts and performance. I will try to assess your understanding of the tools and concepts covered, your ability to integrate and apply them, and your contributions to the class's learning experience. To do this, I will weight various activities in roughly the following manner:

- Class Participation: 20%
- Written Assignments: 15%
- Group Project: 15%
- Final Exam: 50%

Class Participation
Reading materials from the casebook are assigned for most class sessions. The assigned material should be read before class to facilitate comprehension and discussion of the material. If a case study is assigned for class, you should read the case thoroughly to understand fully the pertinent facts and the situations and issues raised. You shall discuss and analyze the readings and the cases together with the members of your group.

It is important that you strive to be a vital contributor to class discussions. I will judge class participation on the extent to which you appear prepared, the relevance and depth of your comments, the degree to which you listen carefully and respond to your peers, and your willingness to take chances in order to further the educational experiences of others. Please bring your tent (name) card to class.

Assignments
There are two types of assignments: (i) case assignments to be done in groups, and (ii) concept checks to be done individually.

Case assignments typically consist of an "executive summary" write-up of a case study which include a quantitative analysis. These must be done in groups of no more than four. All assignments should be typed. Since the main purpose of these assignments is to provide a chance for you to apply analytical techniques to a new problem, a fair amount of latitude is given for errors.

Concept checks are intended to review the material after the class. Their primary purpose is to make sure that we all understand the basic ideas before moving on. You can talk about the concept checks to your group members, but the final work must reflect your own understanding and efforts.

Assignments are due at the start of class, and late assignments will not be accepted.
Group Project

The intention of the group project is to allow you to apply (or expand on) the ideas you have learned in an area of special interest to you. It is intended as a form of facilitated self-service, in which I guide you through a significant course of self-study. Groups are to consist of up to 4 students only. Any exceptions must be approved in advance.

Here are some suggested generic types of reports you can consider:

- **Service Diagnosis/Problem-Solving** - This type of project involves a specific application of methodology from class to solve (or at least gain significant insight into) a service operations problem. Past reports included a DEA analysis of public schools in Philadelphia, an analysis of queues and capacity management at a major international art exposition, and analysis of service repair time and staff scheduling at Olympus’s North American camera repair facility.

- **New Service Business Operations Plan** - For the entrepreneurs in the class, this is your opportunity to lay out an operations strategy and operating plan with supporting analysis for a new service business. Past reports have included a plan for "on-demand" emergency day-care, commercial security services, paging service, mail order florist and express gourmet dinner delivery in downtown Manhattan.

- **Methodology Study** - This is a good choice for groups that want to delve deeper into some particular methodological area covered in class. Examples in the past have included a study of forecasting methods used by selected hotels in the metro region, a critical review of yield management approaches to radio and television sales management, and a review of techniques for productivity measurement in services.

- **Industry/Company Profile** - A report which describes an industry, the key operational problems in that industry, how various firms have managed these operating problems, etc. Alternatively, the report may focus on a single firm, describing its service concept, competitive position, the main characteristics of its operations, key operational choices it has made, operational policies, etc. Past projects have included: innovations in rail transport, Boston Market’s operating concept and strategy, and a profile of operations in professional minor league baseball.

You will be required to do a group presentation and turn in a hard copy of your analysis and presentation.

Exam

There will be a take-home final exam for this course. The exams will be open book and notes.
• **Session 1**  

• **Session 2**  

• **Session 3**  
  Linking the service model to the P&L. Testing and adapting a firm’s service model. Compensation and performance reporting systems. The role of operations in successful M&A.

• **Session 4**  
  Translating the service model to service operations. Product design & innovation.

• **Session 5**  
  Measuring Service Productivity; Benchmarking productivity.

• **Session 6**  
  Case Study in DEA; Matching Supply with Demand in Services

• **Session 7**  
  Interpreting DEA Analysis. G/G/m Queuing Model and Multi-Stage Queues

• **Session 8**  
  Call center capacity planning. Revenue management: overbooking & airline seat inventory control.

• **Session 9**  
  Revenue management and price optimization. Intro to outsourcing & off-shoring.

• **Session 10**  
  Globalization of services.

• **Session 11**  
  Measuring Performance in Client Relations; Understanding Evolving Customer Needs and Relationship Building.

• **Session 12**  
  Global Integration; Learning and Knowledge-Sharing.

• **Sample Projects and Reports**  
  Examples of past project reports and presentations.

• **Take-Home Final Exam**
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1. **American Airlines, Inc.: Revenue Management**  

2. **Benihana of Tokyo**  


4. **Branch Performance at Nashville National Bank**  
   R. Metters, Emory University (1994)  

5. **Classifying Services to Gain Strategic Marketing Insights**  

6. **Data Envelopment Analysis (DEA)**  

7. **Dropbox: “It Just Works”**  

8. **First National Bank’s Golden Opportunity**  

9. **Infosys’s Relationship Scorecard: Transformational Partnerships**  

10. **Megacard Corporation**  
    J. S. Whetsel, Jr., and E. W. Davis, University of Virginia (1993)  

11. **Modell’s DEA**  
    S. Mahajan and G. J. van Ryzin, Columbia Business School (2011)  

12. **Note on Processing Systems with Variation**  
    P. Zipkin, Columbia Business School (1994)  

13. **Offshoring at Global Information Systems, Inc.**  
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