Responsive Supply Chain: A Competitive Strategy in a Networked Economy

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Background for the Research

- Global market and networked economy
- Agile manufacturing (AM) and supply chain management (SCM)
- AM is about casting off old ways of doing things
- SCM is an integrated approach to value chain
- SCM Vs. AM --> Responsive supply chain (RSC)
Purpose of the Research

- What is RSC?
- Previous research on AM & SCM
- Some case examples
- A framework for developing RSC
- Some recommendations to achieve RSC
- Future operations strategy
- Conclusions
What is Responsive Supply Chain?

A set of business processes that is capable of creating wealth in a competitive environment by reacting quickly and effectively to changing market requirements (as a strategy)

It needs to meet changing market requirements by developing a suitable network of collaborative firms based on core-competencies, and leveraging people and information as quickly as possible and that too in a most cost effective manner (as a set of tactics)
Definition of RSC

- Supply Chain (collaborative network of partners)
- Information & Knowledge Management
- Resulting in “Virtual Enterprise”
- Leading to: Flexibility, Speed and Cost Effective

E-Commerce
Responsive Supply Chain (RSC)
Previous Research on SCM and AM

- **Strategic Planning**
  - Long-term business and operational policies
- **Virtual Enterprise/Organization**
  - Partnership based on core competencies
- **Knowledge and Information Technology Management**
  - Electronic Commerce and ERP Systems
  - Training and education
# Review of Selected Literature on RSC and AM

<table>
<thead>
<tr>
<th>Classification Criteria</th>
<th>References</th>
<th>RSC/AM - Strategies, Techniques, and Technologies</th>
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</thead>
</table>
The major enablers of AM & SCM:

- SCM facilitates transparency and alignment
- Virtual supply chains
- Sharing information
- Process integration
- Timely and accurate information flow along the value chain
Previous Research on AM & SCM

- Postponement and information decoupling
- Collaboration ———> Vertical Integration
- Partnership/supplier development
- Physically distributed operations
- Enterprise integration and management with IT/IS
### Comparison of Lean/SCM and AM

<table>
<thead>
<tr>
<th>Objectives and Major Determinants</th>
<th>Lean/Supply Chain</th>
<th>Agility</th>
<th>RSC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives/Goals</strong></td>
<td>Reduced costs, moderate speed, and flexibility</td>
<td>Increased speed and flexibility. Cost is not a major criteria</td>
<td>Reduced costs, increased speed and flexibility</td>
</tr>
<tr>
<td><strong>Strategic Planning</strong></td>
<td>Fewer suppliers, outsourcing, Information technology</td>
<td>Core competencies, Global outsourcing, Virtual enterprises</td>
<td>Supply management, Strategic alliances, Virtual enterprises, Global outsourcing, and IT</td>
</tr>
<tr>
<td><strong>Organizational Structure</strong></td>
<td>Supplier development</td>
<td>Virtual enterprise, partnership formation based on core competencies</td>
<td>Virtual Enterprise, Supply chain integration, and information technology</td>
</tr>
<tr>
<td><strong>Knowledge and Information Technology</strong></td>
<td>Supply chain integration, knowledge workers</td>
<td>Agile and knowledgeable workforce, Enterprise resource planning systems</td>
<td>Training and education to operate in a global environment, ERP systems</td>
</tr>
</tbody>
</table>
Some Case Examples

- RSC --->(i) sourcing, (ii) manufacturing, and (iii) delivery
- External factors <----- SC agility
- Logistics (3PL) and E-Commerce
- Real-time information exchange
**CEMEX** (Largest producer of cement in the US)

- Internet-based solutions for ERP
- EDI, MRP and ERP, and CRM ---> B2B and B2C
- Reduce cost and improve customer service level
- Accurate forecasting
- Vendors systems for SCM
- Strong distribution channels
- Global sourcing
- JIT deliveries
AT&T Electronic Consumer Products (Number one in market share for its core product lines)

- Focus on core competency areas
- Improve reliability of SC
- Consolidating supplier-base
- Co-located manufacturing & distribution processes
- IT strategy to reduce the number of distribution centers
- Information & knowledge sharing at all levels
- Suitable performance measures and metrics
Libbey, Inc. (Leading supplier of glass tableware in North America)

- Focuses on ERP
- Big bang approach for business process reengineering
- APS (Advanced Planning and Scheduling)
- Supply Chain/Logistics – Responsiveness
- Strategic alliances by joint ventures and designing new products
- Extensive sales and distribution network
- Improved flexibility and responsiveness
Nissan (producers of cars) and Wedgwood (porcelain and luxury ceramics in the US)

- Web-based solutions for ERP
- Customer-centric business model
- Demand chain – to integrate production facilities and dealers
- Supplier-base
- Cross-functional teams
- Modularization
- Quality management
- Collaborative network linking production facilities
- Pull system
- Benchmarking for structural changes
- E-commerce applications
## Summary of Case Experiences

<table>
<thead>
<tr>
<th>Company</th>
<th>Details</th>
<th>Strategies</th>
<th>Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEMEX</td>
<td>Largest cement producer, Better customer service and reduce costs, improved profitability, higher marker share, Greater responsiveness</td>
<td>Global supply chain, B2B, B2C, ERP, CRM, Customer demand forecast, JIT, ERM, E-Commerce,</td>
<td>Internet-based solutions, EDI, MRP, Transport systems,</td>
</tr>
<tr>
<td>AT&amp;T Electronic Consumer Products</td>
<td>Produces consumer electronics, Number 1 in market share for its core product lines, Highly positive consumer brand, Core competence in manufacturing</td>
<td>Supply chain reliability, flexibility/responsiveness, costs and assets utilization, Consolidated supplier base and reduced number of distribution centers, co-located manufacturing and distribution operations</td>
<td>Electronic execution of transactions, electronic sharing or exchange of information, electronic collaboration on strategic tactical and operational planning.</td>
</tr>
<tr>
<td>Libbey Inc.</td>
<td>Leading supplier of glass tableware in North America and a leading provider of tabletop products to the food service industry</td>
<td>Business process reengineering, Big bang approach using an integrated systems, JD Edwards,</td>
<td>Enterprise resource planning (ERP), Advanced Planning and Scheduling (APS), and Supply Chain/Logistics (SCE)</td>
</tr>
<tr>
<td>Nissan (North America)</td>
<td>Producers of cars (Nissan and Infiniti) Plans to enhance the ability of its Web customers, Guaranteed delivery.</td>
<td>Web-based solution, Customer-centric business model, resulting in higher sales, higher customer satisfaction, Automotive demand chain, Collaborative network linking production facilities with dealerships.</td>
<td>ERP, Web-based solutions, Enterprise profit optimization (EPO) solutions, Integrated application suites.</td>
</tr>
<tr>
<td>Wedgwood</td>
<td>Porcelain maker, luxury ceramics</td>
<td>Reduce inventory, cut supply cycle time, and improve customer relations, and cut costs, Pull model, Structural change, Benchmarking, Best people on the team, Multidisciplinary teams, new performance indicators.</td>
<td>Information Technology/Systems</td>
</tr>
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A Framework for developing RSC

- Strategic Planning
- Virtual Enterprise/Organization
- Knowledge and Information Technology Management
Change of Attitude and Culture?

Responsive Supply Chain Training and Education, Learning Organization, Information Technology, Flexible Workforce

Multiple Competitive Performance Objectives, Strategic Alliances, Proactive Approach, Top Management Support

Global Partnership, Core Competencies, Temporary Alliances

Performance Measures

Outcome

Increased Speed, Flexibility, and Reduced Cost

Metrics

Strategic Planning

Training and Education, Learning Organization, Information Technology, Flexible Workforce

Knowledge and Information Technology Management

A Framework for the Development of RSC

nge of Attitude and Culture?
RSC <-- Strategic Planning

- Corporate and Business strategies
- Global outsourcing
- Strategic alliances
- Organizational, Technology and People
- Continuous improvement
RSC <-- Virtual Enterprise/Organization

- Partnership based on core competencies
- Distributed network of partners
- Integration by Information Technologies
- Learning organization

Co-operate to Compete!!
RSC <-- Knowledge and Information Technology Management

- Automation and Information Technology
- Strategy formulation, tactical management, operations control
- E-Commerce (B2B, B2C and B2A), EDI, ERP, and CRM
- Education and training
Some Recommendations to Achieve RSC

- Optimal architecture for supply chain
- Integration of virtual supply chain using ERP
- Criteria for the selection of partners
- Performance measures and metrics in RSC
- Cost management in RSC
- Quality Management in RSC
Future Operations Strategy

- Economic boom followed by technological innovation
- Demand management/creation
- New and innovative products/process
Future Operations Strategy

- Innovation by collaboration
- Collaborative network of firms
- Environmental and safety issues
- Educate customers
Conclusions

- Responsive Supply Chain Management
- Collaborative network of firms
- Internet & WWW
- Enterprise Resource Planning
- Customer Relationship Management
- JIT and BPR
- Some future operations strategies

It is time for more changes!