Applying Systems Thinking to the Issues of Software Product Development

Software Product Development issues
- Meet the schedule
- Implement desired functionality
- Remove sufficient number of defects

Software Product Development thinking
- Traditionally, choose any two of:
  - Maximize features
  - Minimize defects
  - Minimize schedule

Two top priorities are one too many
- People optimize their efforts on one priority
  - Then prioritize the other two
- Need one focus
  - Need subsidiary priorities in some priority for everyone

Market Pressures

<table>
<thead>
<tr>
<th>Customer Desire for Quality</th>
<th>Product Introduction</th>
<th>Initial Product Acceptance</th>
<th>General Product Acceptance</th>
<th>Near Dissemination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimize Schedule</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Maximize Features</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Minimize Defects</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

Effects of Priority on Project Tasks

Effects of Defect Removal

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Effects of Maximizing Features

Effects of Minimizing the Schedule

Case Study

Actions, Immediate Effects are Interdependent

Critical thinking is required

- What is the product goal?
  - Choose one goal
  - Prioritize goals
  - Use product development process and practices to assist in achieving goal

- Plan the project
  - Using appropriate product lifecycle and milestones
  - Consider flexibility if a long project

- Be aware of changing conditions
  - Monitor conditions
  - Proactively work the conditions (including corporate management)

- Changing the goals will cause schedule slips

References

Abdel-Madnick, Tarek and Stuart Madnick.
