Products vs. Services:
Which is the Better Business Model, in Software and Other Industries?

Michael A. Cusumano
MIT Sloan School of Management

cusumano@mit.edu
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The Global Software Industry
State of the Business

• Overall Recovery (esp. in 2005)
• But Collapse of Traditional Products
• Rapid Growth of Services/Maintenance as % of Revenues for Product Firms

• Future: Intense Battle between Products Firms & IT Services Firms?
The Big Questions

• *Rise in services & maintenance revenues temporary or permanent?*

• *Will most software firms become services firms?*

• **Temporary Argument:** We are in a transition phase between platform innovations (client-server to internet to web services & wireless)

• **Permanent Argument:** Software, like hardware, has become commoditized and prices will fall close to zero for standardized products. Future is software as a service.
Role of Services in Life-Cycle Dynamics & Platform Transitions?

Performance

Takeoff

Ferment

Maturity

……Services……?

Disruption

Time
Typical View of Services in High-Tech Companies?

“Services will be the graveyard for old tech companies that can't compete.”

Scott McNealy
CEO, Sun Microsystems

Referenced in N.Y. Times, 9-16-04
The Problem with Many Services

- Much more labor intensive than products
- Hard to scale without adding people
  - SAP example (1:1)
- Costs not as easy to control compared to standardized product dev & production
- Hard to attract VC funding or do an IPO
- Low-cost competition from India and elsewhere pushing margins down further
Business Objects: Gross Margins
The Problem with Many Products

• Hard to write “best-sellers” (“killer apps”)?
• Products can become commodities?
  – Example: Price for same (actually better) software product $1.5 million in 2000 but $250,000 in 2004
• Products more subject to discretionary spending.
  – In “bad” economic times, product sales more likely to fall off a cliff? E.g. Siebel, i2, Oracle
• Only guaranteed revenues services/maintenance?
  – These under downward pressure as well…
• For products business: 99% of 0 = 0
Business Objects


$ million

Products
Services
Total

1999 = 100

1999 2000 2001 2002

Business Objects


% of Total Revenues

Products
Services

Three Business/Life Cycle Models

![Graph showing the percentage of total revenues for Products and Services across different business/life cycle models. The graph indicates a decline in revenue for Products and an increase for Services as the lifecycle progresses from Products to Hybrid Solutions to Services.](image)
## Typical Breakdown Per $1.00 of Enterprise Product Revenue

<table>
<thead>
<tr>
<th>Year</th>
<th>Software Product</th>
<th>Software Services</th>
<th>Maintenance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>$1.00</td>
<td>$1.00</td>
<td>$0.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>Year 2</td>
<td>$0.30</td>
<td>$0.15</td>
<td>$0.15</td>
<td>$0.45</td>
</tr>
<tr>
<td>Year 3</td>
<td>$0.25</td>
<td>$0.15</td>
<td>$0.15</td>
<td>$0.40</td>
</tr>
<tr>
<td>Year 4</td>
<td></td>
<td></td>
<td>$0.15</td>
<td>$0.15</td>
</tr>
<tr>
<td>Year 5</td>
<td></td>
<td></td>
<td>$0.15</td>
<td>$0.15</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$1.00</strong></td>
<td><strong>$1.55</strong></td>
<td><strong>$0.60</strong></td>
<td><strong>$3.15</strong></td>
</tr>
</tbody>
</table>

| 30 %      | 50 %             | 20 %              | 100 %       |
Initial Research Questions

• **Products** not as good as previously thought?
  – “99% of 0 = 0,” especially in down economies?
  – “Platforms products” and some niche products do better?
  – But *new products drive services & maintenance*?

• **Services** not as bad as previously thought?
  – Can *double or triple* a firm’s sales and profits?
  – But *maintenance* much better than other services?
  – Services help create *stickier* product solutions?

• **Hybrid** the “best” business model?
  – Most stable performance & strategy re commoditization?
  – But requires most complex combination of skills?
New Database Study

- MC with Steve Kahl and Fernando Suarez, and undergrad students; earlier Vikram Mansharamani
- Identified 463 public software “products firms” under SIC code 7372 – **PrePackaged Software** (NAICS #51121)
- Financial information from Mergent Database & 10K reports. Avg. 9, maximum 15 years of detailed financial information, from firms listed in 1995 or later.
- 3788 total yearly observations (4449 including no-breakout firms).
- Now doing **exploratory** analysis
- Also starting database of non-software firms
Public Software Product Companies Listed in US
(\% Annual Product Sales, 378 firms & 3314 yearly observations)

Notes: -- Excludes 86 packaged software firms with no sales breakout and unclear status.
-- 1 (100\%) includes some product firms that did not break out revenue mix (MSFT, Adobe, SPSS, Visio, Symantec, and Fair Isaac, and game software firms).
Data Analysis

• Broke out hybrid using standard deviation. Distribution approximated normal. Used 1 standard deviation to calculate the middle group. The mean is .6 and standard deviation is .257

• Total observations for the 5 groups:
  
  Services: 76
  Product: 330
  HybridS: 464
  HybridB: 2206
  HybridP: 302
  Total: 3378
# Software Product Firms by Business Model

<table>
<thead>
<tr>
<th>Year</th>
<th>100% Product</th>
<th>Hybrid Product</th>
<th>Hybrid Balance</th>
<th>Hybrid Service</th>
<th>100% Service</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>25</td>
<td>26</td>
<td>162</td>
<td>19</td>
<td>8</td>
<td>240</td>
</tr>
<tr>
<td>1997</td>
<td>31</td>
<td>34</td>
<td>207</td>
<td>34</td>
<td>7</td>
<td>313</td>
</tr>
<tr>
<td>1999</td>
<td>23</td>
<td>17</td>
<td>208</td>
<td>38</td>
<td>10</td>
<td>296</td>
</tr>
<tr>
<td>2001</td>
<td>19</td>
<td>10</td>
<td>166</td>
<td>57</td>
<td>3</td>
<td>255</td>
</tr>
<tr>
<td>2003</td>
<td>15</td>
<td>12</td>
<td>113</td>
<td>52</td>
<td>4</td>
<td>196</td>
</tr>
<tr>
<td>2004</td>
<td>13</td>
<td>9</td>
<td>101</td>
<td>45</td>
<td>2</td>
<td>170</td>
</tr>
</tbody>
</table>
Revenue Mix & Performance (1)

• **Shift to services-maintenance** driven by (1) declining product revenues/prices, (2) aging ERP firms/fewer new customers, (3) platform shifts (e.g. client-server to Internet)

• **Hybrid solutions firms** generally have (1) higher and more stable profits and (2) higher market valuations than software product firms *if we exclude Microsoft.*
Revenue Mix & Performance (2)

• **Service-maintenance revenues** generate higher and more stable profits than product revenues for all software product firms if we include the costs of R&D against product revenues.

• **Optimal mix for profitability**: 73% product revenues, but hard to achieve. Very high maintenance revenues another strategy?
A: Case of a firm where products and services revenues reinforce each other

B: Case of a firm where services as % of revenues rise because products business is falling
Product profitability = \( \frac{\text{product sales} - (\text{product cost} + \text{R&D})}{\text{product sales}} \)

Service profitability = \( \frac{\text{service & maintenance revenue} - \text{service & maintenance cost}}{\text{service & maintenance revenue}} \)

Notes: Product profit mean corrected for outliers, eliminating values outside 1 standard deviation
Note: Service group not included because small sample size – median was always negative and below the group
Market Value by Business Model

NOTE: Excludes Microsoft and Services group
## Survivor/Exit Comparison

**T-test of Difference of Means for Product Firms**

<table>
<thead>
<tr>
<th></th>
<th>Survivors</th>
<th>Exited Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Sales</strong></td>
<td>$371M</td>
<td>$104M</td>
</tr>
<tr>
<td><strong>Total Sales Growth</strong></td>
<td>0.69</td>
<td>0.77</td>
</tr>
<tr>
<td><strong>Product Percentage</strong></td>
<td>0.60</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Product Growth</strong></td>
<td>0.60</td>
<td>0.72</td>
</tr>
<tr>
<td><strong>Service Growth</strong></td>
<td>0.73</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>Gross Margins</strong></td>
<td>0.66</td>
<td>0.64</td>
</tr>
<tr>
<td><strong>R&amp;D %</strong></td>
<td>0.27</td>
<td>0.35</td>
</tr>
<tr>
<td><strong>SGA %</strong></td>
<td>0.84</td>
<td>1.03</td>
</tr>
<tr>
<td><strong>Operating Margins</strong></td>
<td>-0.68</td>
<td>-0.85</td>
</tr>
</tbody>
</table>

* Means significantly different at 5% level

For all % except product growth, eliminated outliers by taking all values within 1 S.D.  

Product firms who exit are smaller and spend more to generate similar growth
Maintenance Contribution?

• Sample: 598 data points of firms per year that broke out maintenance from other service revenues (i.e. probably a biased sample favoring firms with large maintenance %)
• Mean of 61% maintenance as % of total service revenues
• Adj. mean of 55% if eliminate 75 data points of firms per year reporting 100% maintenance

Ran random effects regression using all observations in which maintenance was broken out.
Dependent variable: service margins
Explanatory Variable: maintenance as % of services
Control Variables: age, size, market, year
Maintenance comes out significant with a coefficient of .53.

10% increase in maintenance as a % of service = 5.3% increase in service margins!!
Strategic & Operational Challenges

• How Manage the “Crisscross”?
  – Best balance of products vs. services & maintenance?
  – What new products to generate services & maintenance?

• How “Servitize” Products?
  – How add special value and revenue opportunities?
  – How make products “stickier,” less commodity-like?

• How “Productize” Services?
  – Create two organizations within one?
  – How develop standardized products, platforms, or customized solutions more efficiently reusing components, leveraging knowledge, tools, & best practices across customers/projects
Public IT Services Firms in US

Projection

#of companies
Revenue Breakdown (estimate)
Comments on Preliminary Data

- IT Services business also undergoing similar shakeout and commoditization?

- Number of publicly listed firms in our database dropped from ca. 550 in 2000 to under 400 in 2005 (preliminary estimate, multiple SIC codes)

- Product sales used to be 20% of service firms’ revenues; sharp decline to 3% today (estimate)
Challenges for IT Firms

- Product revenues shrinking for Western software product companies, so they will challenge IT services companies for service & maintenance revenues, both from onsite and off-shore centers.

- IT service companies in India, Japan, US, and Europe must figure out how to compete beyond process & quality competence or low wages (India) or growth rates & margins will decline.
One Key Option

• **Develop more Japanese-made products or semi-products**, for license fees and to drive service & maintenance revenues (full products + tools, or reusable frameworks, components)
  – US & European enterprise products not so well suited to developing markets in Asia

• But beware of collapsing product prices; so the business model should be **HYBRID**
Second Key Option

• **Find ways to differentiate services**
  – Indian IT services companies differentiated from US, Europe & Japan competitors by process maturity, scale, technical skills, English language, low (but rising) labor costs.
  – But to outsiders, the Indian IT firms all look alike, except for different sizes & slightly different prices

• **How can Japanese services firms differentiate themselves and prevent copying of their best practices or prevent Indian competition?**
Path Towards Differentiation

• Complex management of multiple variables
  – Executive leadership, marketing & sales capabilities, recruitment strategies, training techniques, process & quality management, technology depth, knowledge management, one-to-one customer relationships, semi-products business through tools or reusable platforms
  – Need to have a primary base but also be global & local

• Need to think harder about Services R and D

• Need to impact the brand (= higher prices), scope economies (= lower costs), and ability to lead the future (= thrive, not just survive)