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

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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
New Insights into Life-Cycle Dynamics & Managing Platform Transitions?

Performance

Time

Ferment

Takeoff

Maturity

Disruption

.....Services.....?
New Insights into a *Different Curve* – Product-Process + *Services*?

![Diagram showing the focus of attention, revenues, product innovation, process innovation, and service innovation over time.](image)
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.

• 3386 total yearly observations (4198 including no-breakout firms).

• Now doing **exploratory** analysis

• Also starting database of **non-software** firms
Annual % Product Revenues by Firm
(374 firms, 3386 yearly observations)

Notes: -- Excludes 89 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 Issac, 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 .57 and standard deviation is .216.
  – **HybridServices** = product sales % > 0 but < .359
  – **HybridBalanced** = product sales ≥ .359 but ≤ .791
  – **HybridProducts** = product sales % > .791 but < 1

• Total observations for the 5 groups:

  Services: 72
  Product: 300
  HybridS: 463
  HybridB: 1805
  HybridP: 504
  Total: 3144
Products = 100% products       Service = 0% product revenues
Hybrid-Product    = ca. 80-99% product revenues
Hybrid-Balanced   = ca. 36-79% product revenues
Hybrid-Service    = ca. 0-35% product revenues
Three Business/Life Cycle Models

![Graph showing the percentage of total revenues from products and services vs. life cycle stages. Products show a declining trend, while services show an increasing trend.]
Why the Shift to Services-Maintenance?

• Associated with negative growth in sales and particularly declining product revenues
• Associated with higher firm age (life-cycle effect?)
• Associated with platform shift (Internet boom, bust?)

Random effects regression on product firms (> 50% product revenue) that shifted to > 50% services-maintenance

Dependent variable = percentage of sales from services-maintenance (continuous)
Controls: size and market

Results:

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.015*</td>
<td>(.001)</td>
</tr>
<tr>
<td>C/S</td>
<td>-.02</td>
<td>(.013)</td>
</tr>
<tr>
<td>Internet</td>
<td>.10*</td>
<td>(.011)</td>
</tr>
<tr>
<td>Ln sales</td>
<td>-.016*</td>
<td>(.006)</td>
</tr>
<tr>
<td>2 year Avg. Prod Growth</td>
<td>-.006*</td>
<td>(.001)</td>
</tr>
<tr>
<td>Market</td>
<td>selected significant</td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>857</td>
<td></td>
</tr>
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</table>
Revenue Mix and Performance

• Service-maintenance revenues generate higher and more stable profits than product revenues for all firms.

• Hybrid firms generally have higher and more stable profits than products or services firms.
Product profitability = (product sales – (product cost + R&D)) / product sales

Service profitability = (service & maintenance revenue – service & maintenance cost) / service & maintenance revenue
Mean Gross Margins by year

Mean operating margin

Year


Mean Gross Margins by year

Services
Product
Hybrid Service
Hybrid Balance
Hybrid Product
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.

**Interpretation:** A 10% increase in maintenance as a % of service revenues = 5.3% increase in service margins.
What of Non-Software Firms?

• Many diversified technology companies (IBM, HP, GE, EMC, Cisco) sell products and services

• *Similar dynamics*: Products get harder to sell, or become commodities
  – Services rising as % of revenues and profits

• *Different stage?* It is well-known that many manufacturing and technology firms already see HIGHER margins in services
THE PC INDUSTRY’S PROFIT POOL

The value chain for the personal computer industry includes six key activities; the profitability of the activities varies widely. Manufacturers compete in the largest but least-profitable segment of the chain.

The automotive industry encompasses many value-chain activities, from the manufacture of a car to the sale of gasoline to the provision of various financial services. The way that profits and revenues are distributed among these activities varies greatly. The most profitable areas of the car business are not the ones that generate the biggest revenues.

# Revenues and Margins for Diversified Technology Firms

<table>
<thead>
<tr>
<th>Company</th>
<th>2003/4 Revenues ($ billion)</th>
<th>Services Gross Margins(%)</th>
<th>Products Gross Margins (%)</th>
<th>2003/4 Services %</th>
<th>1995 Services %</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM</td>
<td>$ 89.1</td>
<td>25</td>
<td>28 (h/w)</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>Sun</td>
<td>11.2</td>
<td>38</td>
<td>42</td>
<td>34</td>
<td>--</td>
</tr>
<tr>
<td>H-P</td>
<td>79.9</td>
<td>23</td>
<td>25</td>
<td>19</td>
<td>14</td>
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<tr>
<td>Cisco</td>
<td>22.9</td>
<td>67</td>
<td>69</td>
<td>16</td>
<td>--</td>
</tr>
<tr>
<td>EMC</td>
<td>6.2</td>
<td>51 (i.s.)</td>
<td>43 (i.s.)</td>
<td>22</td>
<td>--</td>
</tr>
<tr>
<td>GE</td>
<td>134.2</td>
<td>37 (-finan)</td>
<td>26</td>
<td>30 (62)</td>
<td>14 (52)</td>
</tr>
<tr>
<td>GM</td>
<td>185.5</td>
<td>9</td>
<td>0.4</td>
<td>16</td>
<td>8 (-EDS)²³</td>
</tr>
</tbody>
</table>
Strategic & Operational Challenges

• **How Manage the “Crisscross”?**
  - Best balance of products, services & maintenance?
  - New products to generate services & maintenance?

• **How “Servitize” Products?**
  - Add special value and revenue opportunities?
  - Make products “stickier,” less commodity-like?

• **How “Productize” Services?**
  - Create two organizations within one?
  - Offer “one-off” solutions more efficiently -- standardizing components, leveraging knowledge, tools, or processes across customers (“scope”)?