

ROI? Making Information Technology Decisions

Dr. Robin Dillon
Virginia Tech

Presented to:
INFORMS Salt Lake City

May 8, 2000

“Many managers have become increasingly frustrated by their inability to fully exploit the business value of their IT investments and assets.” - Applegate, et al., 1999

Agenda

- Why do IT decisions present such a problem for managers?
- How can decision analysis support IT decision-making specifically in e-business?
 - CASE: Should Build-A-Bear sell bears on the web?
And if so, how?

IT Statistics

- 50% of U.S. capital investment today is for IT
- Annual IT budgets exceed \$1 billion at FedEx, UPS, Chase Bank, and Citibank
- Nationsbank in 1997 spent \$500 million on software of a total \$1.9 billion IT budget
- In 1996, 20% of U.S. software projects were canceled, and 50% were over budget or schedule
- The Standish Group estimates that IS project failures cost \$45 billion in 1996

Primary Benefits of IT Investment

- To decrease effort and increase operating process performance
- To facilitate management support
- To gain competitive advantage
- To provide a good framework for business restructuring or transformation
- To provide value-enabling infrastructure

Factors Contributing to Difficult IT Decisions

- Computer anxiety exists among senior managers
- Rapid technological growth causes rapid obsolescence
- Clearly beneficial solutions can't be justified based on value
 - Measuring success
 - Quantifying intangibles
 - Isolating IT contribution to profitability
 - Demonstrating causality
- Valuable IT projects are still difficult to implement

Current Attitude Toward E-Commerce

“Start E-Commerce as soon as possible; it is too dangerous to wait.”

- Randy Mott, CIO Wal-Mart

“Through 2002, 80 percent of enterprises will implement incoherent strategies, based on a failure to understand the characteristics of e-business which will result in missed opportunities.”

- Gartner Group, 12/99

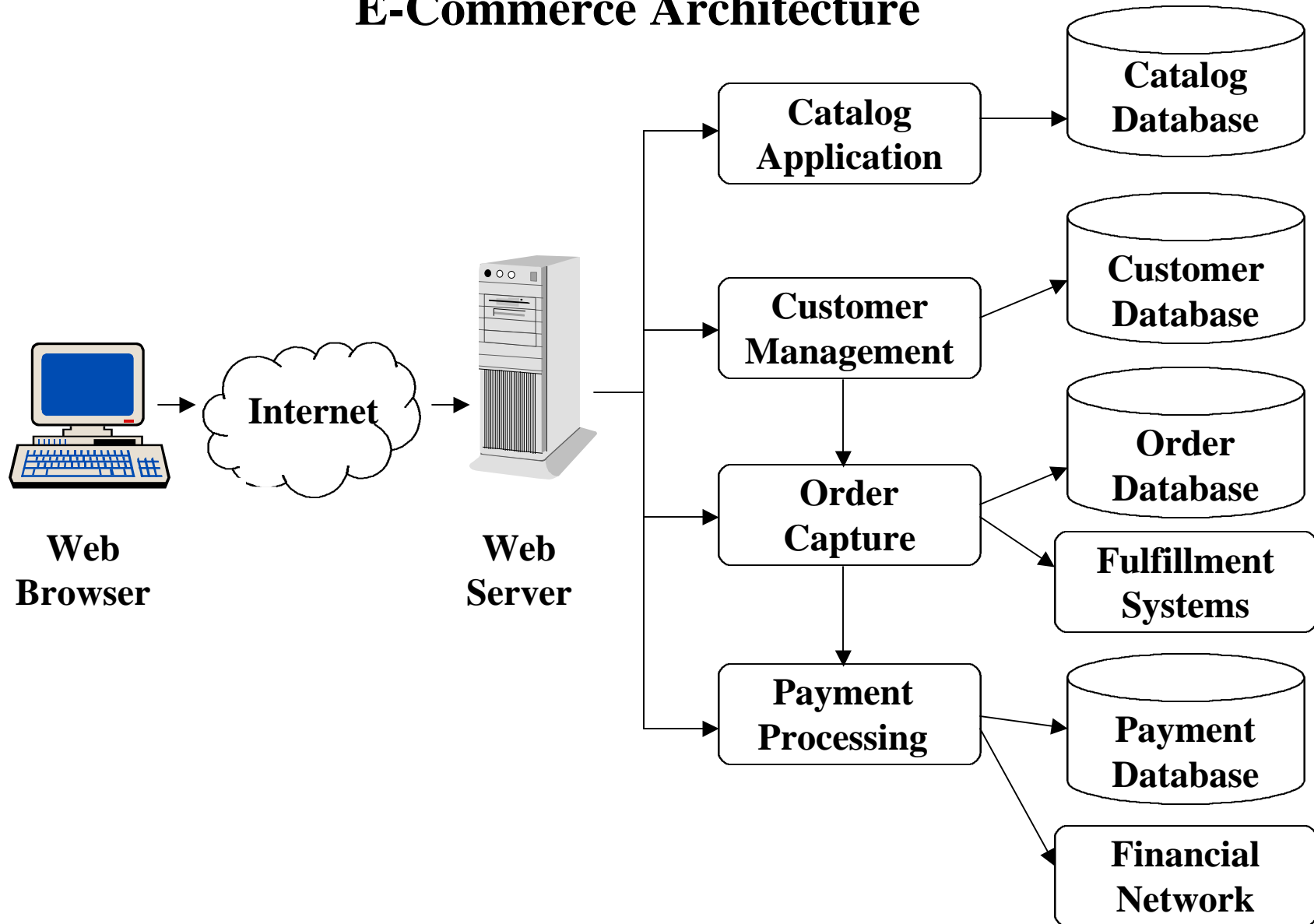
“Through 2002, 75 percent of e-business projects will fail to meet their objectives due to fundamental flaws in project planning.”

- Gartner Group, 12/99

Reasons for the “reckless abandonment of sound business practice”

1. Inapplicability of traditional measures
2. The speed at which technology and applications are evolving
3. Few role models on which to base experience and fewer who will share the details
4. Difficulty of arriving at the cost of e-business processes
5. Even more difficult to cost multi-enterprise systems

E-Commerce Architecture



[Turban, et al., 1999]

Average E-commerce Costs

1. Get on the map- \$300,000 to \$1 million
2. Run with the pack- \$1 million to \$5 million
3. Market differentiator- \$5 million - \$20 million

Benefits of E-commerce

- Direct savings
- Product promotion
- New sales channel
- Reduced cycle time
- Customer service
- Brand or corporate image
- New products

Applications for DA

- Initial Planning Strategy
- Refinement and Improvement Based on Massive Amount of Data Gathered by Web Tools

CASE: Build-A-Bear



- Build-A-Bear stores exist in 14 high-end shopping malls around the country selling a “Bear-Experience”:

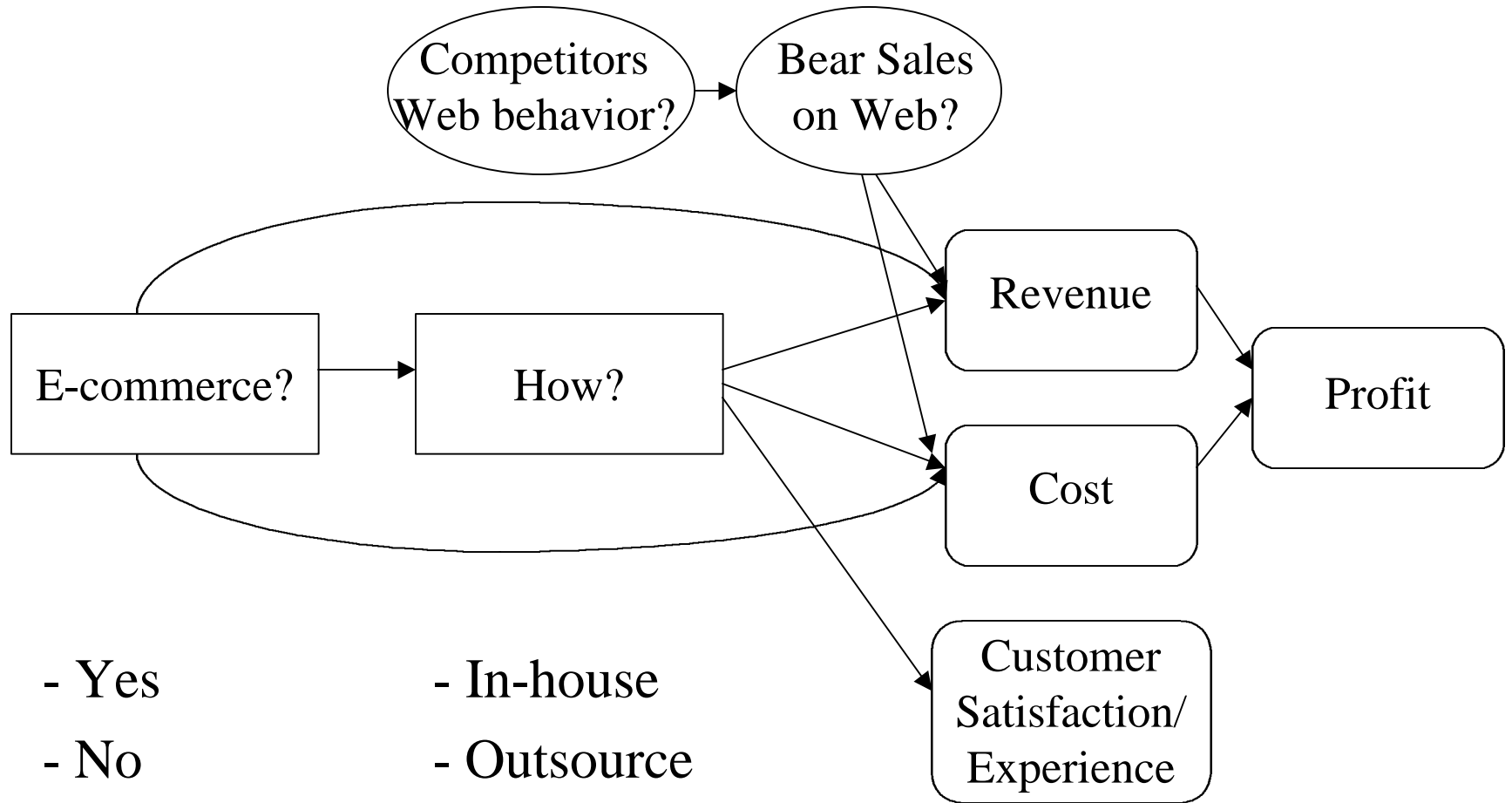
“It can’t just be about the money. This is about learning and living and having fun with people and making memories.” - Maxine Clark

- Founder felt web-site should be:
 - Fun, aimed at children
 - Informational (e.g., store locations, new articles)
 - Some e-commerce (maybe?)
 - Infrastructure for future intranet

Build-A-Bear's Values in E-commerce

- Brand image
- Product promotion
- New sales channel

E-Commerce Decision



Some Financials (Preliminary)

In-House Solution	Outsourcing
<u>One Time Costs</u> Hardware and Commercial EC Software Costs (\$20,000) Merchant Account Set-up (\$250) Development Fees (\$7,000) Photo Imaging/Scanning of Products (\$1,000)	<u>One Time Costs</u> Digital Catalog Application (\$1,195) Digital Customer Service Application (\$10,000) Host Setup Fee (\$200) CyberCash Setup Fee (\$750) Development Fees (\$7,000) Photo Imaging of Products (\$1,000)
<u>Recurring Costs</u> Merchant Account Monthly Fee (\$45/mo.) Merchant Account Transaction Fee (\$0.30/transaction) Internet 24x7 Connection (T3) (\$2,000/mo.)	<u>Recurring Costs</u> CyberCash Monthly Fee (\$80/month) CyberCash Transaction Fee (\$0.20/transaction) Monthly Hosting Fee (\$125/month) Order Fulfillment Fee (\$1.50 transaction)
One-Time costs: \$28,250 Recurring costs: \$24,600 per year Revenue less COGS (2,000 bears): \$16,000	One-Time costs: \$20,145 Recurring costs: \$5,860 Revenue less COGS (2,000 bears): \$16,000

Assuming 2,000 bears sold per year, Average price of bear: \$20,
 Average revenue per bear: \$8 (40% markup)

Recommendations for BAB based on Current Values

- Outsource e-commerce to a third-party (e.g., yahoo mall) who requires smaller up-front investment and is paid per item sold
 - Preliminary analysis shows 2 year payback period for one outsourcing alternative, yahoo would be even shorter
 - Decision only improves when intangibles are included
- Retain the option to either switch providers or develop an in-house alternative if business grows or technology evolves

Conclusion

Information technology decisions are no different than the other hard problems where DA tools have been useful.

- Multiple objectives with many intangibles

Investments can have value to an organization even without demonstrable financial return.

- Uncertainties and risks

Even if you do expect returns, it is not 100 percent certain that you will be able to attain them.

- Large volumes of data to support quantitative analysis