eBusiness in the Forest Products Industry
Opportunities and Realities

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Forestry On The Grow Conference and Expo
What am I Going to Talk About?

- Internet Structures
- eBusiness and eCommerce
- eBusiness in the Forest Sector
- How Companies Can Get Involved
- Some Final Thoughts
I can do without sex... or internet...

...but not both at the same time.
“On the Internet, nobody knows you’re a dog.”
<table>
<thead>
<tr>
<th>Country</th>
<th>Users (Million)</th>
<th>Percent of Population</th>
<th>Percent of World Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>203.6</td>
<td>68.7%</td>
<td>20.0%</td>
</tr>
<tr>
<td>China</td>
<td>103.0</td>
<td>7.9%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Japan</td>
<td>78.1</td>
<td>60.9%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Germany</td>
<td>47.1</td>
<td>57.0%</td>
<td>4.6%</td>
</tr>
<tr>
<td>India</td>
<td>39.2</td>
<td>3.6%</td>
<td>3.9%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>37.8</td>
<td>63.1%</td>
<td>3.7%</td>
</tr>
<tr>
<td>South Korea</td>
<td>32.6</td>
<td>65.2%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Italy</td>
<td>28.9</td>
<td>49.3%</td>
<td>2.8%</td>
</tr>
<tr>
<td>France</td>
<td>25.6</td>
<td>42.3%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Russia</td>
<td>22.3</td>
<td>15.5%</td>
<td>2.2%</td>
</tr>
<tr>
<td><strong>Top 10 Countries</strong></td>
<td><strong>618.2</strong></td>
<td><strong>60.7%</strong></td>
<td></td>
</tr>
</tbody>
</table>
Broad Internet Applications

- Information source
- eCommunications (inter/intra)
- eBusiness (operations)
- Sales and purchases (eCommerce)
eBusiness & eCommerce
What is eBusiness?

- **eBusiness** is the application of Internet-based technologies for conducting business.

- It includes **eCommerce**, the actual transaction activities as well as other **business oriented applications** such as logistics, order entry, information sharing and transmission of information between exchange partners.
What is eBusiness?

- First and foremost about business, not technology.
- Technology facilitates eBusiness.
- Challenge is managing the changes in business strategies and internal corporate processes.
- Can include intra-company networks (intranets) and Internet linkages with customers or suppliers (extranets).
eBusiness Technologies/Applications

Supplier

Point-to-Point (EDI, XML)
Extranets
eIntermediaries
Corporate web-sites
e-Mail
Phone/fax
Mail

Customer
eBusiness Timeline


“Commercialization” of the Internet

3rd party eMarketplaces

Dot.com boom & IPOs

Brick & Mortar Industry owned

Dot.com “CRASH”

eBusiness rebounds

• Changed the way of doing business

• Innovative Business Models

(Kallioranta & Vlosky 2005)
The Life Cycle of eBusiness

- **Peak of Inflated Expectations**
- **Technology Trigger**
- **Trough of Disillusionment**
- **Slope of Enlightenment**
- **Plateau of Profitability**
- “e-Business” ends

(Forrester Group)
eCommerce Spending

- Business to Business (B2B) is 80% of total eCommerce
- 2% of B2B transactions conducted on-line
- Estimated worldwide B2B eCommerce:

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>eMarketer</td>
<td>$1.4</td>
<td>$2.4</td>
</tr>
<tr>
<td>Goldman Sachs</td>
<td>$2.1</td>
<td>$3.2</td>
</tr>
<tr>
<td>Forrester Research</td>
<td>$3.7</td>
<td>$6.3</td>
</tr>
</tbody>
</table>

ALL AGREE ON CONTINUED GROWTH!
Worldwide eCommerce Growth

(Forrester Group, 2005)
Important Market Forces Affecting Business

- Pressure to reduce overall supply chain costs
- Pressure to compress total time to market/cycle time
- Pressure to collaborate more effectively with trading partners
- Unstable/unpredictable demand for products/services
- Movement toward a more global marketplace

eBusiness Can Reduce These Pressures
**eBusiness Can Impact All Company Functions**

<table>
<thead>
<tr>
<th>Back Office</th>
<th>Market Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resource Management</td>
<td>Finance</td>
</tr>
<tr>
<td>Technology Development</td>
<td>Distribution</td>
</tr>
<tr>
<td>Procurement</td>
<td>Information Systems</td>
</tr>
</tbody>
</table>

**Pre-Sale Activities**

- **Inbound Materials Logistics**
- **Operations**
- **Outbound Logistics**
- **Marketing and Sales**
- **Post-Sale Service**
Key eBusiness Benefits

• Lower inventory levels
• Reduced uncertainty
• Enhanced response to customer demands
• Shortened product-to-market cycles
• Optimized use of materials and processes
Intranets: Internalizing The Internet
An Intranet

- Sales
- Procurement
- Production
- R&D
- Inventory
- Human Resources
- Maintenance
Intranets can host...

- product price lists
- product specifications
- customer databases
- inventory records
- supplier databases
- employee databases
- employee newsletters
- performance records
- maintenance records
- marketing schedules
Intranets can facilitate...

- production scheduling
- sales coordination
- project management
- regulatory compliance
- ISO 9000 qualification
- employee training
- management decision making
Extranets: Connecting Exchange Partners
An Extranet
(letting partners in... selectively!)
Extranets facilitate...

- collaboration between companies
- training and support
- communication with suppliers & customers
- data Interchange
- production/purchasing coordination
- sales and purchases
### The Internet
The information superhighway.

### Intranets
The use of Internet technology within a company or organization.

### Extranets
A network that uses the Internet to link company Intranets in order to enhance business-to-business relationships.

<table>
<thead>
<tr>
<th>What is it?</th>
<th>The Internet</th>
<th>Intranets</th>
<th>Extranets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access</strong></td>
<td>Open</td>
<td>Private</td>
<td>By agreement only</td>
</tr>
<tr>
<td><strong>Users</strong></td>
<td>Public</td>
<td>Organization members</td>
<td>Business partners</td>
</tr>
<tr>
<td><strong>Information</strong></td>
<td>General</td>
<td>Proprietary</td>
<td>Selective</td>
</tr>
</tbody>
</table>
eBusiness and the U.S. Forest Sector
Forest-Based Industries are generally Business-to-Business (B2B)

As opposed to Business-to-Consumer (B2C)
A Typical Forest Products Supply/Value Chain

Raw Materials - Timberland - Stumpage

Harvesting - Timbering - Transport - Logging contractor

Primary Processing - Pulpwood - Saw timber - Logs

Merchandising - Marketing - Sales

Information Interfaces

Distribution - Channels - Transport

Secondary Processing - Remans - Treaters - Industrial - etc

Secondary Distribution - Channels - Transport

Consumer - Builder - Remodeler - Retail

Merchandising - Marketing - Sales

(Adapted from -TALPX 2000)
Even From the Forest to the Mill

- Access to markets
- Timberland management

- Inventory management
- Consistent supply
- Search costs

(Timber Owner) -> (Forester/Loggers) -> (Timber Buyer)

(Forest One 2000)
Possible eLinkages in the Supply Chain

Jean-Marc Frayret, Ph.D.
Global Nature of the Industry
Where is the U.S. Forest Products Industry in eBusiness Adoption?

<table>
<thead>
<tr>
<th>eCommerce Rank (%)</th>
<th>Sector</th>
<th>Ship. Value ($ Billion)</th>
<th>(% of Shipments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transportation Eq.</td>
<td>$639</td>
<td>46%</td>
</tr>
<tr>
<td>14</td>
<td>Paper</td>
<td>$166</td>
<td>12%</td>
</tr>
<tr>
<td>LAST</td>
<td>Wood Products</td>
<td>$94</td>
<td>6%</td>
</tr>
</tbody>
</table>

US Census 2005
Forest Industry eBusiness

Manufacturing Industry in General
US: eCommerce: 21% of total shipments

Pulp & Paper
US: 2.2% of eCommerce shipments

Solid Wood
US: 0.7% of eCommerce shipments

Development Introduction Growth Maturity

(U.S. Census Bureau 2004; Vlosky 2000)
NEW Study-Methodology

Industry Sectors Sampled:

Forest Products Industry (FPI)
- 250 wood products manufacturing (SIC 24)
- 250 paper products manufacturing (SIC 26)

Non-Forest Products Industry (NFPI)
- 250 chemical manufacturing (SIC 28)
- 250 food manufacturing (SIC 20)

Kallioranta 2006
When eBusiness Was Adopted

- **FPI:**
  - Mean = 4.7
  - Std.Dev. = 2.5

- **NFPI:**
  - Mean = 6.0
  - Std.Dev. = 2.9

**t-value:** -2.129
**d.f.:** 86
**p-value:** .036 Sig.
(2-tailed t-test)

Kallioranta 2006
## Applications Adopted

<table>
<thead>
<tr>
<th>Application adopted by % of respondents</th>
<th>Website a</th>
<th>Extranet a</th>
<th>elntermediary a</th>
<th>P2P a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (n=106)</td>
<td>85%</td>
<td>43%</td>
<td>15%</td>
<td>35%</td>
</tr>
<tr>
<td>FPI (n=52)</td>
<td>81%</td>
<td>31%</td>
<td>15%</td>
<td>21%</td>
</tr>
<tr>
<td>NFPI (n=54)</td>
<td>89%</td>
<td>54%</td>
<td>15%</td>
<td>48%</td>
</tr>
<tr>
<td>Pearson Chi-Square</td>
<td>1.363</td>
<td>5.703</td>
<td>.007</td>
<td>8.496</td>
</tr>
<tr>
<td>d.f.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Significance+</td>
<td>.243</td>
<td>.017*</td>
<td>.935</td>
<td>.004**</td>
</tr>
</tbody>
</table>

* Significant at $\alpha=0.05$; ** Significant at $\alpha=0.01$;
+ Assymp. Sig. (2-sided); a 0 cells (0%) have expected count less than 5
Why?

- Reactive rather than proactive
- Not inclined to be lead adopter; generally, a wait-and-see posture
- Production-oriented culture
- Lower investment in IT research and development
- Not convinced eBusiness is relevant
- Lack of trained information technology staff
- Lack of application tools
Tradition

Alien Concept

BLINDED BY FEAR

ANXieties
#1 Concern about Using the Internet
U.S. Wood Products Industry

Exchange partner relationships will suffer due to security concerns.

1995 2005
Impediments to Implementing eBusiness In the Forest Products Industry

- Lack of skilled IT staff
- Lack of an understanding of benefits
- Expense of development
- Expense of hardware and software
Factors Contributing to Successful Internet Implementation in the Forest Products Industry

1) User involvement
2) Development of trust in using technology
3) Management support
4) User training
eBusiness Implementation/Success Matrix

- premature
- inefficient
- anxious
- impulsive
- inordinate costs
- IS at risk
- e-trust loss

- match between IS and strategic adoption
- optimal combination for success

- dinosaurs
- traditionalists
- survival at risk
- resistant to change
- denial

- untapped resource
- high potential to lose corporate IS e-expertise

High eAdoption (complexity depth, strategic)

Low eAdoption (complexity depth, strategic)

High eKnowledge (depth, breadth)

Low eKnowledge (depth, breadth)

(Vlosky 2000)
Options for Involvement
### eBusiness Applications - Something for Everyone!
(U.S. forest products example)

<table>
<thead>
<tr>
<th>Application</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Contacts</td>
<td></td>
</tr>
<tr>
<td>Vendor Contacts</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
</tr>
<tr>
<td>Product Promotion</td>
<td></td>
</tr>
<tr>
<td>Product/Price Inquiry</td>
<td></td>
</tr>
<tr>
<td>Sales to Customers</td>
<td></td>
</tr>
<tr>
<td>Purchases from Suppliers</td>
<td></td>
</tr>
<tr>
<td>Internet EDI</td>
<td></td>
</tr>
<tr>
<td>Order Status</td>
<td></td>
</tr>
<tr>
<td>Shipping Notices</td>
<td></td>
</tr>
<tr>
<td>Order Tracking</td>
<td></td>
</tr>
<tr>
<td>Inventory Management</td>
<td></td>
</tr>
<tr>
<td>Logistics</td>
<td></td>
</tr>
</tbody>
</table>

#### Email
- Customer Contacts
- Vendor Contacts
- Marketing
- Product Promotion
- Product/Price Inquiry

#### Websites
- Sales to Customers
- Purchases from Suppliers
- Internet EDI
- Order Status
- Shipping Notices
- Order Tracking
- Inventory Management
- Logistics

#### Higher Order Applications
eIntermediaries Connect Buyers & Suppliers

Manufacturers

Wholesalers

Logistics Provider

Exchange Data Integration

Merchants

Dealers

Secondary Manufacturers
Some Thoughts on eBusiness Strategy
eBusiness Strategy Characteristics

- Fits Overall Co. Strategies
- Distinctive Competencies
- Market Oriented
- Characteristics of Good eBusiness Strategies
- Fit Market Environment
- Realistic
- Specific
What's the Bottom Line?

• The emergence of cyberspace is a fundamental force that is transforming business and society.

• Internet-based technologies offer revolutionary tools for business development and management.

• eBusiness is one means for developing competitive advantage.
Companies that succeed will be ones that use the Internet as a complement to traditional ways of competing, not those that set their Internet initiatives apart from their established operations.

Porter 2006
Questions?
rvlosky@agcenter.lsu.edu