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# Reengineering the Supply Chain - The Next Hurdle

*Scott Stephens, Craig Gustin, and Jim Ayers*

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*American business is rapidly adapting to the supply-chain paradigm. This paradigm moves beyond department or company efforts to supplier and customer collaboration in supply redesign. Confining improvement efforts, the paradigm goes, to single departments or even single companies, won't cut it in today's competitive economy.*

Changes brought by supply-chain reengineering are in the news almost daily:

- The Big 3 auto makers strive to turn their suppliers into systems suppliers - not component makers. The outsourcing of key components reduces costs, but leads to strikes and plant shutdowns.
- Proctor and Gamble reports saving \$1.6 billion over five years and expects to save even more in the future through more efficient supply-chain management.
- A grocery chain called David's sues its distributor, Fleming, for overcharging on its business. The suit forces an "unbundling" of distributor charges.
- A major natural gas producer and pipeline operator, Enron, buys an electric utility to integrate its supply chain and compete with deregulating electric utilities for end-user customers.
- A top producer of entertainment content, Disney, buys a television network, ABC, to assure distribution channels for its product.
- Over 70 of the nation's largest manufacturers and shippers form the Supply-Chain Council to standardize supply-chain nomenclature and process descriptions. The Council is one of several organizations developing tools for more efficient supply-chain management.
- After a review of internal processes, the Department of Defense moves to adopt

commercial supply-chain processes and accelerate initiatives to electronically link its systems with commercial suppliers and carriers.

- Microsoft teams with Net Logistics to launch a zero cost Web site for conducting shipping transactions in a standard format.
- A coffee chain consolidates non-coffee product (muffins and other extras) delivery to reduce frenetic early morning shelf-stocking by multiple vendors.

These examples illustrate the breadth and depth of supply-chain reengineering. Their scope illustrates the major difference between supply-chain and traditional reengineering efforts. Because these efforts are intercompany, the difficulties in their undertaking are orders of magnitude larger

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than traditional efforts. By the same token, the impact of such initiatives can transform an industry.

The purpose of this article is to explain the challenges in supply-chain reengineering and offer insight into the shape of future large-scale reengineering projects. Admittedly, no one has all the answers, but those who get supply-chain reengineering right will be winners in their markets.

### **The supply chain**

The supply chain includes the organizations and processes for the acquisition, storage, and sale of raw materials, intermediate products, and finished products. Supply chain product flow is linked by physical, monetary, and information flows.

Supply-chain management is a term that can mean different things to different people. In the broadest sense, it encompasses all logistics activities, customer-supplier partnerships, new product development and introduction, inventory management, and facilities. The concept, as shown in some of the examples, applies equally to service businesses.

Many professionals define supply chain management more narrowly. They often confine the definition to activities internal to any one company, minimizing the scope of improvement efforts outside the walls of their own enterprise. This perspective is often justified by the daunting task of implementing internal change. After all, smaller reengineering efforts at the local level often fall far short of either promises or expectations. And the risks of missteps

and wasted time and money increase as project scope increases.

Craig Gustin, in cooperation with the University of Georgia and the consulting firm, Ernst & Young, conducted a study of logistics systems reengineering efforts directed at supply-chain integration. Results of the 1995 study showed that reengineering efforts, most of which were one-company affairs, are still in the beginning stages. Only 9% of the respondents deemed they had been successful. Another 42% were in progress at various stages, and 20% were ignoring the effort entirely.

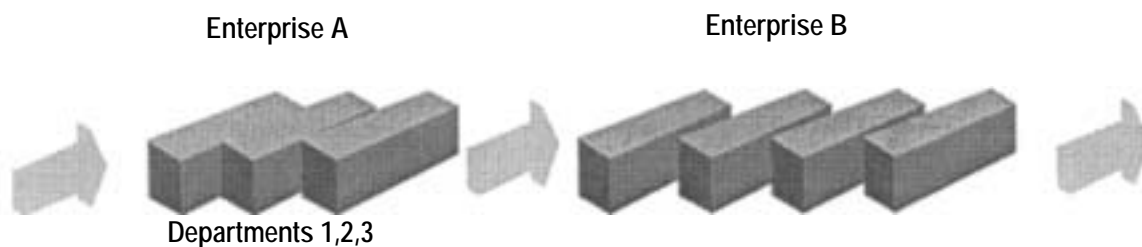
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*Smaller reengineering efforts at the local level often fall short of promises or expectations.*

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Supply-chain thinking is fundamentally different in the mindset and management approach needed to be successful. The need for a new mindset is a by-product of growing interdependence among organizations. As the name implies, it requires a "top down" perspective, often of a whole industry, beyond the boundaries of any one enterprise. Exhibit 1 illustrates the point. Inputs (raw material, information, intellectual capital) to Enterprise A are processed in Departments 1, 2, and 3. Enterprise A's output moves on to Enterprise B. Enterprise B, in turn, adds its value through four departments. Enterprise B's output proceeds down the chain toward the end user.

**Exhibit 1. From Department Level to Supply-Chain Reengineering**



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Thus, the supply chain covers many different departments and contributing enterprises, each with its own values, information systems, structures, and economics.

This diagram simplifies the situation. However, the problem of adopting one common view in undertaking a reengineering program remains. Depending on whom you talk to, at least four views are prevalent:

- The strategic view. The supply chain design offers a different way to compete. It is a chain of resources used to support a product's market positioning in terms of the target customer, pricing, and promotion mix. The end result is improving margins on product sales.
- The functional view. The supply chain consists of the individual organizations needed to procure material, convert it, and sell it. It is supported by material, transportation, and other groups. The end result is lower costs in the dominant functions.
- The logistics-transportation view. The supply chain is the physical path of a product through a set of facilities linked by a transportation network. They include factories, warehouses, sales offices, trucks and ships, and distribution centers. The objective is lower logistics costs.
- The information management view. The supply chain is integrated by the movement of information among the many participants. An integrated supply chain has a common information base and the mechanics in place to share this information among participants. The objective is low information processing cost.

The authors have seen only one or two of these views incorporated in their observations of reengineering efforts. While none of these views is wrong, any one of them alone will produce an incomplete solution. Without taking all views into account, supply-chain reengineering efforts are doomed. A key challenge is to somehow incorporate all these views into a single reengineering effort.

## Reengineering

Like supply-chain management, business process reengineering (BPR) has many interpretations. Hammer and Champy, the authors who popularized the term, distinguished BPR from other process changes by its radical and dramatic nature. Others' classify a broad range of initiatives under the term reengineering. Many, if not most, seek less than dramatic results or even goals. The authors believe that the focus of reengineering, or whatever term succeeds it, will continue to evolve. Stephens, Gustin, and Ayers believe the evolution has had three stages.

At Stage 1, the efforts are department focused. Process improvement is conceived, developed, and managed at that level. These efforts often create department "silos." The result is optimization at the department level while perhaps doing damage in other departments or even in other enterprises beyond the walls.

In Stage 2, enterprise-wide solutions emerge. Reengineering begins to affect the entire company with top management sponsorship. Efforts such as cellular work groups and focused factories, organized around segmented customer requirements, are examples of enterprise-wide solutions.

Stage 3 is supply-chain focused, going beyond the organization to multienterprise processes. There are many reasons to pursue a supplychain strategy. The best is improvement in strategic positioning. Michael E. Porter, a prolific writer on strategy, believes that strategic positions are built on hard-to-copy activity systems. Sustainable competitive advantage derives not from cost cutting, but from excellence in executing activities that reinforce value to customers.' For manufacturers, the supply chain is integral to these sustainable strategies.

A Stage 3, a supply-chain reengineering effort will have four characteristics:

- Has the potential to shift the basis for competition.

- Involves multiple enterprises in the supply chain.
- Has an aggressive, not incremental, quantified improvement objective.
- Will incorporate a balanced approach encompassing the four views described above.

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***Chief executives need proactive strategies to capitalize on the supply-chain threats and opportunities.***

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According to these measures, the efforts of most organizations are Stage 1. A few have ventured into Stage 2. Stage 3 examples are still emerging. There is growing recognition that each business is mutually dependent on its customers for sure and its suppliers in all probability. Chief executives realize they need proactive - rather than reactive - strategies to capitalize on the supply-chain threats and opportunities.

**Report cards on reengineering**

Much anecdotal evidence, as well as published research, supports some general conclusions about the success of reengineering. A study by consultants of McKinsey 6z Company suggests five keys for success.<sup>1</sup> Their advice includes the following points:

- Set an aggressive reengineering performance target.
- Commit 20% to 50% of the chief executive's time to the project.
- Conduct a comprehensive review of customer needs, economic leverage points, and market trends.
- Assign an additional senior executive to be responsible for implementation.
- Conduct a comprehensive pilot of the new design.

These conclusions came after an in-depth study of 20 reengineering projects. In 11 cases, the business unit results gained less

than 5%. This occurred despite the fact that process results were often much greater. The few surveyed organizations that had favorable results performed projects with broad scopes.

Another contributor to success was the depth of solutions. The successful efforts went beyond just one dimension, like information systems. They included structure, skills, measures, and values as well as technology and systems.

Another review of reengineering success factors looked at project management issues applied to the effort itself.<sup>4</sup> The factors contributing to success and failure are shown in Exhibit 2 in decreasing order of their contribution to success.

**Exhibit 2. Issues Related to Reengineering Success**

Reengineering Issues

- Human resources - training and organization value development.
- Project management - communication and lack of management tools. Failure to assess project performance.
- Management support - goal-setting, sponsorship, continuity of involvement.
- Change management - addressing organizational resistance.
- Tactical planning - resource commitment and financial justification.
- Process delineation - measurable goals, scoping of process, scoping of effort, and incrementalism.
- Strategic planning - alignment with strategy and business vision for the project.
- Time frame - timeliness of implementation, ability to assure schedule performance.
- Technological competence - capabilities in technical areas of the project.

Note that technology ranked at the bottom of the heap as a contributor to success. Both retrospectives concluded that "soft" issues played the leading role in assuring the success of reengineering.

That view was reinforced by Dr. Michael Hammer, creator of "reengineering." When queried about reengineering success, he admitted, "I wasn't smart enough about that (getting more out of people to support revenue growth). I was reflecting my engineering background and was insufficiently

appreciative of the human dimension. I've learned that's critical."<sup>5</sup>

### **How Stage 3 reengineering management will work**

Although traditional Stage 1 and 2 reengineering efforts have yielded mixed results, the success factors found in these two stages can be used to draw conclusions for Stage 3. The following list of features will help to characterize successful Stage 3 supply-chain reengineering initiatives.

- A focused goal for the effort with objectives including strategic positioning, increased revenue, and profit improvement.
- Multi-company groups partnering and funding the effort.
- Third-party "honest broker," to facilitate the effort and provide an outsider's perspective.
- CEO steering committee with representatives of each partner firm.
- Multi-year projects with self-funding short-term wins. This allows the program to be sustained by its own cash flow benefits.
- Contracting that distributes costs and rewards based on achieving measures of performance.
- Balanced deployment of technology with integration of legacy systems where the likelihood of disparate systems will hinder progress toward improvement.

At the operational level, a supply-chain reengineering program could evolve as described in the following paragraphs.

First, a sponsor firm must determine that there is a compelling requirement to reengineer some or all of its supply-chain activities. This firm will invite key suppliers and customers to participate. The invitees add significant value to the chain or have a high level of interdependence with the sponsor.

Next, the participants will form a supply-chain working group (SCWG). The group will choose the processes and build a business case for the effort. At this point the

honest broker will begin to guide the evolving project. The SCWG produces a master plan for the project. The plan will cover participation, reward, and cost distribution, and issues in areas like information technology, facilities, and product development.

Finally, implementation should occur locally but be monitored globally. The SCWG should retain responsibility for ongoing progress toward the stated objectives. In concert with the planning, the team members can pursue specific implementation projects based on criteria such as impact on baseline measures, time to completion, and contribution to competitive positioning.

Information technology issues become important for firms with existing investments in technology and processes. The financial commitment and risk associated with replacing existing information technology with state-of-the-art systems are often prohibitive. These firms require an open architecture framework approach that incorporates existing systems and permits inserting technology when appropriate.

### ***Supply-chain reengineering is the next hurdle in improving competitive position.***

#### **Conclusion**

Supply-chain reengineering is the next hurdle in improving competitive position. Like many of today's technologies, the half-life of a reengineered process is short. This means that supply-chain reengineering will become an ongoing process requiring a continuous effort by all partners in the supply-chain.

#### **Notes**

1. Grower, V, Jeong, S.R., Kettinger, wJ., and Teng, J.T.C. (1995). "The Implementation of Business Process Reengi-

- neering." *Journal of Management Information Systems*. Summer, 1995, Vol. 12, No. 1, pp 109-144.
2. Porter, Michael E., "What is Strategy?" *Harvard Business Review* (November-December 1996), Vol. 74, No. 6, pp 61-78.
  3. "How to Make Reengineering Really Work," *Harvard Business Review* (November-December 1993), Vol. 71, No. 6, pp 119-131.
  4. Grover, Ibid. "The Implementation of Business Process Reengineering," *Journal of Management Information Systems*, Summer 1995, Vol. 12, No. 1, pp 109-144.
  5. White, Joseph B., "Reengineering Gurus Take Steps to Remodel Their Stalling Vehicles," *The Wall Street Journal*, November 30, 1996, p. 1.