Technology-based Business Transformation

ESD.57 – Fall 2007

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Class Overview

- Technology-based innovation and business survival

- Formulating a market strategy around a new, disruptive, complex technology

- Executing a multi-faceted strategy in the marketplace

- Organizational and cultural Issues

- Class project presentation and discussion
Disruptive Innovation
... the Internet and World Wide Web ...
The Internet - mid '90's

**Networking:**
- TCP/IP

**Communications:**
- e-mail

**Information:**
- World Wide Web

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Formulating IBM’s Internet-based Strategy

Key Market Factors

- **How advanced is the technology?**
  - The Internet and Web were breaking out of the research community into the “early adopter” general marketplace

- **What is the marketplace saying about it?**
  - The marketplace started paying more and more attention, especially after the Netscape IPO in August, 1995

- **What are competitors doing?**
  - Major competition was arising, both existing companies – e.g., Sun, later Microsoft, and new companies – e.g., Netscape and many new “dot coms”

- **How are your clients reacting?**
  - Clients were beginning to experiment with the Web – both putting up web sites, front ends to their existing systems, and developing brand new applications, …
Formulating the IBM Internet-based Strategy

**Key Organizational Factors**

- **Capabilities and “core competencies”**
  - The Internet and Web were becoming an integral part of the next generation IT infrastructure requiring systems, software and services

- **Fit with legacy products, services and installed base**
  - Just about all existing products, services and installations were “web enabled” so they can easily integrate into an Internet infrastructure

- **Fit with organization and culture**
  - New “dot com” were much faster moving in the marketplace than existing companies and seemed to play by different rules that they were inventing as they went along

- **Brand permission and market acceptance**
  - There were lots of discussions that we were entering a “new economy” in which only “born to the web” companies could play and survive and existing businesses were destined to fade away
e-business = Web + IT

Industrial Strength
Database  Transactions
Scalability  Systems Mgmt
Availability
Security

Standards
TCP/IP  SET
HTML  SSL
HTTP  Browsers
Java
Web Servers  GUIs
The Internet, Web and e-business...
Key factor for success in e-business strategy

*Balance between disruptive and sustaining innovations*

- Leverage organization’s skills and talent …
  - but embrace new market realities: time-to-market, …

- Leverage products, installed base, customer relationships …
  - but adapt to new market requirements: standards, …

- Leverage your brand and history …
  - but abandon qualities that have become outmoded

- Leverage every possible strength of the organization …
  - but make sure you are in harmony with the forces of the marketplace
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Which activities should a new growth venture do internally in order to be as successful as possible as fast as possible, and which should it outsource to a supplier or partner?

Will success be best built around a proprietary product architecture, or should the venture embrace modular, open industry standards?

What causes the evolution from closed and proprietary product architectures to open ones?

Might companies need to adopt proprietary solutions again, once open standards have emerged?
Decisions about what to in-source and what to procure from suppliers and partners have a powerful impact on a new-growth venture’s chance for success.
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If something fits your core competence, you should do it inside. If not, and another firm can do it better, you should relay on them to provide it.
Decisions about what to in-source and what to procure from suppliers and partners have a powerful impact on a new-growth venture’s chance for success.

If something fits your core competence, you should do it inside. If not, and another firm can do it better, you should relay on them to provide it.

Right? Well, sometimes . . . .

Managers should ask “What do we need to master today and what will we need to master in the future, in order to excel on the trajectory of improvement that customers will define as important.”
Interdependent versus Modular Architectures

The Innovator’s Solution: Chapter 5

- **Interdependent architecture**
  - No “clean” interfaces - one part cannot be created independently of the other
  - The same organization must develop all the interdependent components
  - Generally optimize performance, functionality and reliability
  - Generally proprietary architectures

- **Modular architecture**
  - Clean, well specified interfaces - no unpredictable interdependencies
  - Modular components can be developed by independent groups or companies
  - Optimize flexibility, time-to-market, cost – at the expense of performance
  - Generally open architectures
Interdependent, optimized, proprietary architectures

- Most applicable in early stages of a product, when performance, reliability, functionality and components are not good enough

- Highly integrated design and development makes up for deficiencies – but at considerable cost and time-to-market

- Companies/units competing with proprietary, interdependent architectures must be vertically integrated, controlling design and manufacturing of every critical component
Modular, open, flexible architecture

- Most applicable in mature stages, when overall products and critical components have achieved “good enough” performance, reliability, and functionality

- New products can be introduced faster, at significantly lower costs, with far more flexibility and responsiveness

- Companies and industries disaggregate when building product with modular architectures – value-chains and ecosystem become very important
Should you build proprietary or open products?

*It all depends.*

- **Performance dimension**
  - Proprietary: high performance, leading edge products - higher profit margins, high value services, requires close customer relationships, . . .
  - Open, modular: high volume, mature products – generally low profit margins, commodities, requires very good processes, . . .

- **Architectural layer dimension**
  - Open, modular: “lower”, more mature layers – shared infrastructure, industry standards, open source, requires industry cooperation, standard bodies, . . .
  - Proprietary: new applications and solutions built on top of open layers; requires good project management, leading edge tools, complex systems know-how, …
Evolution of Systems

*Broadth and Scope*
Evolution of Systems

*Breadth and Scope*

System Complex

Data Center, Business Unit, Department, . . .

Computer

Storage, Printers, Network, . . .
Evolution of Systems

*Breadth and Scope*

“End-to-End” Enterprise

IT Infrastructure, Applications, Data, ... 

System Complex

Data Center, Business Unit, Department, ...

Computer

Storage, Printers, Network, ...
Evolution of Systems

*Breadth and Scope*

- Industry Eco-Systems
- Global Digital Economy
- Marketplace Solutions

- People, Processes, Information
- IT Infrastructure, Applications, Data, . . .
- Data Center, Business Unit, Department, . . .
- Storage, Printers, Network, . . .

"End-to-End" Enterprise

System Complex

Computer
Evolution of Systems

*Up the Stack*
Evolution of Systems

*Up the Stack*
Evolution of Systems
Up the Stack

Applications

Products

Technology
Executing IBM’s e-business strategy in the marketplace

**Key Organizational Factors**

- What is the right balance between open and proprietary products and services?

- What should you build in-house versus focusing on partnerships or acquisition?

- How do you focus and organize your offerings in the marketplace?

- How do you measure and track progress including financial returns and market share?
Executing IBM’s e-business strategy in the marketplace

Key Organizational Factors

- Balance between proprietary and open
  - Did not participate in “browser wars”, looked at browser as “basic dial tone”
  - Embraced open source Apache web server vs “http” internal effort
  - Focused internal efforts on proprietary enterprise quality software: WebSphere built on Apache and other open source components
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- **Build in-house vs partnerships and acquisitions**
  - Made a number of key acquisitions to build up software and services business: Lotus, Tivoli, . . .
  - Partnered extensively, including with major competitors: Java with Sun
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- **Market offerings – key focus and segments**
  - Focused on key areas where IBM had skills and enterprise had needs: hosting, security, back end integration, web application servers, . . .
  - Organized offerings around Content, Collaboration and Commerce
Executing IBM’s e-business strategy in the marketplace

*Key Application Segments*

- **Content**
  - Corporate web sites, general information, . . .
  - Customer self-service

- **Collaboration**
  - Communications, e-mail, instant messaging, . . .
  - Internal web sites, employee and partner applications, . . .

- **Commerce**
  - Business-to-Consumer e-commerce applications, . . .
  - Business-to-Business e-commerce applications, . . .
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- Financial and Market measurements
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  - Focused primarily on larger Internet impact on overall revenues, key client engagements, and market impact
  - Reviewed progress closely with CEO and top senior management
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