SWOT Analysis for Global Product Families

IE/ME 546 Designing product families

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Project definition

Introduction

• Globalization of markets
  – Manufacturers need to price their offerings competitively in order to survive the competition
  – Production-related operations need to be made cost-effective

• Dilemma:
  Global companies must choose either of the following options:
  – Option A: Invest in R&D to develop product platforms
  – Option B: Outsource manufacturing, in part or completely, to more economically-favorable locations (i.e., regions with low-cost labor, raw materials, infrastructure, etc.)
Long-term
To formulate a methodology and to design metrics and tools to assist companies of any industry in deciding between the two manufacturing options

Short-term
– To conduct extensive benchmarking and literature review to identify readily-applicable metrics and tools, if available
– To determine the kinds of data (e.g., cost of labor, tooling, raw materials, shipping, etc.) required to design new decision-making metrics and tools
– To demonstrate decision-making metrics and tools by applying it on one or two simple, easily-accessible product families

Project definition

Objectives

• This project will be formulated as an Multi Criteria Decision Making (MCDM) problem.
• Decisions need to be made under a group of criteria.
• A specific decision making tool will be adopted to solve this problem.
• The result generated from our decision system will provide companies in making appropriate global executive strategies

...continued
Project process

Objectives

Step 1

Project initiation

1. Problem definition ✔
2. Literature review

Step 2

Framework construction

• Data collection
• Selection or development of the decision-making tool

Step 3

Application and analysis

1. Demonstration using case studies
2. Strategy analysis

Project process

...continued

Gantt Chart

SWOT Analysis for Global Product Families
MEIE 546 Designing Product Families

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Start</th>
<th>End</th>
<th>% Complete</th>
<th>Days Remaining</th>
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</thead>
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<td>1.1.1 Project Initiation</td>
<td>2/20/13</td>
<td>2/24/13</td>
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<tr>
<td>1.2 Brainstorming &amp; Preliminary ideas</td>
<td>2/25/13</td>
<td>3/15/13</td>
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<td>1.3 Literature Review</td>
<td>3/15/13</td>
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<td>3/31/13</td>
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**Preliminary Ideas**  
*Some decision-making criteria*

- **Cost**  
  - Labor  
  - Shipping  
  - Government (Tax, tariff duties, etc.)  
  - Platform Development

- **Product design**  
  - Product commonality  
  - Manufacturing concern (assembly, materials, etc.)  
  - Sustainability concern (laws, regulations, etc.)

**Preliminary Ideas**  
*Possible decision-making tools*

- **Analytical Hierarchy Process (AHP)**  
  - Easy to use, easy to calculate  
  - Can be applied to multiple decision-makers’ scenarios  
  - Subjective

- **Data Envelopment Analysis (DEA)**  
  - Can deal with multiple criteria  
  - Objective; no weighing criteria required  
  - Fuzzy or Interval DEA can handle uncertainty

- **Multiple Attribute Utility Theory (MAUT)**  
  - Superior in handling uncertainty  
  - Complex in computation  
  - Subjective