Implementing Supplier Innovation: Case Study Findings

A CAPS Research Initiative

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Innovation of products, services and processes is a critical strategic element at companies such as P&G, Whirlpool, Philips, Ford and others worldwide. Important innovations are developed internally, externally or jointly established.

However, firms have not yet fully established how they will most effectively leverage external supplier capabilities to accelerate innovation to the benefit of both buyers and suppliers. Innovation sourcing requires aligned and linked customer-driven strategies between senior company executives, supply and strategic suppliers, which are in early development at most firms.

In this and a complementary report, *Accelerating Innovation through Effective Supplier Collaboration*, CAPS Research explains how leading companies and their suppliers are engaging in supplier innovation. The research examines the strategies and approaches that are in place in a number of companies to accelerate and obtain supplier innovations. Company case examples describe these strategic approaches, barriers to success, enablers and overall critical issues.
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“Innovate or die.” What Tom Peters first said years ago becomes more and more prescient with each passing year.

The hard part is learning how to innovate. Who should be involved, internally and externally? How can trust be developed with external partners? How should the process be managed?

There is an increasing corporate focus on innovation, especially around engaging the supply base. Firms worldwide are recognizing that suppliers can serve as important sources of innovation by bringing new thinking and even finished concepts, shortening new product and service development time significantly.

To explore this phenomenon, CAPS Research undertook extensive exploratory case research with five leading companies across nine business units to initially identify those factors that most closely correlated with success in achieving supplier innovation while identifying possible obstacles that need to be overcome.

The research objective was to unearth answers to these questions:

- What strategies and approaches can a company use to identify, select and effectively collaborate with suppliers and supplier groups to accelerate innovation?
- What is the specific role that supply management can play in accelerating innovation across the stages of product, service and process (PSP) development?

This report focuses on supplier innovation learnings gleaned from seven in-depth case studies of how firms worked with suppliers to develop product or service innovations in order to maintain or improve their competitive position. The report is complementary with the overall research report, *Accelerating Innovation through Effective Supplier Collaboration*, both of which are published as CAPS Research Focus studies.

The seven cases provide detailed insights into company and supply strategies that were implemented in different industries to accelerate and acquire supplier innovation. The industries include telecommunications, automotive, diversified manufacturing, high-technology business-to-business and consumer non-durable goods. Each case provides a differentiated view of how supplier innovation was acquired.

Each of the cases provides sufficient detail to describe the critical issues facing the firms in their efforts to achieve supplier innovation. The manner in which they approached the critical issues and collaborated with suppliers to achieve positive innovation results is also discussed. At the end of each case we provide a set of learnings that provides guidance to firms that may be initiating or enhancing supplier innovation initiatives, along with what we consider to be the “big insights” to be gained from the case.

The final section of this report provides cross-case learnings presented as “guidelines” for firms to begin, enhance and/or compare supplier innovation approaches with learnings from other leading firms. These guidelines include approaches to:

- Intellectual property ownership
- Project management
- Trust and communications
- Strategic alignment and risk/reward
- Innovation metrics, supplier capabilities and performance assessments
- Voice of the customer and suppliers
- Cost versus innovation
- Stage-gate processes: from concept to suppliers
- Company innovation culture
• Supply management’s role
• Overall observations and critical problem areas negatively affecting innovation development
Chapter 1  Achieving Supplier Innovation: Company Examples

Introduction

This report focuses on supplier innovation learnings gleaned from seven in-depth case studies of how firms worked with suppliers to develop product or service innovations in order to maintain or improve their competitive position. The report complements the overall research report, Accelerating Innovation through Effective Supplier Collaboration, both of which are published as CAPS Research Focus studies.

Case data were collected from extensive interviews with key persons from five companies, including representatives from supply, engineering and R&D, operations, innovation and sales across nine different business units, as well as five of their suppliers. These specific companies were chosen based on their strategic focus on and history of achieving supplier innovation.

Supplier Innovation for Competitive Advantage

Global competitive pressure in a rapidly changing world, firms with limited resources due to downsizing and outsourcing, and the need to differentiate products and services for value capture and minimize commoditization are increasingly requiring companies to innovate. Overall, there is increasing executive focus on innovation as a company-wide priority. P&G, Philips and Whirlpool are just a few of the companies across a range of industries that cite “innovation” as a strategic priority.

In addition, firms worldwide are also recognizing that their current and prospective suppliers are important sources of innovation. Suppliers can provide innovations and help to shorten new product development time through the use of existing intellectual property and improvements in design for manufacturability, logistics and so forth. Firms are also adopting the idea of “open innovation” in place of the traditional closed, “only invented here” approach. Figure 1-1 illustrates open innovation.

Based on these emerging changes in philosophy, CAPS Research undertook extensive exploratory case research with five leading companies across nine business units to identify those factors that most closely correlated with success in achieving supplier innovation while identifying possible obstacles that need to be overcome.

The primary research focus spanned the innovation process from ideation through development for both traditional and open-innovation approaches. However, innovation data were also collected that went beyond the development stage through product commercialization and product/service enhancement, as shown in Figure 1-2.

Specifically, the research questions guiding the overall research initiative were:

- What strategies and approaches can a company use to identify, select and effectively collaborate with suppliers and supplier groups to accelerate innovation?
- What is the specific role that supply management can play in accelerating innovation across the stages of product, service and process (PSP) development?

Case Overview

The seven cases included in this report provide detailed insights into company and supply strategies that were implemented in different industries to accelerate and acquire supplier innovation. The industries include telecommunications, automotive, diversified...
manufacturing, high-technology business-to-business and consumer non-durable goods.

Each case provides a differentiated view of how supplier innovation was acquired. The seven cases and the purpose of each are:

1. **Desco** illustrates the challenges of collaboration between a large global manufacturer (Desco) and a smaller supplier (TFI), particularly in relation to risk/reward sharing and resource allocation. It also highlights how “technology push” adds risk to innovation and collaboration, and how the failure to specifically define roles and responsibilities may negatively impact an innovation project.

2. **MPCo** describes the collaboration between a Fortune 500 company and several of its suppliers in an effort to drive innovation for a common office equipment product that it has manufactured and sold for more than 45 years. This case illustrates how supply management can take the lead when sourcing new technology.

3. **ISD** illustrates the complexity of managing and/or leading efforts to achieve incremental or breakthrough innovation requiring a network of suppliers. Key focus areas to achieve innovation included insourcing/outsourcing decisions, supplier selection, innovation capability assessment, joint selection of second-tier suppliers, supplier development, and project management and coordination.

4. **I-Com** examines an open innovation initiative in which the supplier approached the buying firm with the innovation idea and capability. The innovation is a new data format conversion service introduction, not a new product introduction. The case study also illustrates how it also exemplifies the need to continually review supplier capabilities and, when necessary, to change suppliers to match up supplier capabilities with changes in the market. Finally, the case demonstrates that well-established internal processes must be continually reviewed in light of changing demands from the market.

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**Figure 1-1**

“Open Innovation” — A Perspective and Key Players

**Figure 1-2**

Innovation Research Focus
the buyer and supplier collaborated on developing the market pricing model for the service. The case highlights how a clear definition of roles and responsibilities can positively impact problem resolution and innovation project results.

5. **InventCo** describes the culture and organization of a company with a very successful closed innovation model. The case highlights how supply management plays an important role in innovation within a company with a closed model.

6. **ECOMP** illustrates how a large, vertically integrated firm addresses cultural and organizational issues to support the change to innovation sourcing and collaboration with external suppliers. It also provides insights into competitive supplier assessment and selection processes, as well as the need to develop and support the resulting collaborative relationship.

7. **DC Corporation** provides an example of how a global consumer products company was able to work with two of its larger suppliers to innovate, even though the company was a relatively small buyer from each supplier. While both suppliers were important to the company’s business, it initially was not a strategic partner to either supplier. Because of this, the innovation effort required close management of the company’s relationship with each supplier. This case study also illustrates how “temporary outsourcing” might be used to develop internal capabilities to support future insourcing and innovation efforts.

**Value from the Case Insights**

Each of the cases provides sufficient detail to describe the critical issues facing the firms in their efforts to achieve supplier innovation. In addition, the manner in which the firms approached the critical issues and collaborated with suppliers to achieve positive innovation results is also discussed. A careful review of the cases provides deep insights into specific working relationships with suppliers and factors that strengthened or weakened the collaborative efforts.

At the end of each case we provide a set of learnings based on the case findings. Each of these learnings provides guidance to firms that may be initiating or enhancing supplier innovation initiatives. We also provide what we consider to be the “big insights” to be gained from the case.

Finally, the last section of this report provides cross-case learnings presented as “guidelines” for firms to begin, enhance and/or compare supplier innovation approaches with learnings from other leading firms.

We have chosen to focus this report on supplier innovation rather than company-wide innovation strategy, as little research is available to guide a firm’s supply-based innovation strategy to maximize achievement of required innovation from suppliers. The reader is also invited to read the complementary overall report, *Accelerating Innovation through Effective Supplier Collaboration*, available on the CAPS Research Web site, in order to gain additional insights and information about innovation sourcing.
Chapter 2 Case Study: Desco Inc.

Purpose

This case study illustrates the challenges faced in the course of a collaborative project between a large global manufacturer and a smaller supplier, particularly in relation to risk/reward sharing and resource allocation. It also highlights how “technology push” adds risk to innovation and collaboration, and how the failure to specifically define roles and responsibilities may negatively impact an innovation project.

Company Background and Competitive Environment

Desco is a Fortune 500 firm with annual revenues in the billions of dollars and strategic business units (SBU) operating worldwide. This case study focuses on the transportation industry SBU, which develops and produces various integrated systems for original equipment manufacturers (OEM), and for which customers have specific and highly demanding requirements. The industry is highly competitive, and ongoing innovation is important to competitive success. Products produced by this SBU are unique electromechanical items requiring considerable design and engineering investments. Product life cycles and new product development times are measured in years.

Company and Supply Innovation Strategy, Structure and Process

Desco had recently appointed an executive in charge of innovation for the entire SBU. Given the need for product innovation in the industry, it was assumed that focused innovation efforts would lead to increased product and process innovation as well as improved product commercialization.

The executive-in-charge was responsible for establishing metrics to help measure and drive innovation. This person was also required to develop working relationships with major suppliers believed to possess superior innovation capabilities in an effort to accelerate supplier innovation.

Historically, product and process innovations were developed through the engineering division, which worked with suppliers that brought innovation ideas directly to the technical community. These efforts tended to lead to incremental innovation. A coordinated, companywide innovation strategy to achieve breakthrough innovation had been initiated, but suppliers were less willing to invest resources due to the economic downturn.

Case-Specific Product and Project Description: Control Unit Interface with Decorative Overlay

This case describes a collaborative innovation effort between Desco and a major supplier, TFI, to develop a unique and innovative panel for a control unit interface (CUI). The CUI would require the adaptation and improvement of two existing technologies. The innovation required a combination of injection molding and the processing of a unique material to “fit” the CUI and provide both decorative and functional properties. Desco would be responsible for the overall CUI system, while TFI would have primary responsibility for the decorative, and ultimately functional, overlay (D/FO).

Desco’s goal of increasing market share and profitability in the CUI business drove this innovation project —
one of a number of projects the company was undertaking to grow the business.

**Voice of the Customer (VOC) and Strategic Objective**

Both Desco and TFI had strong incentives to develop the new product. Desco had a strategic imperative to grow the CUI business, while TFI wanted to expand its product offerings in the transportation industry. The companies decided to develop a prototype of the CUI with a “decorative overlay” to spur customer interest. The CUI — with its new, appealing decorative overlay — was intended to replace an existing, multiple part CUI assembly at a reduced cost.

This first prototype did not include any functionality, as it was intended to allow Desco marketing and sales to impress OEM customers and ultimate consumers with its appealing aesthetics. However, the Desco sales group indicated that adding cost to the product relative to the “improved aesthetics” would be unacceptable to customers. The initial high cost of the project appeared to be driven by the complexity of aligning the decorative overlay on the CUI, which was one of the primary challenges of the project. The sales group further suggested that more value and/or lower costs were needed to gain market acceptance.

Therefore, Desco and TFI investigated the feasibility of adding “functionality” to the overlay in order to provide both decorative and functional innovations. The companies explored the possibility of integrating buttons into the D/FO for the CUI. Instead of separate laser-etched or painted subassemblies, the buttons could be designed into the D/FO. Having the buttons in one piece replaced the work steps of producing separate injection-molded subassemblies and the secondary operations of painting and laser etching graphics. Determined to make the decorative/functional overlay cost effective, Desco decided that five mechanical buttons would have to be eliminated from the CUI and replaced with “touch” switches in the D/FO.

New functional prototypes were then developed and displayed at an industry trade show, where they attracted OEM interest. However, the OEMs still questioned the potential cost-to-value relationships. In addition, initial clinical tests with consumers suggested that the quality and feel of the product “was not great.” The cost estimates for the product were too high and the quality too low. The cost had to be reduced from original estimates, and quality had to be improved.

However, the strength of the VOC was limited. While OEMs expressed some interest in the prototype at the trade show, the extent of this interest was unclear. Lacking a clear VOC, the project engineers and managers wanted to act quickly in order to reach commercialization or come to a reasoned decision to cancel the project as soon as possible.

**Insourcing/Outsourcing and Collaboration Decision Process**

Both companies had to make collaboration and innovation investment decisions. TFI had to decide what company to innovate and/or collaborate with based on whether the customer was viewed as a long-term player in the industry. Before Desco would spend money and resources on an advanced new product/innovation project, it would develop a “project scope” paper to forecast market size and growth, and where OEM customers might need innovations around specific technology applications. This was considered an “opportunity” paper that provided a snapshot overview of the market. A four-stage approach was applied. It included search and discovery of new ideas/innovations, idea assessment, business opportunities and concept development.

The resulting information was shared with TFI, which performed its own internal assessment to evaluate the opportunity, costs and potential. TFI was smaller than Desco and had limited R&D budgets. Therefore, it needed to be confident that the opportunity was real and in a market that it wanted to enter. TFI viewed Desco as a growing customer with a good track record and believed that Desco was profitable despite the industry's economic downturn. TFI saw Desco as a customer of choice for the long term.

**Supplier Selection Process**

TFI supplied Desco with decorative D/FOs for various products for more than 10 years, including overlays used on CUIs and panels (e.g., speedometers and tachometers). TFI was a proven and preferred supplier. Desco considered TFI an innovative supplier, as it had demonstrated the graphic design and production capabilities to innovate and provide items such as D/FOs with a 3-D appearance (similar to holograms on credit cards). Desco had other potential suppliers of decorative/functional overlays, but Desco’s analysis suggested that TFI was the most innovative, research intensive and capable supplier for the overlay. Desco also believed that the two companies were aligned in terms of focus and work ethic.
In addition, TFI had worked with OEM suppliers and customers for more than 20 years. Typically, TFI worked with first-tier suppliers to the OEMs, although the company also occasionally worked directly with the OEMs on products. Given its experience in the transportation industry and with Desco, TFI believed that it understood Desco’s needs. However, previous business deals between Desco and TFI had not involved major innovation efforts. Nevertheless, the two companies had taken “baby steps” in the evolution of their “collaborative innovation” relationship.

The sharing and exploring of ideas between Desco and TFI was typically done through existing relationships between both companies’ project engineers or through a TFI account manager and Desco product managers. TFI would show Desco products and technologies that might be used in a vehicle interior. It was during these discussions that Desco asked if it could potentially apply TFI’s overlay technology in other ways, such as adding backlighting and functionality, or even for other assemblies.

One of the first collaborative innovation efforts between Desco and TFI was a D/FO prototype developed for the industry trade show that demonstrated what could be achieved with decorative overlays. This initial work, coupled with further discussions to understand business needs, helped both companies focus resources on the innovative D/FO project.

**Contract Development and Management**

Though there was not a clear-cut contractual commitment for the product from OEM customers, Desco made the strategic decision to develop the CUI’s aesthetics and functionality. The decision to move forward was driven by the overarching goal of capturing additional market share in the CUI business for cars and trucks. Desco entered into a “collaborative” innovation effort with TFI to develop a user panel for the CUI produced by in-line molding a single D/FO. Desco recognized that some risk would be unavoidable.

While a nondisclosure agreement (NDA) that covered existing patents and trade secrets was in force, the two parties did not work under a joint development agreement (JDA). TFI’s development work and samples were paid for through invoices and purchase orders.

Desco suggested that the most likely reason a JDA was not agreed upon was because there may have been ownership issues regarding intellectual property (IP) rights that prevented a JDA from being reached. This was confirmed by TFI. In the early stages of the effort, TFI wanted to establish a JDA but elected not to sign a “drafted” agreement from Desco. TFI didn’t think it was “equitable” to give Desco all IP rights resulting from a “collaborative” effort.

TFI also did not want to limit the use of any technology application, so the company was careful not to lock in a technology with one customer or one application within a single market. In the past, TFI had patented new technologies developed while working with other companies and believed that this approach was important to its future. For example, work with another manufacturer helped TFI develop technology that eliminated an “application process” for an assembly. TFI “shared” that technology with the customer, but also spread the knowledge to other company divisions and products, enhancing sales.

Even without a JDA, TFI supported the D/FO project, as it had patented technologies and did not limit its technology insights to Desco. TFI did not believe that lack of a JDA kept TFI or Desco from sharing ideas with each other. TFI provided Desco with “guidelines” regarding what could be physically done with the overlay. Desco provided ideas on other issues, such as button configurations. This became a “win-win” situation because Desco moved closer to the desired product, and TFI identified opportunities for applications to other industries. The informal understanding was that the application would be exclusive to Desco in the transportation industry but that TFI was free to use the technology/approach in other industries. This was a “handshake agreement” not covered in the NDA, as it only included trade secrets and IP that each company had already developed.

The significant levels of effort and communications between the companies suggested a high level of trust. Mutual trust appeared to have been developed over time and continued between the individuals working on the project. TFI had a high level of confidence and trust in the Desco personnel working on the project and vice versa.

There was, however, a downside to not working under a JDA. Neither side wanted to share “too much information too early,” which may have slowed the project. Communications about technical issues and project vision were somewhat stilted, with each side occasionally waiting for the other to reveal useful information.

New IP developed on this project was limited when compared to other innovation efforts. “In-mold decorative overlays” were not completely new, so the functional aspects of this project were the most
interesting. However, Desco had applied for a provisional patent to cover the process of placing and changing the D/FO in-mold, as well as for other features of the overlay. In recent years Desco’s patent office had become more stringent in screening, submitting and taking ownership of patent applications.

There also was uncertainty about which company would produce the final product and about the technical support required from TFI for the overlay. In addition, both Desco and TFI could manufacture the injection molding. It was not clear how the manufacturing decision would be made and what the results would be.

**Cost Modeling/Target Pricing**

TFI was concerned that Desco would put a “low” price on the new technology based on the most efficient manufacturing cost model that ignored the cost related to innovation. TFI had concern that the price would be “commodity like,” even though the rest of the world had not yet been introduced to the technology.

In addition, the project had become more costly and risky than originally projected. TFI had invested considerable resources, and some people in the company believed that it was “out on a limb.” Even though Desco had paid TFI for much of the effort, there were other costs incurred which were not linked to purchase orders. It was important to TFI that it be awarded a contract for the project and compensated for innovation. TFI was concerned that it would submit a quote to Desco based on actual costs and desired profit margin, but Desco would want to negotiate the price based on target costs without taking costs related to innovation into account. TFI could possibly create alternative ways that the targets could be achieved through engineering changes, but those changes could prove unacceptable to Desco.

**Collaboration Strategy, Structure and Process**

Desco personnel involved in the project included the product and business development manager for the product, engineering manager, project engineer, CAD designer, prototype engineer and tooling engineer. Supply management was not directly or significantly involved in this project except for the execution of purchase orders and intellectual property considerations.

TFI personnel involved with this project included advanced sales and the Desco business manager, project manager, design engineer, ink and chemical specialists, and tooling experts. Supply management at TFI was not involved.

The project has been under way for two years and there have been new project managers on both sides. TFI has had four project managers in the past year. Although the project manager at Desco has been on the project longer than his counterpart, he was not involved when the project began and was not entirely familiar with the project history.

Although each company has its own internal team working on the project, the teams did not establish a formal cross-company project team. Each team focused on its internal efforts, with coordination across the companies by the project managers. During development Desco would buy materials/parts from TFI through purchase orders. Overall, the working relationship was collaborative but informal.

**Capability and Trust**

TFI viewed Desco as a competent organization, both at a macro and micro level. On a macro level, Desco was seen as a large, successful first-tier supplier in the very competitive transportation industry. On a micro level, Desco was thought to be a technically competent manufacturer with skilled and knowledgeable engineers.

Desco had a positive view of TFI’s capabilities, having selected it for the collaborative project because it believed that TFI had the necessary R&D competence to fully develop the product. However, there was some concern at Desco that TFI did not fully understand its own limitations. Desco’s evaluation of TFI’s “innovation capability” was quite subjective.

Both Desco and TFI considered one another to be “trustworthy.” Desco “trusted” TFI and believed that TFI wanted to do the right thing and vice versa. As one Desco employee commented, “TFI employees are not snakes.” Similarly, TFI believed that Desco employees were honest. The companies did not always agree with each other on operating policies and business decisions, but both parties considered the other to be honest rather than opportunistic. Mutual honesty was important to the success of this project.

There was some disagreement within Desco as well as between Desco and TFI regarding the resources committed. Desco believed it had spent more money than TFI for the initial prototype effort by paying for materials and some of TFI’s innovation efforts. TFI countered that it had developed the materials and the forming to the readiness state, and that Desco’s value contribution was to add the functionality and manufacture the mold. TFI also was performing engineering work that was not being billed to Desco.
Project Status Reporting and Metrics
At each early project stage, a five- to ten-page report was developed that addressed the market and technology feasibility of the project. It provided an overview of feasibility, costs, budget, expectations and other considerations. These reports were used to determine project viability and continuation. At various stages, a one-page current update report was implemented to track innovation timing, cost and changes. The project was an ongoing effort and any cancellation would be an executive-level decision given the overall goals of market expansion and new product focus.

Overall, few hard metrics were associated with this project. There were routine reports issued concerning problems identified and solved and exit reports at each stage. Other reporting was done informally among the Desco team. This was sufficient since the team was small. It does not appear that formal reporting on a regular schedule was done to keep track of detailed project progress.

Project Challenges and Opportunities for Improvement

Collaboration and Innovation Issues
Desco appeared willing to assume more risk than TFI. TFI had been willing to take risk in the past, but the outcomes of many of these risky projects had not yielded significant commercial success. Late validation tests that found some surprises had caused some projects to be canceled at the 90 percent completion mark. TFI had therefore lost some of its tolerance for risk. The same trend was in evidence at Desco. A sputtering economy, lack of breakthrough innovation success and changing OEM sourcing strategies led Desco to shy away from risk. Both parties were quite concerned about project risk, which had negative effects on resource commitments and timing.

Innovation Budget and Resources
Desco had some concerns about TFI’s capacity and capability to focus on the project. Desco believed that TFI’s capacity was fully utilized and that TFI might need to interrupt ongoing production to run part tests and other validations. Turnaround times for some tests were twice as long as Desco expected.

Desco believed that TFI recognized the challenges and wanted to develop dedicated prototyping equipment. However, TFI indicated that it could not provide new capital to support the innovation effort without a production contract in place. Desco, however, would not pay for the prototyping equipment nor issue a production contract given the project risk and tightening economy.

There also were constraints on Desco’s resources. For example, Desco could have used additional resources so that some activities could be done in parallel. Almost all work was being done sequentially. However, the company was not willing to make additional expenditures given a tightening economy and risk.

Collaboration Process Perspectives
The two companies had different perspectives regarding the intensity of the collaboration. Cross-functional, cross-enterprise teams were not in place. Most communications were “as needed” between project managers and the engineering departments for technical considerations.

TFI suggested that the innovation effort was “jointly driven,” with each company investing time and resources equally in the new product innovation effort. Engineers from both companies worked as a “cohesive” team. Desco would frequently develop ideas, with TFI developing processes for testing. Handoffs were prevalent.

Desco believed that it was working as collaboratively as needed with TFI, and that the collaboration was much higher during the early (versus later) stages of development. It was suggested that Desco could have enhanced its efforts with TFI by taking on more ownership and joint responsibility. Both companies believed there was a need to work more closely as a team, as they did in the initial stages of the project. In addition, it was uncertain whether each company was as committed later on as they were at the beginning of the project.

An example of how the collaboration was somewhat limited was provided by a Design of Experiments (DOE) effort. Problems between tolerance specifications were identified, and Desco’s DOE results did not agree with TFI’s results. There were differing opinions about why the results were different, but no effort to undertake a joint DOE effort. This lack of collaboration on a DOE for a project that was strategically important and at a critical decision point suggested the need for better cooperation between the firms.

Part of the reason that there was less-than-optimal collaboration during the project may have been because clear-cut resource and information-sharing expectations were not fully established upfront. Nevertheless, the innovation project required a successful melding of product and process knowledge. TFI had the material
and some manufacturing process expertise. Desco had manufacturing expertise, but needed help from TFI to perfect a viable manufacturing process that met industry cost and quality standards. The project required a fully collaborative development process. It may have benefited from more discussion early in the project about which company would do what and about the sharing of information.

Communication between Desco and TFI
Meetings between Desco and TFI were generally ad-hoc and event-driven, such as when parts were due or when a hard deadline for prototypes approached. In these situations, more meetings were held. Most of the communications were by email and phone, with face-to-face meetings as required. Desco and TFI were located near one another, so it was easy to meet in-person on short notice. TFI suggested that there “probably should have more meetings” to keep one another fully informed about all needs and progress.

Opportunities for enhancing communications and building greater trust were demonstrated in several ways. First, neither firm was fully certain about the investment that the other side was making to the project. TFI received payment for material ordered. However, TFI was investing development resources for which it assumed the cost. Desco appeared to be unaware of the magnitude of TFI’s investment. TFI also had low visibility to the investments being made by Desco, partly because the Desco resources were spread over a large organization and many units. In summary, the lack of clear, continuous and robust communications between the parties may have slowed the progress on the project to some degree.

Innovation Project Results
As of the writing of this case study, the innovation project was ongoing, regularly reviewed and considered successful to date. A major status review and overall evaluation by executive management is pending.

Supply Management’s Role
Desco’s supply management function played a limited role in this innovation project. In addition to issuing purchase orders, supply management was only involved in the JDA, IP discussions and the drafting of related documents.

It was unclear whether supply management would have enhanced the project success or process in the early-stage innovation effort. In addition, Desco philosophy’s was to have supply management focus on development of a leading-edge, worldwide supply base that engineering could work with on new product development and innovation. Also, supply management did not want to impede engineer-to-engineer contacts and work efforts between the two companies.

Supply management also was actively pursuing product cost reductions across multiple current products through cost modeling and value engineering approaches. It also conducted supplier council meetings to tap supplier insights into Desco’s effectiveness in working with suppliers and competitor practices. A supplier portal was developed to collect supplier improvement suggestions.

Important Lessons

Lesson 1: Establish Innovation Issues Early
Issues such as final product price, innovation investment, intellectual property ownership and make/buy decisions can create uncertainty in a project and impact its overall success. In this case study, the following issues were critical to the project:

- How would the purchase price for the product innovation be established?
- Which company owns the IP?
- Should the “innovation supplier” be awarded the production volume contract for some volume/time? If so, when?
- What would be the make/buy pattern, and who would be sourced?
- How much, when and in what form would investments have to be made by each party during the innovation process?

In this case, the above issues did not significantly affect the innovation project outcomes due to the high levels of trust between both companies. However, if issues such as these are not fully resolved they can cause major problems.

Lesson 2: Information Sharing Is Critical
Sharing information about technology, processes and testing can add speed and efficiency to innovation projects. For example, the lack of comprehensive information about work to be performed by both companies and work already completed resulted in some inefficiencies. Desco provided information about one element of a required test process to be completed by TFI, but not information about the complete process. TFI had already done the complete manufacturing testing and could have provided the results to Desco, enabling project resources to be used more effectively.

Implementing Supplier Innovation: Case Study Findings
Sharing more information about OEM validation requirements for the product could have reduced uncertainty at TFI.

**Lesson 3: Maintain Stability of Key Personnel**
Personnel turnover during the project resulted in information loss, priority changes and overall loss of continuity. Maintaining key people on a project, or fully educating and training replacements, is important to overall project success.

**Lesson 4: Be Explicit about Innovation Needs**
Customers provided Desco with two broad categories of innovation. The first category was general — better quality, lower cost, lower weight and the like. The second was more specific and provided guidance — for example, reduce cost by a certain percentage, reduce size and weight by “y” and “z.” This more detailed information enables a company to better focus its innovation efforts and scarce resources.

**Lesson 5: Provide Clear-Cut Goals and Project Management**
Desco used a stage-gate process and regular one-page status reports to track project progress. Project management tools are needed to continuously monitor progress and goal achievement.

**Lesson 6: Develop Assessment Tools**
Supplier innovation capability assessment tools help both parties identify gaps in capability in order to deliver innovations on schedule and within cost, allowing for a perfect launch.

Even when a company is confident in an innovation supplier’s overall capabilities, ongoing work, personnel changes, investment requirements and risk/reward considerations can slow — or even derail — innovation efforts and results.

**Lesson 7: Consider Presourcing**
Presourcing production business to the innovation project supplier can work to motivate the supplier and reduce risks to both parties.

Prior to presourcing, it is necessary to determine whether the buying company can maximize the supplier innovations and minimize unit cost by separating development from production or combining development efforts with production contracts with the preferred suppliers. This requires a case-by-case evaluation.

**Lesson 8: Gaining Innovation Requires Focus**
Gaining innovation from large organizations that have technology and innovation capability requires a focused and resourced approach.

Desco found that many firms possessing innovation capabilities often wanted to “sell” off-the-shelf products versus new technologies. Desco was working to build high-level relationships with select firms in order to gain access to new technologies and innovation. This effort took considerable executive and engineering resources. It also required information sharing about future needs and market potential.

**Lesson 9: Establish Cross-Company Project Teams**
Organizations should consider establishing a cross-company project team for innovation projects to facilitate communication, speed up decision making and leverage the knowledge of both organizations to maximize project efficiency and effectiveness.

In this case, a cross-company project team was not established. However, there were suggestions and some evidence that such a team could have benefited the innovation effort. Cross-company innovation project teams would probably be a good investment, especially for a large, strategic project.

**Key Insights**

- The size of a company matters. Risk/reward profiles and affordability of required investments vary between large and small companies. Large global companies will likely have to work closely with smaller companies with innovations and take on more risk to achieve commercialization.

- The health of the overall economy and the industry’s economy impacts innovation. The worse the economy, the more likely it is that R&D and innovation efforts between companies will slow, mostly because of budget pressures. Companies need to anticipate the future. They need to be realistic and set attainable project goals. They need to be creative around innovation by sharing costs, resources and risks.

- Recognize the tension that occurs when trying to gain both supplier innovations and lowest price. Establish policies that balance both, especially when innovation from the supply base will benefit the top line. If the company is first to market with new innovations and premium prices are available, speed and innovation trump getting the lowest price for the final design.
Chapter 3 Case Study: The Multi-Products Company

Purpose

This case describes the collaboration between Multi-Products Company (MPCo), a US-based Fortune 500 company, and several suppliers to drive innovation for a common office equipment product (COP) that it has manufactured and sold for more than 45 years. This case illustrates how supply management can take the lead on sourcing of new technology. It also demonstrates the need to continually review supplier capabilities and, when necessary, to change suppliers to match capabilities with changes in the market. Finally, the case demonstrates that well-established internal processes must be continually reviewed in light of changing market demands.

Company Background and Competitive Environment

MPCo takes pride in its innovation prowess and the number of successful new products that it introduces into the marketplace each year. For a period of time, MPCo used the metric of percent of sales derived from new products as an indicator of its innovation efforts’ success. MPCo has a broad portfolio of products spread across eight strategic business units (SBU), each of which operates as a semi-independent company with its own manufacturing, supply chain management, marketing and other support functions. Each SBU also has its own R&D staff and product development laboratory, which are supported by the corporate technology staff and laboratories.

MPCo has a general manager (GM) responsible for each country in which it operates. Each of these country GMs has profit-and-loss responsibilities and reports up through corporate international operations. Each SBU leader within a country reports to the GM of that country and has a dotted line back to SBU headquarters. The country GM decides which SBU is best suited for meeting the sales objectives in that country. If an SBU wants to operate in a specific country, it has to sell the idea to the country GM, which creates some tensions between the SBUs and the country GMs. However, this classic matrix organization provides flexibility to the country GM while leveraging MPCo capabilities.

Due to surging demand from emerging markets, MPCo’s combined international sales have come to exceed its domestic sales. The approximate sales distribution for 2008 was:

- United States — 40 percent and stable
- Europe — 25 percent and growing
- Asia-Pacific — 25 percent and surging
- Latin America — 10 percent and stable

MPCo has corporate and SBU goals in place that reflect the important role of innovation in its corporate strategy, including:

- Attaining sales growth from new products
- Growing earnings by double digits
- Achieving 20 percent or greater return on investment
- Adding new technology platforms to its portfolio
- Achieving operational excellence through the application of lean and Six Sigma principles
- Making acquisitions that complement existing businesses
- Creating new business and new SBUs
- Achieving international growth
Company and Supply Innovation Strategy, Structure and Process

Global Business
MPCo is a truly global company, with 25 technical centers and 75 manufacturing plants dispersed throughout the developed and emerging economies. Much of the company's appliance business is handled through its German operations, while much of the electronics business is conducted in Asia. MPCo rarely introduces products without adapting them to local market preferences. This customization is done in-country using local manufacturing facilities.

Supplier Role in Innovation at MPCo
Although MPCo recognizes the need for some supplier involvement in product innovation, the role of suppliers is generally highly restricted. There is a concern throughout the organization about the potential loss of intellectual property (IP) to suppliers. MPCo is also concerned that it could create future competitors if suppliers play too large a role in an innovation and end up with substantial IP. Thus, MPCo forms few strategic alliances or joint ventures to collaborate on innovation. Rather than partnering with suppliers on innovation, MPCo prefers to buy their technology or even buy the supplier outright if the need to control the IP is great enough.

It is very difficult for MPCo to collaborate on innovation with large companies, which are often as protective of IP rights as MPCo itself is. It is easier to collaborate with smaller companies which, motivated by MPCo's global reach into new markets, are more willing to concede IP rights to MPCo. On the other hand, if a new product is successful it can be challenging for smaller companies to develop the capability to support large volumes and international markets.

Case-Specific Product and Project Description: The Common Office Product (COP)
A technology-based strategic business unit pioneered the common office product (COP) at MPCo more than 45 years ago. Since then, the product and related supplies have provided a steady source of revenue and profit. The SBU made a wide variety of COPs — some sold under the MPCo name, but many under other companies’ brands.

However, the market for the COP and related supplies was quickly dying as newer technologies were being developed, especially with the change from analog to digital technologies. The SBU was forced to rapidly innovate or lose a profitable revenue stream altogether. Fortunately, the R&D group in the SBU developed an innovative design for a new COP (NCOP) that used the latest digital technology. Even more importantly, the R&D group also developed a new design for a “carry-over” component that would allow an unprecedented reduction in size and weight.

After selling COPs for more than 45 years, MPCo knew the market well. It knew that its competitors' new digital models were expensive to buy and install. MPCo believed that its longtime customers would like the NCOP because of its small size, low installation cost and flexibility in application. The company also believed that the NCOP, if offered at a competitive price, would be adopted in new markets with significant demand.

However, at this critical point in the product development process, a reorganization transferred responsibility for the COP line of products from the originating SBU to the Office Equipment SBU (OE-SBU).

Insourcing/Outsourcing and Collaboration Decision Process
Despite its long history of innovation and strong new product development (NPD) process, development of the NCOP presented new challenges to MPCo. First, because of the reorganization there was no natural leader for the project in the OE-SBU. Product managers in OE-SBU were not familiar with the product, its sagging fortunes, or plans to develop a radically new model. They also did not have the project management resources to devote to developing the NCOP. Into this void stepped Frank Hanson, a supply manager from the old SBU, who had recently transferred into the OE-SBU. Because Hanson was intimately familiar with the COP from his previous assignment and was interested in the development of the new model, he was allowed to expand his supply management role and become the project manager and, more importantly, a downstream partner developer for the project. Under Hanson's leadership, supply management was given responsibility to “push” the NPD process along both internally and externally. As project manager, Hanson searched for strategic suppliers, contract manufacturers to assemble the NCOPs, and customers to brand and sell the NCOPs. Hanson engaged in “technical marketing” and called on many office product, computer and software companies to sell them on licensing the new technology for their own products. "Not your normal sourcing work,” Hanson dryly noted in describing his role.
Finding companies to license the NCOP technology was critical, as the sales volume for the NCOP under the MPCo brand name would be modest. To achieve manufacturing efficiencies and an acceptable return on investment, finding companies with global brands to adopt the technology was critical. It fell to Hanson to find these companies and the contract manufacturers to build the units to the branding companies’ specifications.

Another challenge was the need for an accelerated development cycle. Several competitors had already introduced COPs with new digital technology and might be developing new versions with the additional new technology that MPCo was pursuing. However, the NPD process at MPCo required many well-defined steps, with extensive reviews and sign-offs at every stage. This approach had served MPCo well over the years, as many of MPCo’s current products had had long development times and extremely long life cycles. Some products were still producing profits even after 50 years without a significant change in design. But MPCo’s NPD process was not designed with the speed necessary to compete in a rapidly changing digital marketplace in mind.

To meet this need for speed, MPCo corporate gave the OE-SBU extraordinary local authority and the additional resources needed to quickly drive the project through the NPD process. MPCo corporate had to trust that the SBU knew what it was doing, so NPD rules were relaxed and reviews and signoffs were curtailed. To make this more informal process work, key managers and engineers collaborated closely and constantly on the project within the SBU and communicated regularly with executives at corporate level.

A remaining major challenge was that the NCOP would initially require close collaboration with a technically capable supplier to develop the key “carry-over” component for which MPCo had developed the radically new technical specifications. MPCo did not have the expertise to create the final design for or manufacture this component, so a strong partner with these capabilities would be needed. This raised issues of intellectual property (IP) ownership and, as discussed above, MPCo wanted to control the IP around its products. The partner would have to be selected with great care.

Supplier and Contract Manufacturer Selection Process

The Initial Choice

Because of the breakthrough innovation embedded in the product, the supply partner had to be a company that MPCo could trust to protect its IP. For this, Hanson turned to GSCo, a longtime German-based supplier of components for the original COP, to collaborate on the development of the new component as well as the initial manufacturing. He knew GSCo would be a high-cost manufacturer, but time-to-market and quality were more critical than the initial cost. MPCo gave detailed performance specifications to GSCo, which developed a new design that met the functional and size specifications. GSCo also designed and created a new manufacturing process and manufactured the new component for MPCo. The initial sales volumes were expected to be relatively small, and GSCo excelled at small-volume manufacturing.

GSCo was a longtime trusted partner that allowed MPCo to complete the development contract in a single day. The development effort went very well, with engineers and managers from both companies in close and constant communication as the work proceeded. Executives at both MPCo and GSCo had high expectations for the NCOP and supported the collaboration effort.

In the end, each party received some IP rights from the project. For MPCo, the key was that it received the IP rights needed to protect and control the product in the marketplace. This was achieved in part by paying GSCo a large upfront development fee and not offering any IP rights or revenue streams from the final product. GSCo was able to develop some IP from the project for its purposes, so both companies gained from the final IP agreement.

After the product was successfully launched, GSCo remained a supplier of the new component for four years. In addition to its development fee, GSCo received revenues from the sale of components to MPCo and IP related to its core business. Over these four years the GSCo business model evolved, and the company eventually sold its NCOP-component-related business to a Taiwanese company.

The Move to Asia

As with most high-tech digital products, the selling price for the NCOP was under continuous pressure in the marketplace. Keeping GSCo as a high-cost supplier became untenable, and MPCo recognized the need to change partners. In response, it sought out Asian
suppliers that offered lower manufacturing costs. However, going to Asia also presented significant risks for IP loss. Some Asian companies were deemed trustworthy, while others were not. Fortunately, MPCo could rely on its extensive personnel resources in Asia to help find the right suppliers. Whichever manufacturer was selected, it would be new to MPCo; trust would need to be earned on both sides.

HKCo
An MPCo designer made contact with a top designer at a Hong Kong company, HKCo, and inquired about its interest in the business. MPCo knew key people at HKCo and had a good understanding of its technical capabilities. HKCo wanted to get into the COP business using digital technology. It excelled in designing components similar to what MPCo was buying from GSCo, and was interested in the opportunity for new business from MPCo. HKCo was viewed by MPCo as being the right size for the scope of the project. After careful vetting by MPCo people in Asia, HKCo was selected to supply the component.

After negotiating a contract with MPCo, HKCo started manufacturing the GSCo-developed component. At the same time, HKCo invested in the development of a new design for the component that would allow it to be produced at a much lower cost. This new, lower cost component would allow the price of the NCOP to be significantly reduced, opening up several new markets for it. Additionally, the new component allowed for the development and manufacture of a portable version of the NCOP, opening even more markets and applications.

After a period of producing the component and fully assembled NCOPs for sale under both its own and the MPCo brand, HKCo decided that the profit margins on this business were lower than it had anticipated and decided to exit the business. This left Hanson to search for yet another supplier to make the component and assemble the final product. HKCo recommended TSCo, a Taiwanese company, as a new supplier to build both the component and completed units for MPCo. After careful vetting of TSCo, MPCo signed a new contract and began the process of transferring the business to TSCo.

TSCo
TSCo is one of the largest electronic component designers and manufacturers in the world. It also had been producing COPs with digital technology and was receptive to working with MPCo on the NCOP. TSCo bought the NCOP component business from HKCo and began building the new product under the MPCo brand. Helping the transition was the move of a key designer from HKCo to TSCo. TSCo eventually developed an even smaller NCOP for MPCo, so the product entered yet another cycle and was able to penetrate even more markets.

CXCo
In addition to having NCOPs manufactured under its own brand, MPCo's strategy was to license the technology to subcontractors to produce large volumes of the NCOP for major global electronics companies from Japan and Korea. To execute this strategy, MPCo signed an agreement with CXCo, an Asian company with high-volume manufacturing capabilities. CXCo was one of the world's largest manufacturers of common office equipment products with digital technology and already manufactured four other products for MPCo. Although CXCo was not as innovative as TSCo, the need for innovation on the new product had decreased in tandem with the increased need for higher volumes and lower costs.

Project Challenges and Opportunities for Improvement

International Communications
While technical communications are never easy, they were especially difficult for the development of this project due to the myriad countries, cultures and languages involved. Moreover, because the development time for the project was significantly compressed, keeping the engineering changes and other databases up to date in the NPD process was challenging. In the midst of all of this activity, MPCo was forced to develop collaborative relationships with several new suppliers. Constant communications at many levels within the company and between trading partners are absolutely necessary for NPD success.

Strategic Alignment
Finding right-sized suppliers with the needed technical capabilities remains a challenge. On the one hand, MPCo needed suppliers that were anxious to do business and would commit the necessary resources to projects and be flexible on IP. On the other hand, the suppliers needed to be capable of quick ramp-up and large enough to support a global market. Supply management should have the responsibility of finding suppliers that fit this business model.

Outsourcing
MPCo was faced with outsourcing decisions in all development phases of the NCOP. Although MPCo developed the functional specifications for a key component, it had neither the expertise to create the
final design — nor the ability to manufacture the component. Thus they were obliged to find a supplier that could design and manufacture this critical component. The low volume of MPCo-branded NCOPs precluded it from manufacturing the final product inhouse, although it had the capacity and expertise to do so. Only by outsourcing the production could MPCo meet cost targets and achieve an acceptable return on investment. Finally, to increase the volume, MPCo licensed the product technology to companies with global brands on the demand side. All of these decisions forced MPCo to consider new options, taking the company out of its comfort zone as a technology developer, manufacturer and distributor.

Supply Management Competencies
Supply management was heavily involved in the sourcing of the new component technology. To continue in this role, supply management personnel will need to gain expertise in a variety of technologies while cultivating close relationships with MPCo technologists. It is not clear that the demand-side responsibilities that supply management played in this case will be, or needs to be, repeated for other new products. If MPCo expands its business with contract manufacturers and increases the amount of technology it licenses to other companies, then new positions will need to be created to coordinate these activities.

Innovation Project Results
The NCOP became a poster child for fast product development for MPCo. The initial NCOP was developed in less than 18 months, and new product variations were introduced even more quickly, with the newest model having a six-month development cycle time. Unfortunately, MPCo has not codified the lessons learned in reducing cycle time for new products. Although the new product project received widespread visibility across the company, fast product development is still very much an ad-hoc process at MPCo.

MPCo continues to licenses the intellectual property developed with the NCOP to contract manufacturers (e.g., TSCo and CXCo), which in turn sell completed NCOPs to major branding companies approved by MPCo. The branding companies sign brand-usage agreements with MPCo and pay royalties to the company. MPCo also sells NCOPs under its own brand, but its market share remains small.

MPCo's decision to license new technology that was still being used internally to outside companies was highly unusual. Frank Hanson helped sell this idea to MPCo executives and was instrumental in finding partners for the technology. This business model generates new revenue for MPCo without any factory investment. MPCo is considering this model for other internally developed technologies.

Although initial costs in Asia were much lower than with GSCo, costs have since escalated in China, negating some of the initial advantages of moving the business. Over time, MPCo has achieved a deep understanding of development costs associated with new versions of the NCOP and can carefully negotiate these costs with each new supplier. MPCo actively works on cost reduction efforts with its suppliers and contract manufacturers.

Moving the business to Asia was initially a low-cost strategy and MPCo did not expect to get the same level of innovation as it did from GSCo. However, Asian suppliers are now the source of many new ideas for MPCo.

The fourth generation of the product is in production and MPCo is developing the fifth generation, which will use LED-illumination technology. Using MPCo technology, a major Japanese company has developed a “companion product” that can be used in conjunction with cell phones. MPCo continues to own the essential and important IP for the product. It pays TSCo, CXCo and other Asian suppliers for development work and tooling for new products under separate development contracts.

NCOPs have been a big success in the market, and there are now at least six competing brands. Some competitors have used other technology to get around MPCo’s IP, but their products are bigger, heavier, pricier and inferior in performance. Other competitors are being investigated for IP infringement.

Future of the Innovation
New applications for the NCOP are being found in business, education and homes. The cycle time for new models continues to decrease, with the most recent iteration completed in six months. New NCOPs are being developed that will have applications with games, laptops and cell phones. A “pocket” model is past prototype and being readied for production. The volume’s potential is thought to be enormous.

Supply Management’s Role
MPCo’s supply management group is primarily focused on sourcing and cost reduction rather than innovation. With an eye toward continuous improvement and innovation, supply management attempted to roll out
lean and Six Sigma concepts to the supply base but had limited success due to a lack of resources and the challenge of managing many different technologies. Supply management believes that the SBUs are better positioned to drive Six Sigma innovation efforts in the supply base, but the SBUs have not taken up the challenge.

Several years ago, MPCo established new product innovation buyer (NPIB) positions in supply management to relieve the laboratory scientists, bench chemists and other technical people from doing supplier and product searches, particularly when MPCo had capable suppliers on board. Individuals in these positions work directly with NPD scientists and engineers in those SBUs that have agreed to carry the budget line for the NPIB. Only three of the eight SBUs have NPIBs on staff — two of these individuals are engineers, while the others come from a business background but have technical skills. One unit has asked for a second NPIB, finding that the first buyer more than paid for herself. On the other hand, a different SBU opted to let go of its NPIB during a downturn in business. The NPIBs assigned to SBUs have a solid-line reporting relationship to supply management and are supported by that group. Despite the success of the NPIBs, assessing supply management’s overall contributions to innovation is proving to be an ongoing issue.

In this particular case example, supply management played a unique role. Frank Hanson, a supply manager, took on “advanced sales and marketing” along with his usual supply role. This was partly done out of necessity, as the company had limited resources in this SBU. Such an assignment would not have been possible if corporate had not empowered the SBU to do what was necessary to “supercharge” a struggling market.

Hanson is still on the NCOP leadership team. Along with the engineers, he is continually on the lookout for new technology, new suppliers and new customers. Corporate management is reviewing the possibility of increasing supply management’s involvement on the demand side of the equation.

**Important Lessons**

**Lesson 1: Know Your Market**
MPCo marketers listened to their customers. The company understood the common office equipment product market because it had been selling the product for many years. It also knew the old product had reached the end of the line and that customers would want a low-priced, small, flexible and easy-to-install version of the product for the next iteration. Also key was that MPCo envisioned huge new markets for a product with these characteristics.

**Lesson 2: Strategically Align Trading Partners with Project Objectives**
Strategic alignment has multiple dimensions. For the “carry-over” component, MPCo needed alignment with a supplier with the following characteristics:

- Small in size — GSCo was smaller than MPCo and was interested in the business.
- Superior technical capabilities — GSCo was a technology leader in this field.
- Mutual trust and ease of doing business — GSCo and MPCo had a long-term relationship.
- Speed — GSCo could develop the needed components quickly.
- Capacity for manufacturing in small lots at target costs — GSCo could manufacture in small quantities at quoted prices and high quality.

Later in the product life cycle, MPCo needed a more cost-effective supplier that would meet the growing volume needs of the market. HKCo, the first Asian supplier, was cost-efficient and the right size. However, HKCo later decided to exit the business because the margins on the NCOP did not meet its financial goals. That is, the strategic alignment between MPCo and HKCo did not ultimately match up after all. The question remains whether or not MPCo should have or could have known this ahead of time.

The second Asian supplier, TSCo, was a better strategic fit — it was the right size, agile and committed to the COP market. TSCo was good at developing new product variations with low volumes.

Although TSCo strategically matched up with MPCo on cost, volume and flexibility, developing mutual trust took some time and effort.

**Lesson 3: Internal Flexibility Needed to Support Innovation**
The short development time needed for the NCOP project did not fit the usual NPD model at MPCo. MPCo corporate gave the SBU an unusual amount of authority and resources and did not micromanage the project. Supply management was given extraordinary responsibility to “push” the process along, both internally and externally. A supply manager was appointed project manager with responsibility for finding strategic suppliers, contract manufacturers and customers for the NCOP. In the end MPCo acted more like a merchant than a traditional manufacturer for the NCOP by sourcing key components, outsourcing the manufacturing and licensing the technology to third parties.
Lesson 4: Clarify Intellectual Property Rights
MPCo and GSCo clarified IP ownership at the start of the project. This was accomplished in part by MPCo reimbursing GSCo’s development costs in exchange for the IP that MPCo wanted to retain. Both MPCo and GSCo ended up with IP that was critical to their strategic plans. MPCo retained these important IP rights as it moved the business to new suppliers and new contract manufacturers. The new Asian suppliers have also developed new IP for themselves while respecting and protecting MPCo’s IP rights.

Lesson 5: Good Communication Is Essential, But Difficult
Close and constant communications within MPCo and between MPCo and GSCo were critical to keeping this fast development project on track and on schedule. Achieving this same communication level with the new Asian supplier was even more challenging and just as important.

Lesson 6: Incremental Innovation Must Follow Radical Innovation
MPCo understood that the high prices it could charge for the new-to-market NCOP were not sustainable and that it would need to lower the cost of components and manufacturing. This led it to Asia, where it found not only lower cost suppliers but new sources of innovation. With each iteration of the product, MPCo pushed the design limits further but was still able to drive down development costs, manufacturing costs and cycle times. Although the new versions do not have radical innovations, the incremental improvements and cost reductions have kept MPCo a leader in the marketplace.

Lesson 7: Match Supplier Capabilities to Market Needs
As competitors entered the field, MPCo had to develop smaller, less expensive versions of the product at an ever-faster rate. MPCo was able to successfully switch suppliers as needed because it owned the essential IP and had a deep understanding of the development process for new versions of the product and the costs of manufacturing.

Key Insights
- Supply management can play a strategic role in product innovation, including leveraging global supply market knowledge.
- Executive management can provide significant opportunity and support for supply management to play a more strategic role in innovation. In most companies, this requires a change of thinking about the traditional role of supply management.
- Leadership skills are more important in driving major innovations in collaboration with the supply base than functional knowledge of supply management.
Chapter 4  Case Study: Integrated System Design

Purpose
This case illustrates the complexity of managing and/or leading efforts to achieve incremental or breakthrough innovation requiring a network of suppliers.

Key areas found to impact innovation include:
- Insourcing/outsourcing decisions
- Supplier selection
- Innovation capability assessment
- Joint selection of second-tier suppliers
- Supplier development
- Project management and coordination

Company Background and Competitive Environment
Integrated System Design (ISD) is a large global company with annual sales in the billions of dollars. Sales, operations and R&D are located in locations worldwide. ISD conducts integrated systems design and development, service, marketing and sales for several industries, primarily medical. ISD also manufactures products across its worldwide locations. Its overall business strategy is to be a leader in product development and to provide full-service solutions to business customers. It conducts design and development, both internally and with external suppliers.

The ongoing challenge facing ISD is the design, development and manufacturing of integrated system products that provide leading-edge capabilities, and incorporating technology and application innovations to increase customer satisfaction. The integrated systems generally take 12 months to 36 months to develop and have multiyear product/system life cycles, some of which exceed 10 years.

The technology used in the systems is both leading edge and industry standard. In addition, the systems are increasingly a combination of mechanical and electronic components/modules controlled by advanced software.

Case-Specific Product and Project Description: The Positioning Platform
The product examined in this case study is an integrated Positioning Platform (PP) used during diagnostic examinations. The PP is a complex, integrated system that must provide extremely tight movement and positioning control. The PP is one of many major subsystems used in the overall examination process.

The integrated PP system was sold as an ISD “turnkey solution” to demanding customers with many unique needs. However, more than 25 suppliers were required to manufacture the PP after design and development, and prior to finishing touches completed by ISD to meet exacting customer needs and specifications.

Insourcing/Outsourcing and Collaboration Decision Process
ISD had to decide whether to outsource or retain design, development and manufacturing of the PP system, as well as how much involvement it should have with the selection and management of second-tier suppliers for the PP components. The business unit management team made the outsourcing decision for PP development. The main parameters for the insourcing/outsourcing decision included:
• Competitiveness — How good is ISD compared to other firms regarding design and development with innovation, cost, quality and so forth?
• Strategic importance — How important is the product and underlying technology to the company’s success over the long term?
• Available capacity

The integrated PP consists of many electromechanical parts that were not core to ISD, so the PP was established as an outsourced development project. In addition, the PP was not considered “strategic” because it was not an “order winner” for ISD. Also, ISD did not have extensive electromechanical capabilities, and the limited internal electromechanical capabilities it had were fully utilized. However, even though the decision was to outsource the PP, the control of the software for the project was not easily transferred to external suppliers. Because it was critical to the project, ISD would develop the software.

In addition to direct software development, ISD recognized the need for ongoing involvement in the management and selection of second-tier suppliers of other technologies for the PP because of their complexity. The first step was to select the first-tier supplier, then work with that supplier to manage the rest of the supply chain and the project.

Supplier Selection Process

At the beginning of the project, ISD was beginning to develop its global preferred supplier list (PSL) for mechatronics and related purchase categories. Historically, ISD motion controls had been developed internally. There was no PSL established for the motor control PP application, so ISD established a list of more than 100 potential suppliers.

A global ISD category team was responsible for supply base development and creation of the preferred supplier list. The team performed a worldwide search for potential suppliers. Supply drove the supplier selection process, using input from engineering and other functions.

Twenty potential motion suppliers were considered based on information obtained through general discussions, reviews of supplier websites and other publicly available information. The 20 potential suppliers were then given a detailed 10-page questionnaire about their organization, quality systems, design capability and other important considerations. From this initial high-level capability assessment, five suppliers were selected to participate in a design-in-workshop (DIW) program.

The objective of the DIW was to determine which suppliers had the capability and the innovative ideas most critical to redesign of the system. Individual DIWs were conducted for each supplier to minimize intellectual property (IP) loss concerns. The motion control supply world was relatively “close knit,” so the suppliers had some idea of which companies they were competing against.

As a result of the DIWs, the potential supplier list was reduced to two suppliers. ISD then conducted another workshop to determine how each of the potential suppliers would leverage its engineering and innovation talent and establish the concepts. ISD provided the suppliers with the fundamental project requirements and asked each to develop a proposal. ISD specialists were made available to each supplier throughout the workshop to answer questions. Detailed concepts were developed during this workshop. Suppliers were not paid to participate in the workshop, and they had to absorb concept development costs. ISD retained all IP that was developed and believed that only those suppliers that were keenly interested in the business would participate.

Tempted by the possibility of winning lucrative production contracts, the suppliers agreed to participate in the DIWs despite the fact that they had to absorb the development costs and cede the rights to any IP developed to ISD. These suppliers were “industrial” suppliers that were focused on production volume contracts rather than IP ownership. The suppliers also gained insights through working with ISD that they could use to capture business from other customers.

After the two suppliers developed a feasibility model, Specialco was selected to design and develop the basic PP, which included all PP components/movements with the exception of a few options. Specialco was a machining company that had migrated to design and engineering work in mechatronics as well as manufacturing. Specialco was already a supplier to ISD for similar items and was a “preferred supplier,” although not originally qualified for this system.

Specialco was paid competitive labor rates per employee for development ($40 to $60 per hour). Specialco eventually received the production contract, with about a 25 percent volume increase in sales to ISD. The production contract was awarded after about a year of development and facilitated the development of target costs, as both parties helped with the product design’s evolution.

Specialco had limited knowledge about the detailed industry application characteristics of the PP. However,
even though unique applications knowledge was required, ISD believed that Specialco was capable of performing the design and development work. This belief was based on the DIW and prior experience with Specialco and its PSL status, combined with an excellent track record on prior smaller projects and ongoing development of its technical knowledge and skills.

In retrospect, there were a number of issues that could have posed potential problems. First, this was an initial outsourcing project, and the ISD engineers were not interested in providing assistance to an external supplier. Second, an ISD supplier assessment tool that evaluated supplier technology, development and innovation capability was not in place. Third, only a somewhat limited assessment of Specialco was conducted because it was on the preferred supplier list.

As ISD was executing the supplier selection process, it initially developed a statement of work (SOW), which would then be converted to a contract with the selected supplier. A steering committee (supply representative, supply account manager and engineering manager) was responsible for contract authorization, execution and the tracking of progress against contract terms and conditions.

It was anticipated that the selected supplier (Specialco) would be responsible for the complete PP with limited support from ISD. However, it was later demonstrated that even though Specialco had concept knowledge, it was limited in specific design and development capabilities, especially for motion controls. Therefore, the SOW and eventual contract had to be modified, with ISD providing design work support and a much higher degree of involvement than it had earlier anticipated.

**Second-Tier Supplier Selection**

A critical PP sourcing issue was the selection of second-tier suppliers supporting Specialco. Given the complexity of the PP, which was made up of approximately 30 major subassemblies and commodities, a team from ISD and Specialco worked together to establish the lead company responsible for supplier selection and management of commodities. The following list shows examples of specific commodities and the company responsible for leading the supplier selection and management for each:

- Gears — Specialco lead
- Mechanical — Specialco lead
- Controls — ISD lead
- Motors — ISD lead
- Platforms — ISD lead

Within each of the major assemblies, there were typically multiple subassemblies and components. The companies examined the subassemblies within the major assemblies and further determined which would have responsibilities for supplier selection and management. All of the supplier selection and management issues were agreed upon by both parties and included in the contract.

Specialco had limited knowledge of second-tier supplier capabilities, and it was not fully aware of overall ISD project needs. Challenges associated with second-tier supplier selection included 10- to 15-year service requirements for both subassemblies and components and ISD’s preference for standardized product components to minimize the number of spare parts and SKUs. Even though ISD preferred that its first-tier suppliers select and manage their own supply bases, an accommodation was required to ensure that ISD’s longer term needs were being met. The result was a model that allowed for a range of ISD involvement regarding second-tier sourcing decisions.

To facilitate the second-tier supplier selection process for the benefit of the project, the 2 x 2 matrix shown in Figure 4-1 was developed to identify which company would be the lead firm based on price/cost impact and risk, with risk including functionality and service/responsiveness. Where cost/price and risk are higher, ISD is more engaged. However, both firms exchanged views and information about the second-tier suppliers.

Establishing purchase requirements, segmenting responsibility and agreeing to a second-tier sourcing strategy and process were reasonably doable for the individual assemblies, subassemblies and components. However, the integration of the major assemblies was more difficult. The form and fit interfaces needed to be closely coordinated. A project team consisting of engineers from ISD and Specialco was established to jointly develop solutions to integration problems. In addition, it was decided that the company making the purchase would be responsible for the actual purchase as well as logistics, quality and price.

One interesting aspect of the project was the joint selection of the motion supplier for the PP. During development, Specialco, ISD and the motion supplier worked collaboratively to create the best innovative design and interfaces. This three-way collaboration provided improved design solutions. Once the design was released, Specialco managed the business relationship with the motion suppliers. This arrangement enabled collaboration during design and development, with one company eventually having...
focused responsibility for providing production volume requirements.

**Contract Development and Management**

Specialco and the other competing supplier entered into competitive DIWs without a guarantee that a production contract would be awarded to the more innovative development supplier. In addition, even though the winning supplier was confident that it would win the production contract, it was unclear what approach ISD would take regarding pricing for the volumes in the production contract volumes.

Establishing product and assembly/subassembly target costs and prices was an important approach at ISD. Under certain circumstances, ISD applied market pricing to determine product price targets for a finished product. In this case, the PP was part of a larger system, so the price that a customer would pay for the PP was unknown. Target costs were therefore established using specific cost-downs from the previous PP’s bill of material (BOM) plus additional costs for the new functionality. The prior PP was internally produced, so ISD had a good idea of material and assembly costs. The initial target cost would be set by the BOM cost, plus an increment for new features, minus the expected cost-downs. There was no premium for innovation because Specialco was compensated for nonrecurring engineering expense costs and was awarded the production contract. The margin was fixed and set equal to the expected cost-down percentage. In effect, ISD was going to pay the same price for the new PP as the old PP, but with the new advanced features. In retrospect, the additional costs of the planned improvements and features were underestimated. Cost engineering was involved in the original cost estimating, but ISD lacked the experience and knowledge at that time to assess the true cost impacts of the additional functionality.

Engineering change control was managed by a project change control board. All proposed changes were discussed, then accepted or rejected by project managers from each company. This worked well until several engineering changes occurred at the same time. Work was started on changes before they were approved, leading to numerous problems. When multiple changes were made to one particular part, change management was not difficult. However, problems developed when changes were made to multiple parts at the same time. For example, changes were simultaneously being made to the frame that carried the cover, to the cover itself and to components inside the PP that changed the interface to the frame. The tolerance stack-up calculations were ultimately incorrect. Making multiple changes across multiple parts without coordination of the many changes severely impacted performance and had to be corrected.

The modular design of the PP also made it difficult to estimate costs and value-to-price relationships. Modularity was the favored design strategy because companies could delay customization until final assembly while lowering costs of customization by developing different modules. However, modular designs also can drive up overall product costs when all
potential custom needs are incorporated into a product but not activated. The cost for the modules may be spread across the products on an average-cost basis, thereby limiting full understanding of the true cost-to-price relationship (and value).

The project team used an Excel-based “cost monitor” to track costs and cost changes as the project progressed. This tool worked well until multiple changes were made concurrently and the resulting delays set in. The use of cost monitoring lagged during this period, and the overall product cost impact of changes was unknown. Original cost targets were overrun, but it was too late to correct after design changes had been made. In the future, estimated change costs are to be reviewed and approved prior to implementation, which could cause a schedule problem if not managed correctly.

Collaboration Strategy, Structure and Process

After Specialco was selected for the PP, a project team that included engineering, manufacturing, quality, cost management, supply management and customer service representatives from both Specialco and ISD was established. Subteams worked on specific design and other issues. ISD assigned a supplier manager to the team, while Specialco assigned a senior buyer. The project team met regularly, generally having contact on a daily basis. The team created a project-specific form that displayed the status (e.g., supplier selection status, contract status, activity status and responsibilities) for all work tasks required for the project. ISD and Specialco both described the working relationship as close.

A higher level steering committee was formed to manage the overall relationship between the companies and oversee contract management issues. The steering committee, which met monthly, was established because of the complexity and the importance of the product.

The steering committee generally worked well and was especially helpful in obtaining resources needed for the project. However, as time went on ISD’s decision making about finances and resource support slowed due to personnel changes and a lessening of focus and intensity. This was frustrating for both ISD and Specialco. Also, at one point the committee became overly involved in the everyday operations of the project and lost its focus on maintaining the health of the business relationship between the two firms. This may have occurred because of the length of the project and the steering committee’s increasing involvement in “operational details.”

Specialco and ISD were located near one another, so most communications were face-to-face. It was almost an “on-site engineering” situation for the companies. One “communication” problem arose because ISD was using a different CAD/CAM system than Specialco. This was not initially recognized, and the use of these different systems led to delays and uncertainty regarding whether all of the information was properly translated. “Minor” yet important details were left out after file transfers.

Project Challenges and Opportunities for Improvement

Need for Synchronization

It was important to synchronize project phases, terminology and expectations. For example, to one company “prototype” might mean the first lab mock-up while to another company it might mean the first run from the initial production tools. Unfortunately, these types of differences were not discovered until this project was under way. During the project, one second-tier supplier “released” a motor design for production in Eastern Europe. However, ISD believed the motor was not released to its requirements and production. When the question was asked, “Is the motor released?” the supplier answered that it had been released. Following an investigation, the customer said it had not been released because qualification requirements were different in different regions.

Quality Management Expectations and Control

Specialco was a preferred supplier, and at one time had quality approaches that met ISD’s supplier control plans. However, these quality processes had been modified by Specialco after the company was originally qualified and placed on the preferred supplier list. This led ISD to realize that initial product quality management processes for new products must be assessed even when using a preferred supplier.

Influencing Supplier Risk

Because ISD would own all intellectual property, ISD had to establish appropriate pay rates, development hours, profits and return on investment for production volumes in order to provide an incentive for Specialco to take required risk. The sourcing of other product to Specialco was also used as an inducement.

Specification Creep

Specification creep was a valid concern, as it came to bring a limited negative impact on the working relationship. For example, additional milling of a motor shaft drove additional cost. Costs began to rise, and
price change negotiations were required without an agreed-upon formula to guide the amount of the price change. Negotiations then became difficult, to the point where working relationships were negatively affected. In this project, new functionality was added after the price of motors had been negotiated, leading the supplier to believe that ISD was trying to gain functionality without payment. ISD was concerned that the supplier was overcharging for a small change to get back the profit “lost” during initial negotiations. But in the end, the differences were resolved to the satisfaction of both parties without impacting working relationships and trust.

Maintaining Trust
The project described in this case study took place over several years and saw a combination of successes and failures over its course. Communication was necessary to continually present facts and maintain stakeholder support, including dispelling rumors and incorrect information. Without effective communications, incorrect or even negative perceptions about strategy and supplier performance can develop. It was important that communications related to performance in terms of expectations and supplier relationships be addressed at high levels in the organizations. During this project the steering team, which had been formed to manage the relationship between the companies, became so involved with project details that it began to lose sight of the goal of maintaining a positive working relationship and trust.

In complex outsourcing relationships, trust can deteriorate through any number of means. Following are two examples from this project:

- When Specialco’s motion engineer left the company, ISD stepped in to assist. However, this created the perception that Specialco was a poor manager of its resources and perhaps not to be trusted. This perception developed in part because when Specialco was selected, ISD did not conduct a detailed assessment of Specialco’s long-term engineering resources and the impact that losing a key person would have on the project. The result negatively affected ISD because its own motion engineering staff ultimately had to perform the engineering work. Both companies needed to understand the root cause of the problem to keep from reaching inappropriate conclusions regarding one another’s trustworthiness.

- When ISD asked what changes were being billed for engineering development payments, Specialco indicated that a portion of the hours being billed included internal meetings with ISD’s purchasing representatives and the project team. ISD did not believe these hours were direct engineering, but rather hours that were helping Specialco develop capabilities. This conflict negatively impacted the trust relationship between the two companies until it could be resolved. It is an example of how different cost-driver expectations can impact trust.

Innovation Project Results
While the project was originally estimated to take 12 to 24 months, it ultimately took longer because a “timeout” was called during the project to review development and costs and reestablish priorities. The delay was acceptable to Specialco. Part of the reason for the delay was the lack of motion engineering talent at Specialco and the resulting need for ISD to provide the talent, which was being used on other projects.

The final project audit deemed the project a success, and the products were extremely well received. There were the expected minor issues, given the significant platform change. The project had delays and cost increases, which were not unusual in scope or scale. The overall ISD system was providing profits, as was the PP itself. The PP met specifications and had increased functionality, even though initial target costs were exceeded. After release, productivity improvement efforts were undertaken.

This project experience also provided ISD with the confidence that it could increasingly work with suppliers on major product changes and innovation. Internal ISD engineering attitudes have also changed, as the engineering staff was now willing to work more cooperatively with suppliers. ISD engineering recognized the value-add that suppliers can bring. The project also signaled to suppliers that ISD would expect more value and innovation in the future. ISD’s suppliers are now more proactively investing in higher level purchasing and engineering skills, making it easier for ISD to outsource complex products/subsystems to them. ISD outsourcing has also influenced suppliers to share complementary information.

Supply Management’s Role
The supply management group at ISD established the supply base and determined how ISD would collaborate with suppliers. The group managed most of the outsourced suppliers, including both internal and external suppliers that supported multiple business units at ISD. DIWs were conducted by supply management.
The supply management group also managed external OEM suppliers that were providing full systems integrated within full-service laboratories (e.g., medicines/dose measurement). ISD develops and sells products to multiple industries but does not make all of the individual systems or products. The externally sourced systems or products were purchased off the shelf and/or jointly developed by ISD and suppliers. These jointly developed products were branded as ISD products, while others retained the supplier's name. The companies might jointly market the products or subsystems; however, ISD will always be the turnkey solution provider.

Important Lessons

Lesson 1: Estimate Time Needed for Knowledge Transfer
Effective methods and realistic estimates of the time needed to transfer knowledge need to be established. In this case study, significant amounts of intrinsic knowledge had to be transferred to Specialco. Because the transfer took longer than anticipated to achieve, the project’s time span was elongated.

Lesson 2: Evaluate Progress and Results
Formal and regular evaluation of project progress and results are critical to success.

Lesson 3: Project Leadership Continuity Is Critical
Care must be taken by executive leadership at both buyer and supplier to ensure project leadership continuity. Project leads may and do change, as evidenced by this project. Original champions of a collaborative innovation effort are often critical to driving the commitment to achieving objectives and meeting targets. As project leads change, crucial information and knowledge can be lost, personal commitments and relationships may erode, thereby impacting the innovation focus, timeline and commercialization.

Lesson 4: Accurately Assess Supplier Capabilities (for Outsourcing)
Frequently, more company resources than anticipated are required to transition to outsourcing and manage the new interfaces and information transfer. ISD thought it could work with Specialco using minimal resources, such as a few engineers, a purchaser and project lead. The project was ultimately more complex than anticipated and more than 20 engineers were required. The lesson learned here is that careful assessment of a supplier's current and future capabilities, as well as possible company resource commitments, is required to assure innovation project success.

Lesson 5: Understand Supplier Innovation Abilities
Either intentionally or inadvertently, suppliers may overstate their overall and innovation capabilities, as Specialco did. Specialco may have indicated that it “could” do something when it should have said it “wanted” to do it. Again, supplier innovation assessment is very important.

Lesson 6: Communicate with Suppliers
Application engineers (similar to industrial engineers) could and should communicate directly with the supplier about how the product actually will be used. This is important because a supplier usually does not have deep insights regarding product end use and the supplier may make decisions and engineering changes that negatively impact overall system or product performance. Application engineers from ISD could have worked more closely with Specialco to ensure alignment with end customer product use.

Lesson 7: Financial and Change Control Critical
Tight engineering change control and financial control are critically important to early identification of potential problems during innovation projects. The cost monitoring tool could have been reviewed monthly to determine the impact of engineering changes and whether the customer, ISD or the supplier would incur the change costs.

Lesson 8: Maintain Price-to-Cost Control
Modularity and implementation of complete product features, some of which are not activated for different customers, frequently lead to limited insights between product features and their cost/price and value to customers. This was partially true in this case study. It is important that firms maintain the price-to-cost relationship for the modules that make up a final product.

Lesson 9: Multiple Suppliers Can Collaborate
The case demonstrated that ISD and two suppliers could work together effectively in a complementary manner to achieve innovative designs. Firms can and should look for opportunities to collaborate both vertically and horizontally with their suppliers.

Lesson 10: Common Engineering Systems Are Important
Assessment is required to determine whether buyers/providers are compatible so as to eliminate the
potential for unforeseen problems to develop and increase project completion time.

Lesson 11: Supplier Innovation Can Be Achieved through Rewards
Companies can motivate suppliers to work on innovation and provide intellectual property to the buying company when supplier rewards are properly structured. In this case, volume production contracts and technology learning were the key motivators.

Lesson 12: “The Devil Is in the Details”
Supply managers working with suppliers on innovation projects must focus on the strategic working relationship between the two companies as well as the day-to-day operations and technical details. Innovation projects with long lead times can be jeopardized if teams do not focus on both the relationship and the operational details.

Key Insights

- Multiple non-competing suppliers will work together on the buying company's required innovations if they trust that they will be rewarded for their innovation and cooperation.
- Outsourcing to external suppliers is an opportune time to fully assess supplier innovation capabilities — especially as the firm's core competencies for achieving competitive advantage become more limited.
- Truly understanding supplier innovation capabilities and their willingness to provide innovation for future returns is critical to success.
Purpose

This case study examines an open innovation initiative in which the supplier approached the buying firm with the innovation idea and capability. The innovation is a new data format conversion service introduction, not a new product introduction. The case study also illustrates how the buyer and supplier collaborated to develop the market pricing model for the service. The case highlights how a clear definition of roles and responsibilities can positively impact problem resolution and innovation project results.

Company Background and Competitive Environment

I-Com is a leading telecommunications network operator that covers most of the United States. I-Com has transitioned in recent years into a communications-only provider, with an eye toward expanding its operations through acquisitions.

Communications is a fast-growing industry that offers many opportunities. The U.S. communications industry is widely regarded as underdeveloped compared to those of Japan, China and Western Europe, signaling ample opportunities for continued expansion. Digital and broadband services are two segments experiencing sharp growth, and companies have begun test-marketing digital communications over the Internet. The communications industry is characterized by a bewildering set of incongruent technologies. Industry competition may be best described as oligopolistic, with primary barriers to entry including high initial infrastructure costs, regulations and brand recognition.

Company and Supply Innovation Strategy, Structure and Process

Product development leadership at I-Com emanates from top management, in particular the CEO. The company has strong marketing functional leadership. It closely examines market demand for new products and services to establish the “voice of the customer” (VOC) for the business. It also recognizes that suppliers are generating much of the innovation in the industry, and thus closely examines the supply market for innovative applications.

I-Com is not the largest company in the industry, yet it receives much media acclaim for having developed some of the most innovative product and service offerings in the market today. This can be explained by the fact that smaller players have to think beyond the status quo and continually innovate. I-Com also is described as an aggressive carrier in regards to content innovation and its willingness to partner with existing experts. For example, I-Com was quick to cash in on the benefits of a heightened interest in mobile applications, especially those with a social slant, by adding three-dimensional animated avatars to its multimedia messaging service. I-Com’s “personnel locator” provides a scalable solution that allows small businesses to monitor the locations of their mobile workforces in real time.

I-Com competes against bigger carriers with bigger budgets, more resources and more distribution channels, which means that it needs to be more innovative and look to use suppliers differently. For example, I-Com proactively looks for suppliers that have something interesting to offer while other carriers wait to be approached. Also, I-Com seems to really listen to those suppliers and to spend time with and
collaborate with them, rather than just purchase their services and products.

**Case-Specific Product and Project Description: Data-to-Text Messaging**

This case involves the development and marketing of a data-to-text application developed by a supplier for the communications industry. The primary players are I-Com and DataText Co. (data-to-text supplier), though integration and collaboration was also required with Serve Right (a data messaging hardware provider). The technical personnel at each company worked together on the project. Supply management played a significant role in coordinating the three-way communication and integration. The three companies were often in the same room discussing integration, though all commercial discussions were separated. While this three-company coordination is a point of interest, the focus of this research is on the relationship between I-Com and DataText Co.

DataText Co. provides a data-to-text messaging service. It started with its proprietary data conversion system, becoming one of the first companies to convert data to text messages for both landlines and mobile telephones. Users subscribing to the service have incoming data transcribed and sent as text messages or emails.

In order to compete with similar service providers, DataText Co. recently introduced some other features, such as a blogging feature that allows users to speak a post to a blog from any phone. There is also a memo service through which users speak memos to themselves that are subsequently transcribed and sent as email reminders. Also, DataText Co. users can speak a text message, update social networks or send messages to groups of people all at once using recipient lists.

DataText Co. offers Web applications, including blogging, Facebook and Twitter integration, but its chief offerings are in its mobile carrier product line, for which consumers pay extra. DataText Co. has partnerships with many mobile carriers, predominately in Europe. The supplier has had limited penetration in the United States, although market trends and research suggest an increasing interest in the applications it provides.

**Supplier Selection Process**

This case is somewhat unusual as an example of supplier innovation, as it is as much about the supplier selecting the right buyer as it is the buyer finding the right supplier. DataText Co. has a formal process for determining how and when to approach potential customers with new products. DataText Co. is relatively small, and its closely knit management team can make rapid decisions about such matters. Key account managers at DataText Co. are in very close communications with corporate, and the executives have a good understanding of market position.

DataText Co. had already developed the core technology for data-to-text and was supplying that technology in European markets. It was trying to find a U.S.-based carrier to collaborate with in order to develop the appropriate interfaces and to introduce the service quickly in the U.S. It had already partnered with a regional carrier in the U.S., but it needed to penetrate a larger market. While some large carriers talk about deploying innovation, they are not innovating at the speed desired. In fact, they are considered quite slow in deployment. In addition, the big carriers tend to be a bit closed to externally generated innovative ideas. At the other extreme, small carriers are simply trying to sell whatever they can, and they do not offer significant market opportunity. Midsize companies like I-Com are motivated to innovate rapidly, yet they have robust processes in place to ensure that the product/service is

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**Implementing Supplier Innovation:**

Collaboration, insourcing, and outsourcing can be complex and require careful planning. This case study provides insights into how I-Com and DataText Co. worked together to develop and market a successful data-to-text application. The decision process involved in selecting the right supplier and engaging in collaboration is crucial for success in this industry. The focus on unique data and data management approaches highlights the importance of innovation in the communications sector. The case study findings suggest that companies like I-Com can benefit from external partnerships to innovate quickly and effectively.

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36 Implementing Supplier Innovation: Case Study Findings
of appropriate quality and built to market needs. The issues for DataText Co. were the length of time it would take to get something done and what it would get out of the partnership.

To find an appropriate partner, DataText Co. initially spent significant time developing an understanding of the U.S. carrier market and how the companies competed and behaved. It tried to understand key products and services and how quickly the carriers responded to market conditions. DataText Co. spent a great deal of time trying to understand the underlying processes at the companies. It talked with several U.S. carriers to conduct due diligence concerning partnerships. I-Com was viewed as being the “right size” and as having the appropriate approach to innovation management — and as a good carrier with a national customer base. Two key factors that made I-Com particularly attractive were speed to market and its willingness to collaborate. It was considered a company that could get things done, and it had a reputation of being quick to market with new applications, which was a key determinant of preferred selection by DataText Co. DataText Co. believed that the technology would be nimble — move quickly, deploy quickly, learn during deployment, adapt and execute well. Some other DataText Co. customers also had some of those qualities, but I-Com distinguished itself by its willingness to collaborate.

If DataText Co. had worked with a larger carrier, it would have been like going for a “moon launch.” Scalability from the technology side is important. While the underlying technology is very similar from company to company, telecom processing with a large carrier is very volume heavy. A supplier can stretch itself too far as an organization in terms of the operations required. With I-Com there could be a million transactions a day, while with the largest carrier there could be 5 million transactions. This larger carrier would require more infrastructure, software, mainframes, people and processes to support the project.

After initially being approached by DataText Co., I-Com performed due diligence by looking at other competing products and vetting other suppliers for this type of product. I-Com did not default to DataText Co., which conducted a trial to demonstrate the concept and service to I-Com. The product offering was deemed technically sophisticated enough to be meaningful to I-Com. It believed that the technology would be successful, that a market existed for the service and that it would gain knowledge from the product development and introduction. Further, I-Com viewed DataText Co. as different from other suppliers in regards to pricing, as the two companies worked together to understand the market and jointly develop potential pricing models before I-Com selected DataText Co.

**Contract Development and Management**

**IP Issues: Not a Problem**

I-Com had little interest in capturing a supplier’s intellectual property (IP), so the companies did not spend much time negotiating IP issues. The relationship started with a nondisclosure agreement (NDA), which seemed to suffice. I-Com and DataText Co. shared information freely and trusted each other — perhaps because DataText Co. was a hosted service rather than a hardware product.

Most of what DataText Co. was offering was already supplier-owned IP. Most of what I-Com was bringing to the project was covered by the IP in its data conversion hardware system. The challenge in collaboration was working the interfaces to one another’s products. No new product was to be jointly developed; the effort focused on integration of two existing IP-protected products. The one initial concern for I-Com was that DataText Co. did, in fact, own the data-to-text IP exclusively and not in conjunction with any other company, supplier or otherwise. Given the nature of the product (competing options), IP ownership was never a significant issue with DataText Co. and I-Com.

**Risk and Reward Sharing**

There was a constant ongoing discussion of pricing from two perspectives:

- What should I-Com charge for the service?
- How should that money be allocated, and who should receive what?

DataText Co. was not comfortable telling customers what to charge for a service, but because of the open business relationship in place the topic was discussed. Many carriers are very rigid in their pricing model development, which can be detrimental to new offerings because every region’s pricing models are somewhat different. I-Com was able to focus on customer satisfaction as the basis for setting price and the resulting model.

The business contract was structured so that DataText Co. only made money if I-Com generated revenue exceeding DataText charges from the new product. The pricing model was jointly developed and was a point of ongoing discussions between the two parties that were described as “open and dynamic.” In addition, the pricing model changed when necessary, and the product proved profitable after some initial market penetration challenges.
The technical model drove the commercial model. Initially, the charge to customers for data-to-text services was “per data message translated into text.” The “de-risking” nature of this first pricing model drove up price to the consumer. Sales initially did not meet the forecast, and the commercial model had to be modified to enhance the customer value proposition. A new monthly pricing structure for text message translations was agreed upon. The companies re-launched the product in trial as a “first month free” service instead of charging a per-message fee for active users. I-Com initially paid for its employees to have the service free or at a reduced cost. This new pricing model increased the revenue risk for DataText Co., but decreased the per-unit charge for the consumer — a model that met with success.

Both parties had development costs at risk. DataText Co. bore all of the costs of product development and proof of concept, while I-Com incurred internal development and execution costs. The two parties shared some other costs. They agreed that I-Com would pay integration costs, but that the product trial would be free to I-Com. Much of the new collaboration costs focused on the integration of technology rather than the development of new technologies and their integration. The other key cost component was the market risk taken by DataText Co. It was very important to DataText Co. that both parties shared risk during the revenue model change. I-Com considered the risk sharing equitable.

Collaboration Strategy, Structure and Process

Organization and Communication
From the beginning, there were high-level conversations about the business relationship. Executive-level personnel involved in the relationship included the director of data products, the senior vice president of product management and marketing, and the executive vice president of marketing.

For DataText Co., these top-level conversations were critical. The company believed that an innovation partner’s engagement with the customer depends upon the customer. At I-Com, the product marketing team is a core decision maker and the engine that drives revenue for the company. Many activities, not just traditional marketing, revolve around product marketing at I-Com. DataText Co. put considerable energy into managing the relationship with I-Com’s product marketing group, which allowed product marketing at both companies to jointly understand the ultimate consumer. This “joint selling” of the service to the final customer was a very important aspect of this case and points to the full use of supplier commercial capabilities. Eventually, DataText Co. and I-Com personnel concurrently visited stores to train people how to use the product.

DataText Co. had an interfacing process for taking new products to market and for interfacing with the customer that seemed to be quite effective. The goal of the process was to interface with customer personnel who have intimate knowledge of their customers and needs, which is why DataText Co. started talking with I-Com’s product marketing organization. DataText Co. is a matrixed organization and can make quick decisions. It routinely scans market and pricing, and has constant communication with corporate on how key accounts are doing.

As it became clear that the two companies would collaborate, conversations cascaded throughout the organizations. Technology personnel and management personnel became involved subsequent to this top management buy-in. Conversations were held with top management to establish “how things would work” — the business relationships and processes — and subsequently with technology personnel who would be writing code to “make it work.”

I-Com employees moved quickly with the concept and product ideas in general, and were excited about the product. A winning strategy for DataText Co. involved working with the product marketing manager at I-Com. The manager “did the heavy blocking and tackling” for the relationship. He was the communications link between the sales manager at DataText Co. and the director of data products at I-Com. At some carriers, entry into the company is through engineering. At I-Com, product marketing is the development process hub and entry point. This led to a rapid product development process, since product marketing has the VOC orientation and can integrate marketing and advertising efforts.

Stage-Gate Process
The data-to-text product went through a stage-gate new product introduction process at I-Com. While some companies use this type of process to winnow out products and eliminate all risks, I-Com uses it to get problems solved effectively and efficiently. At I-Com this process acts as a facilitator for quick, smooth execution. The new product introduction process was not viewed by DataText Co. as a way to cull out new products that had a low probability of success. This same perspective was not the normal mode for most other DataText Co. customers.
Ongoing Communications

DataText Co. focused on keeping I-Com ahead of the competition and innovating on this product. Personnel at all levels in each organization had to make this innovation work. Both an I-Com account manager (sales) and a marketing manager were specifically dedicated to such efforts. For the most part, product extensions and innovations come from subscriber input, as with the voice-to-blog feature. Technology roadmaps were developed by DataText Co. and opened to I-Com for feedback. Continuous change and innovation are critical to success in this industry and in this partnership. Figure 5-1 shows how the change/innovation cycle flows.

The two companies were very open with commercial discussions early on, which enabled subsequent innovation discussions. They shared their business models, and established strong touch points at the management level. This partnership is an example of a business best practice because it has:

- A partnership at the working level
- Management believing in the project and allowing the teams to work
- Direct lines of communication within and between companies
- An established level of trust while producing results

Project Challenges and Opportunities for Improvement

Prepare for Bumps in the Road

In any new product/service development and execution process there will be some “bumps in the road.” For the I-Com-DataText Co. relationship, challenges arose on both the commercial and technical aspects of the project. Resolution of the challenges required simultaneous coordination of commercial and technical considerations.

Carefully Plan Pricing Model

The initial commercial model (pricing) was, in hindsight, clearly wrong. As a result, initial sales were below target. The pricing model may have been inappropriate because this was the first major implementation of the service in the U.S. DataText Co. initiated discussions on a new pricing model, which created more revenue risk for itself. The companies hit a stumbling block at “re-risking” the pricing model, and it took significant time to get past that hurdle, costing several months of potential revenue. It took executive involvement from both companies to break the logjam because top-level management had to make the decisions regarding risk/reward sharing. On an emotional level, the executives had to feel more comfortable with each other. On a practical level, there was some “moving around of money” that helped offset risk and break the logjam.

Do Not Move Too Quickly

During initial startup, there were some fast-paced trials that may have gone “too fast.” Also, technical problems occurred that might have been avoided or resolved sooner if the DataText Co. trials had taken more time. However, I-Com recognized that there would be problems and worked with DataText Co. to resolve them. Once again, the vertical collaborative relationships within each firm were as important as the horizontal collaborative relationship between DataText Co. and I-Com. For example, when the product was first rolled out the customer had to manually set up the data-to-text account, including a pin number. The process was completely under the control of the user and was difficult to undergo. DataText Co. worked with I-Com so that the accounts are now automatically set up when a subscriber buys data-to-text monthly service.

Innovation Project Results

Both parties considered the project to be a success. The product development process was relatively short (six months), and market penetration was on target after revision of the pricing model. The success was largely driven by the high level of support throughout the organizations, including technical and supply management as well as marketing and executive management.

Figure 5-1

The Change/Innovation Cycle

[Diagram of change/innovation cycle: Initial Trial > Learn > Feedback to Supplier > Innovate > New Trial]

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The business relationship processes and outcomes were also viewed as successful. Both firms started the innovation relationship at the appropriate level, and multilevel relationships were effectively built and maintained. These relationships were built around value-based interactions and collaborations. Both firms communicated clearly and openly. DataText Co. viewed the customer’s business model as a relationship-building opportunity and continually invested resources into the customer relationship.

Some product extensions in the data-to-text service were developed based on subscriber input, such as the convergence of data and text messaging logins. These logins were initially separate processes at I-Com, which frustrated customers. Now, the logins are done instantaneously following a jointly managed change by DataText Co. and I-Com. DataText Co. made some of these customer-requested changes, while others were made by the carrier. In many ways, DataText Co. is driving extensions. The company knows the core products, capabilities and the market. For example, text-to-blogs is possible, but I-Com has not yet adopted this extension.

Supply Management’s Role

There are two diametrically opposed approaches that a supply management organization can take in sourcing:

1. “Bashing” supplier prices down without understanding the product and/or entire impact of such actions on relationship and other products.
2. Focusing on total value by understanding the product and the relationship between the buyer and supplier.

Supply management at I-Com shifted from the “classic” procurement approach of price bashing to a collaborative relationship model that focuses on total value. At the outset, I-Com supply management did not place much focus on bringing the price down. Currently, supply management is still focused on both facilitation and achieving competitive prices. This new focus was driven by the I-Com supply management director, who values a holistic skill set and knowledge.

I-Com supply management continues to look for new suppliers. However, the organization is not necessarily looking for suppliers to meet specified needs, but for innovative suppliers with new ideas. Doing so requires a thorough understanding of both the VOC and the voice of the supplier.

Supply management was a key facilitator and remained actively engaged throughout the I-Com new product introduction process. Its role increased as the project progressed, as a handoff of the lead role from product marketing to supply management occurred.

DataText Co. believed it had a strong working relationship and a positive experience with I-Com’s supply management organization, describing the relationship as “collaborative.” DataText Co. had several value-added discussions with supply management to make sure that processes and products were understood, as well as how the business relationship should proceed. Supply management clearly understood the I-Com business model and what both partners were trying to achieve. In other words, supply management understood the VOC and communicated this undertaking to DataText Co. effectively. Supply management was able to represent the financial interests of I-Com relative to customer needs, and both I-Com and DataText Co. viewed supply management at I-Com as an asset.

In summary, the role that I-Com’s supply management organization played in the partnership involved more than product pricing. It focused on creating and maintaining a positive working relationship. Supply management brought in other personnel and functions to help support the partnership relationship, while protecting I-Com’s financial position. Supply management’s role was to understand the new product and develop a mutually beneficial relationship with the supplier.

Important Lessons

Lesson 1: Establish High-Level Relationships Early
Hold conversations early in the process with upper management to establish “how things will work” — the business relationships and processes — then work with the technology and sales/marketing departments to “make it work.”

Lesson 2: Communicate Frequently
There needs to be constant, ongoing communication between the buying firm and the supplier. Multilevel relationships must be effectively built and maintained around value-based interactions and collaborations.

Lesson 3: Deliberately Plan Commercial Relationships
There are two parts of a buyer and supplier relationship that need careful planning — the setup piece and the
ongoing piece. For example, contracts can — and at times should — have built-in exclusivity arrangements and/or supplier preference agreements. The value for the supplier should not be esoteric or subtle; suppliers need to be given an explicit understanding of the value in the relationship.

Lesson 4: Define Project Champions
Who is going to do the heavy lifting and the blocking and tackling during the innovation development process? A single point of contact or champion at both firms can get things done during development and deployment.

Lesson 5: Invest in the Relationship
Any good relationship needs investment by the buying firm at a level that is meaningful enough to signal to the supplier that the buying firm will keep interest and follow through. In this case study, the partnership established with the buying firm was important to both the supplier and the successful product launch. Multilevel relationships were effectively built and maintained. These relationships were built around value-based interactions and collaborations.

Lesson 6: Listen to the Voice of the Customer
Supply management from the buying firm must be engaged in trying to find a valuable solution for the end customer, and not focus solely on its own business model. The supplier, if it understands the customer’s business model, can contribute to revenue growth.

Lesson 7: Jointly Optimize Pricing/Service Models
Both parties took responsibility for initiating the change in the consumer pricing policy. Both parties saw the change as increasing the risk for themselves and decreasing the risk for the end consumer.

Lesson 8: Multiple Entry Points Are Needed
There likely will be and probably should be multiple entry points for new ideas/innovations.

Lesson 9: Manage Risks Holistically
Commercial (revenue) risk, not IP or technical risk, is often the biggest concern of the supplier.

Lesson 10: Be Nimble
The supplier needs to feel that the buyer is nimble — that it can move and deploy quickly, learn and adapt during deployment and execute well. The advantages of size matching are clearly seen in this case study. The parties were not the same size, but both were of a size that could work together closely and quickly.

Lesson 11: Allow for Cultural Change
Both firms should understand that there will be bumps in the road. These bumps are not just technical; they can be cultural and emotional and change may be required. Trust is important — from honoring nondisclosure statements to working collaboratively to get problems fixed.

Lesson 12: Use the Stage-Gate Process as a Success Driver
The stage-gate NPD process should not be seen as a way to stop new projects. Instead, the process should be viewed as a way to make things work. This perspective is not the normal mode for most firms.

Lesson 13: Expand Supply Management’s Mandate
At I-Com, supply management played the role of auditor in evaluating the financial value of projects in the NPD process. Supply management should be engaged in understanding the product and customers. It should not just be “buyers.” It needs to be customer-centric and focused on the actual end consumer, not just the next person with whom it comes in contact. Supply management still needs to negotiate price at some point. But with a customer-centric perspective the discussion is not just around price, but about overall service. This is the contrast between merely “buying things” and genuinely meeting end-user needs.

Key Insights

- Project leadership correlates to project success. Project leaders are necessary to get projects completed on time and on budget. No innovation project goes entirely according to plan — leaders will be needed to get them back on track, lead the problem solving, oversee the communications, keep the teams together and keep the necessary resources assigned to the project.
- Use the VOC to guide innovation. I-Com closely examines market demand for new products and services to establish the VOC for the business. This VOC is then successfully communicated throughout the organization and key suppliers.
- Supply management’s role should be aligned with the company innovation strategy. At I-Com, supply management played the role of auditor in evaluating the financial value of projects in the NPD process. Supply management should be engaged in understanding the product and customers. It needs to be end-customer centric. What cannot be forgotten is that supply management still needs to negotiate price at some point.
Chapter 6  Case Study: InventCo

Purpose

This case describes the culture and organization of a company with a very successful closed innovation model, highlighting how supply management plays an important role in innovation within a company with a closed model.

Company Background and Competitive Environment

InventCo is a U.S.-based diversified technology company with a global presence in four major business segments. It is among the leading manufacturers of products for many of the industrial and consumer markets it serves. Most InventCo products are developed via the company's expertise in product development, manufacturing and marketing. InventCo products are sold through numerous distribution channels, including directly to users and through numerous wholesalers, distributors and retailers in many countries around the world. In 2008, the majority of its sales and employees were outside of the U.S.

InventCo’s business strategy emphasizes a commitment to grow at a fast pace, using a four-pronged approach that calls for:

- Reinvesting in its core businesses
- Developing adjacent emerging business opportunities
- Expanding on the company’s world-class capabilities internationally
- Acquiring companies in complementary faster growing industries

Company and Supply Innovation Strategy, Structure and Process

At InventCo, innovation is an inherent part of the business model. InventCo defines innovation as the development of something new through the coupling of a differentiated technology with a customer need. Research and development, covering basic scientific research and the application of scientific advances to the development of new and improved products, has driven growth and profits. InventCo gives its researchers wide latitude to pursue research that they find interesting and of potential benefit to the company. One of the pillars of the “InventCo way” is that workers can seek funding from a number of company sources to get their projects off the ground. The company explicitly encourages risk and tolerates failure. To help keep the creative juices flowing, InventCo spends a considerable percentage of its revenue on R&D and funnels money into more than 40 core technology areas. This approach to R&D has resulted in a steady stream of inventions that are covered by new patents, providing an important competitive advantage in many of its businesses.

Six basic principles and practices define InventCo’s innovation culture:

1. Top-down commitment to innovation
2. A culture of individual freedom that allows inventors to pursue things not on their daily work schedule
3. Access to multiple technologies. InventCo has more than 40 technology platforms; one key to success is blending those technologies together to create new technologies and new products
4. Networking, informal and formal — more than 9,000 technical people run their own technical forums, which have the primary objective of keeping people talking to each other
5. Rewards and recognitions — the career paths for scientists and engineers are tied to doing good science and getting that science commercialized.

6. The combination of technology with a customer or societal need

InventCo often designs new manufacturing processes in conjunction with new products. This gives the company the ability to manufacture new products in its own plants, or to outsource the manufacturing to a third party.

InventCo historically has taken a “closed” approach to innovation. Its large investment in R&D has resulted in a technical prowess that churns out a continual stream of new technologies and products. This has allowed InventCo to avoid depending on its supply base for breakthrough technologies, new products or joint ventures. As a consequence, its supply management function has focused on the traditional tasks of sourcing for well-specified parts and components and working with suppliers to ensure competitive quality, delivery and cost. Finding suppliers to collaborate with InventCo on new technologies is generally not necessary.

**New Product “Ideation” Process**

InventCo has a long history of inventing successful products in its own laboratories. Corporate labs investigate new science and technologies that may be far removed from application in a product. They are in constant communication with renowned university and government labs on new scientific discoveries and developments. The corporate labs create new technology “platforms” that often become the basis for new product development across several strategic business units (SBUs). To get ideas for using a technology in new products, the company strongly encourages technical platform people to talk with marketing people about consumer needs.

The company has a strong marketing group that is continually listening to the voice of the customer and trading partners (business customers, distributors and retailers) down the supply chain. Each SBU has an “ideation” process with sales/marketing and labs constantly looking for new product and business opportunities.

A common new product development (NPD) process is used in all of the SBUs. Once an idea is qualified and begins moving through the product development process, the innovation team faces “go/no go” decisions at every critical milestone. At each gate, decisions are made about which initiatives are ready to go forward, which need more work and which should be stopped.

At every stage the market realities of the new product are reviewed, including projected selling price, cost and volume. Every decision is designed to maximize the productivity of innovation investments and generate shareholder value. Supply management is nearly always involved in the NPD process, sometimes very early on but more often in the latter parts of the concept stage.

**Supplier Role in Ideation**

When suppliers approach InventCo with new ideas, there is a standard process for connecting them to the most appropriate labs and SBUs for review of the ideas. Additionally, opportunities are provided for suppliers to make presentations to groups of scientists and engineers at the company.

InventCo occasionally approaches suppliers and asks them for help developing a new product or idea. The company may offer development contracts to pay the suppliers for their work in exchange for any intellectual property (IP) rights that may be developed. For example, a supplier that owns a proprietary manufacturing process may approach the company with a new product idea that uses its process. InventCo may offer a development contract that does not grant any IP rights for the new product to the supplier. If the supplier accepts the agreement, the project discussion will go forward. If the supplier takes exception to the IP provisions of the contract, the company’s legal department will get involved in the negotiation to help decide how to proceed.

InventCo is now asking packaging suppliers to develop more environmentally friendly or “green” packaging. All of its SBUs have had ideation sessions with packaging suppliers. Sometimes an SBU will work concurrently with multiple packaging suppliers and let them compete by presenting the best new ideas.

**Supplier Innovation Assessment**

Historically, InventCo’s “closed” approach to innovation has made “innovation” assessments of suppliers unnecessary. More recently, as InventCo starts to ask suppliers for more substantial innovation ideas it is beginning to develop a supplier innovation assessment process and related metrics.

**Case-Specific Product and Project Description:**

**The Dirt Destroyer**

Market data clearly indicated a high potential demand for the Dirt Destroyer, a new easy-to-use, highly effective tool for eradicating tough-to-remove particulates and dirt from surfaces. This same research
also made clear that a related product already on the market was not suitable for this task. The potential market and profits from the Dirt Destroyer were thought to be equal to the current product, which had been a steady seller for many years. Importantly, the channel of distribution for both products, primarily big-box retailers, would be the same. During the feasibility and scale-up stages of the NPD process, InventCo shared its market research with the retailers and convinced them to stock and sell the product.

The Dirt Destroyer includes two new substrates, one a permanent part of the product and the other disposable. The disposable substrate attaches to the permanent one and collects the dirt. When the disposable substrate is full of dirt, it is removed by the consumer and replaced with a new substrate. Both substrates are proprietary material for which InventCo also developed the manufacturing processes.

Supplier Selection Process

During the feasibility stage of the Dirt Destroyer NPD process, supply management was asked to find two suppliers to support the product. One supplier was needed to develop molded parts to InventCo specifications and a second supplier was needed to develop innovative packaging for the product. On occasion InventCo invites new suppliers to bid on development projects, but its preference is to stick with its qualified preferred suppliers. Due to the need for a compressed cycle time on this project, the search for suppliers was limited to those already on the preferred supplier list.

InventCo developed a prototype for the Dirt Destroyer and sent prototypes and design performance requirements to select preferred suppliers. One design requirement was that the molded handle had to be clear, non-translucent and bubble-free, with a tight friction fit. The molding supplier was expected to make innovation contributions to aesthetics and manufacturing processes rather than product performance. The supplier also would have to design a manufacturing process for applying the permanent substrate from InventCo to the molded assembly.

The suppliers selected to bid on the project were asked to submit quotes for development work, scale-up and final production. The development work was to be paid for in the piece price paid, which would adjust down after the supplier recovered the development costs.

In selecting the final suppliers for this project, supply management first looked for competitive costs. The second screen was an assessment of the supplier’s technical and engineering resources available for the project. This assessment was somewhat subjective and tended to capture “relationship” management issues rather than technical capability directly. Finally, proximity and ease of communication were considered in the selection process. The selection of local suppliers for assembly and packaging would help reduce the development cycle time.

In the end, local, preferred supplier PowerMold was selected for molding the parts, assembling the molded parts with the InventCo-provided substrates into a finished product and shipping the assembled product to the packaging supplier. The packaging supplier packed individual units, prepared them for shipping and shipped them to the retailers.

Contract Development and Management

InventCo had a master agreement (MA) with PowerMold that included the handling of development agreements. PowerMold was not paid for its design and test work, but was allowed to recover its tooling costs. PowerMold paid for the tooling upfront and recovered this cost by its margins on the piece price to InventCo until the tooling was fully amortized. PowerMold and the packaging supplier were given three-year production contracts, but not a guaranteed volume of business. Although the projected launch volume was high, there was no guarantee for long-term production. In fact, if the volume grew to be high enough, InventCo could conceivably insource the manufacturing to reduce costs.

Contract negotiation time was short, as PowerMold had experience working with InventCo and knew what to expect in terms of development cost recovery and IP rights. This left more time for PowerMold to perform its development work and gave InventCo confidence that the work would be done on time and at target quality and cost levels.

Project Challenges and Opportunities for Improvement

Meeting the Challenge of a Short Development Cycle

InventCo took an unusually long time to finish the concept and feasibility stages and complete the specifications and drawings. This left only four months from feasibility review to market introduction and delayed the sourcing of the molded parts and
packaging. To meet this tight time schedule, supply management only considered current preferred suppliers to work on the project. Fortunately, capable suppliers were readily identified. However, the brief time allowed for the search precluded a search for perhaps an even more capable supplier.

PowerMold and the packaging supplier were located near the InventCo product development facilities, easing communications and exchange of technical data. Both suppliers had experience in working with InventCo on other products and projects. In addition, both suppliers assigned a sales representative with a technical background and a manufacturing engineer to the project.

Technical Challenges
Although the suppliers finished their development work on time, the short cycle time contributed to an unanticipated manufacturing problem. It was envisioned that joining the permanent substrate to the molded parts would be done through an automated process. However, this proved to be a difficult task. Instead, manual assembly by a manufacturing operator was required to complete the process, which increased the production costs. Though market launch was on time, the manufacturing glitch led to a price increase from PowerMold to cover manufacturing capability adjustments and redesign. However, the project remained within budget. PowerMold hopes to develop automation to apply the substrate, with a projected capital cost of $60,000 to $100,000.

Innovation Project Results
Despite the difficulties with the manufacturing process, the Dirt Destroyer was introduced to the market on time and within budget. The initial sales targets were achieved and the Dirt Destroyer continues to do well with consumers.

Supply Management’s Role
Supply management’s role in the NPD project was to find competitive and competent suppliers to collaborate on the project. Because a relatively small amount of innovation was expected from the suppliers, supply management was brought in late in the process. Nonetheless, because it had developed a base of qualified suppliers, supply management was successful in finding competitive suppliers in time to meet the project schedule.

Important Lessons

Lesson 1: Supply Management Can Speed Innovation
Supply management has a key role to play in speeding innovation. It can identify qualified suppliers that can respond to proposals on a short lead-time basis. It can identify potential suppliers with a positive record of innovating in general and innovating in areas germane to a particular project. Supply management also can identify suppliers and work with them to ease the communications challenges present with all NPD projects. Additionally, supply management can facilitate the collaboration and interaction between suppliers if more than one supplier is needed for the development project.

Lesson 2: Involve Supply Management Early
Involving supply management early in the NPD process can bring big rewards. Most of the value of a new product is created in the early stages of the NPD process. Suppliers brought into this process early will have more time to contribute unique ideas, technologies and developments to the project. Good communications will keep suppliers synchronized so that when their contribution is needed they will be ready and the project will not be delayed.

Lesson 3: Technology Platforms Can Speed Innovation
Building new products from a technology platform significantly increases development speed. New technology platforms developed at corporate labs should be available to the SBU/product development labs for development of new products. Cross-fertilization of ideas and techniques among SBUs also works to stimulate new product ideas, improve existing ideas with new technology and open up new markets by modifying existing products.

Lesson 4: All NPD Projects Need Supplier Input
Even companies with strong internal R&D capabilities and closed innovation strategies will eventually need some supplier input to complete NPD and go-to-market cycles. It is important to nourish these suppliers and have them ready when needed.

Lesson 5: Suppliers Will Exchange IP Rights for Market Access
Large companies can exchange their market power and reach for IP rights from smaller suppliers. In many cases, small suppliers — even if they have great new technology or products — face insurmountable challenges in getting their ideas to market. Partnering
with a larger company that has established channels of distribution and brand recognition can benefit both companies. Giving up some or all IP rights may be the best avenue available to turn potential IP value into realized value.

Lesson 6: Consider New Manufacturing Processes During NPD

New manufacturing processes may have to be invented for new products built with new technology. These new manufacturing processes need to be developed in tandem with the new product. Unanticipated problems in manufacturing can slow the development process and add unexpected costs.

Lesson 7: Carefully Evaluate Supplier Agreements

Buying companies should fairly compensate suppliers for their work on NPD projects. Fair compensation also includes sharing the development risks. Approaches include:

- A standard contract that can be modified as necessary to accommodate each new product/supplier situation. Such contracts will speed the process of reaching agreements.

- A contract that pays the supplier for work on developing its part of the project. This minimizes the development risk for suppliers since they get paid for their work even if the new product is not successful. In this arrangement, the IP rights to the development will likely go to the buying firm. However, some other arrangement might be reached depending on relative market power, the value of the IP rights and the profit/volume potential of the product.

- A contract that allows suppliers to recoup their development (and tooling) costs through the price charged to the buying company. After the supplier recoups the development costs, the price can drop to a level to cover the supplier's manufacturing costs plus a profit margin. This increases the risk for the supplier because if the product volumes are low, it may take a long time to recoup development costs. Tooling costs may be separately considered, with the buying company guaranteeing that the suppliers will be paid for their tooling cost. Or the buying company may simply pay for the tooling costs as they are incurred and take ownership of the tooling.

Key Insight

- Supply management has a role to play in all innovation strategies. For a company with a closed strategy that engages suppliers late in the NPD process, creating an “innovation-capable” set of suppliers can help keep the project on schedule. Engaging suppliers earlier, even in a closed innovation environment that asks suppliers for only modest contributions, can add value and reduce risks for the project.
Purpose

This case study illustrates how a large, vertically integrated firm addresses cultural and organizational issues to support the change to innovation sourcing and collaboration with external suppliers. It also provides insights into competitive supplier assessment and selection processes, and the need to develop and support the resulting collaborative relationship.

Company Background and Competitive Environment

ECOMP, a large, global firm that designs, manufactures and sells worldwide, has sales in the billions of dollars and competes against a handful of other large worldwide firms. It sells products in more than 100 countries. Competing firms invest significantly in research and development to bring product innovations to the marketplace. The products take months, even years, to develop and have multiyear product life cycles. Sales are business-to-business and are important to customer performance. Technology introduction is important to the firm’s success. Product selling prices range from tens to hundreds of thousands of dollars. The business customers are sophisticated decision makers looking for innovation and leading-edge technology to benefit their customers. ECOMP focuses on the design and installation of fully integrated systems, with mission critical subsystems insourced. Non-critical subsystems have also been made internally, but ECOMP now is increasingly turning to its supply base for innovation.

ECOMP is a technology leader and believed that suppliers were generally “followers” rather than technology “leaders.” However, the firm was attempting to gain more innovation from suppliers, especially in areas not considered to be a core technology or competency. Cost improvement and achieving supplier innovation in order to contribute to timely product/system innovation for customers will be required to compete in the future.

Company and Supply Innovation Strategy, Structure and Process

ECOMP is heavily focused on innovation as a lever for longer term competitive success and established an innovation strategy within its overall product development process. Product development includes an annual cycle of product strategy development, opportunity creation and technology road-mapping. Recently, the company drove two major organizational changes to better leverage internal and external innovation capabilities — a common innovation process and a new role for supply management.

A common technology and product development process shown in Figure 7-1 was being implemented across multiple business units in the company. This framework ensured that each development effort was linked to the product(s) life cycle and the overall portfolio of product platforms and products, including an evaluation of resources available across the company before initiating a new project.

There are two major interdependent stages to the innovation process. Long- to intermediate-term planning involves the development of new technologies, portfolio management of products and projects, knowledge development and platform generation. Intermediate to shorter term planning and processes involve the “commercialization” of a new product. During each stage, strategic imperatives and internal
capabilities are compared to technical needs to make insourcing/outsourcing decisions and identify opportunities for collaboration.

In addition, the pace of technological change, lead time pressures, financial constraints, intense global competition and availability of qualified suppliers led ECOMP to recognize the increasing need to involve suppliers in the innovation process. Therefore, concurrent with development of a standardized innovation process, the company believed it needed to shift the current supply management and company innovation paradigm to enable early supplier involvement.

This transformation required a change in structure, process and mindset across multiple functions. For example, supply management traditionally had been involved in the later stages of product development. ECOMP now involved supply management in the complete value chain. This required the implementation of new programs and tools that were aligned and standardized across business units on a companywide basis.

The transformation also required a shift from what had been primarily a price focus to a more holistic focus on quality, value and total cost of ownership. ECOMP had increasingly involved suppliers more closely in the product development process and innovation in an effort to establish a foundation for an ecosystem based on “open innovation.”

Suppliers were willing to develop close relationships and engage in co-development with ECOMP for a variety of reasons. ECOMP was known as an innovative company and trusted customer. It provided suppliers access to channels leading to new and larger markets. To further motivate collaboration, ECOMP was standardizing its work processes, communications, trust-building and risk-/reward-sharing approaches.
Industry characteristics were supportive of innovation collaboration. In fast-paced technology industries such as consumer electronics, original design manufacturers (ODMs) dominate and drive innovation, which limits collaboration. In longer term product and technology life-cycle industries, such as automotive, healthcare and aerospace, original equipment manufacturers (OEMs) are able to focus innovation efforts with longer term strategic suppliers. ECOMP primarily played in the longer life-cycle competitive space.

Some of the most significant challenges to this new perspective and approach came from within ECOMP. The supply management group wanted to achieve supplier innovation more quickly than the R&D group did. This was due to past practices, as ECOMP had been highly vertically integrated. Typical concerns of the internal R&D groups were loss of intellectual property (IP), loss of control and the “not invented here” syndrome. Supply management also wanted a smaller supply base and to focus innovation efforts on suppliers that had innovation capabilities.

**Case-Specific Product and Project Description:**

**The Electronic/Mechanical System**

The Electronic/Mechanical System (E/MS) was an overhead suspension system that enabled placement of TV-like monitors to assist technical personnel working on complex projects. The E/MS provided for flexible, freely rotating positioning of two to eight monitors, depending on need and size. The monitors moved transversally, longitudinally and symmetrically over the system axis. The suspension allowed motorized height adjustment. User-friendliness and safety were of prime importance to such products. The systems also needed to provide a high degree of adaptation to different applications, which required modular components and standardized interfaces. The new E/MS development requiring innovation was a collaborative effort by ECOMP and a new supplier, Frameco.

**Voice of the Customer**

The need for an updated E/MS was identified during an overall project to identify the “working environment of the future.” ECOMP conducted its “customer insight” process with marketing, application specialists and an internal design group. After extensive analysis, including visits to more than 30 customers worldwide and open-ended question interviews, the following key user and E/MS needs were established:
- Increased flexibility and multipurpose space utilization
- Improvement in efficiencies and work flows (i.e., less time required of the technicians to use the E/MS and enhanced movement of users and others in the workspace)
- Reduction of clutter in the workspace in the form of cables and wiring

In addition, the idea of creating a “command and control” center in the workspace (a cockpit area) to improve displays from multiple E/MSs was also established during voice of the customer (VOC) sessions. Redesign of the E/MS would also need to meet other functional and business requirements, such as:
- Ease of use
- Cost reduction of 25 percent from the current E/MS
- Hidden cables
- Reduced weight
- Improved reliability and quality compared to prior system
- Improved movement capabilities
- Ability to adapt to future design and features (e.g., voice controls, intercoms)
- Integration of standard parts (e.g., IR sensor, X-ray on light, temperature sensor)

The old E/MS could not meet the identified needs and requirements, nor could it be redesigned to meet those needs. The previous E/MS was bulky and did not allow for mounting of the larger color display monitors, and it was difficult to add new features such as voice controls.

The VOC efforts also helped ECOMP identify the requirements for suppliers that would be needed to support the project. However, suppliers were not engaged in VOC. ECOMP already knew about current applications in the market, so there was no value in involving suppliers early in its efforts. In addition, the project was so new that ECOMP did not believe that suppliers could add value at such an early stage. The supplier ultimately selected to work on the project, Frameco, was not a current supplier, so it would not have been involved in direct communications with the ECOMP customers.

**Insourcing/Outsourcing and Collaboration Decision Process**

ECOMP formed a small project team to determine how it would purchase, design, make or outsource a new E/MS. A review of the internal ECOMP product lines and catalogs failed to identify an off-the-shelf solution. The most likely options were a new innovative E/MS or
the adaptation of a product that provided similar functions in a different application. Although ECOMP had historically insourced development of such items, the items now were identified as non-core products. The E/MS technologies were not advanced, and products could be developed by several companies. Also, the E/MS was not considered to be a discriminating factor for customers. In addition, the internal team tried to involve suppliers who offered off-the-shelf products. However, an off-the-shelf solution could not be provided by these suppliers. Therefore, the decision was made to outsource the development and manufacture of the new E/MS.

However, it was recognized that there were risks in outsourcing. For example, suppliers could make a seemingly minor product, material or process design change without informing ECOMP. Even minor changes could impact the entire system and the system qualifications requested by customers. Therefore, change control would have to be a critical focus.

ECOMP traditionally provided detailed performance specifications to suppliers. In this case, the decision was made to provide higher level “functional requirements” to the supplier and empower it to develop the technical specifications. The supplier would need to understand the overall working environment in which this product was used as well as the product-specific functional requirements to ensure seamless integration. Final industrial design would be the responsibility of ECOMP to ensure that the product was consistent with the company look and user experiences. The supplier would be responsible for design and development of the technical specifications.

Supplier Selection Process

Incumbent ECOMP suppliers could only manufacture products to the specifications provided. They lacked the design and development capability to support this outsourced project and its need for product innovation. New suppliers needed to be identified, and the selected supplier had to have its own innovation capabilities and applications knowledge. In order to outsource “total solutions” and achieve added value from external suppliers, ECOMP had to either develop current suppliers or find new suppliers.

The supplier selection process occurred in five steps:

1. Define the business requirements — This step included analysis of the outsourcing level required, determination of required supplier capabilities, generation of potential supplier profiles and preliminary assessment of IP and product ownership needs. These business requirements were established primarily by marketing, R&D and technology, with support from supply management.

2. Define a short list — A short list of potential suppliers with the potential to meet the business requirements was developed. R&D and supply management developed the short list and both looked at components worldwide. R&D was responsible for providing/developing the technology roadmaps, while supply management was primarily responsible for “getting” the technology to support the roadmap. During projects, both departments worked together to identify potential sources of supply. To define the short list, they aligned supplier capabilities with the global commodity strategy and used a worldwide search, existing supply base analysis, Internet searches, trade shows and other sources. Key discriminators included the available catalog in E/MS, market and application knowledge, the ability to take full product ownership and business match. Seven new potential suppliers, two in the U.S. and five in Europe, were identified.

3. Initial supplier selection — From the short list, three main candidate suppliers were identified. These companies were the only firms with industry-specific applications knowledge and the capability to develop and manufacture the product. One of the three was eliminated because of its strong alliance with a major ECOMP competitor. A remaining potential supplier, Frameco, was a market leader in suspension systems, with a strong focus on OEM customers and E/MS. It was one of the largest and most important suppliers with respect to spring-balanced overhead suspension systems in the world. Frameco already provided related products to a competitor but had not supplied ECOMP. The other potential supplier, Suspendit, provided a complete range of catalog products.

4. Supplier qualification — To gain insight into Frameco’s and Suspendit’s ability to add value and innovate at the early concept stage of the project, each supplier was asked to conduct a feasibility study for the product. Both had the opportunity to prove their capabilities, particularly in regards to translating functional requirements into a basic design. ECOMP identified six “functional requirements” for the future E/MS and gave the suppliers two weeks to
develop a concept and preliminary specifications. Both suppliers could contact the company during the two-week period to ask for new or clarifying information. Each supplier was provided the same level of information. The suppliers were not provided IP-sensitive information, and supplier-developed information was not shared with the other supplier. The suppliers knew that they were competing against several other suppliers; each had to believe that it had a serious chance of winning the business, as the suppliers took on most of the “entrepreneurial risk” during this feasibility effort through their development spending. ECOMP only paid for limited materials and non-recurring engineering expenses to develop prototypes.

The suppliers were required to develop concepts that ECOMP rated. Frameco showed very good progress on E/MS development. The company carried out reverse engineering on a similar system from another firm that supplied a major competitor of ECOMP. The supplier then established an overview of advantages/disadvantages of the competitive design and began designing the best possible E/MS for the market.

A hands-on “upfront assessment” of each potential supplier’s current product portfolio was also conducted. This provided a judgmental evaluation of how well the supplier met and/or anticipated customer needs in terms of its processes for design, “added value” operations and innovation capabilities. ECOMP also discussed each supplier’s performance with several of its customers to determine how well the supplier met other buying company needs and to assess the supplier’s innovation and level of support. ECOMP believed that same-industry experience was especially important.

This approach was a subjective evaluation, and a detailed early evaluation of supplier innovation capabilities was not in place. Even without a formal assessment, the team believed that it understood the suppliers’ technical capabilities. However, future innovation capabilities and supplier investments were not well known.

Neither of the two suppliers in the feasibility competition had a contract, so the suppliers were “sticking their necks out.” The suppliers needed to recapture investment by winning the production contract and resulting volumes.

Development costs were relatively low for the suppliers. Because each recognized that ECOMP was an important player in the market, the business potential justified the risk taking.

Supplier commitments from ECOMP were limited to a concept and feasibility study. A supplier contribution agreement was signed that covered IP issues and financial obligations. Mutual expectations and responsibilities were defined, and agreement on the main contractual clauses was reached.

5. Supplier selection — ECOMP assembled a small team to conduct a full two-day on-site assessment of Frameco, the supplier that performed better on the feasibility effort. This effort examined a range of capabilities and circumstances, including production systems, quality systems, financial status and manufacturing capabilities. Some “innovation metrics,” such as product development, benchmarking and reverse engineering capabilities, were also used.

Frameco was ultimately selected based on its competitive qualification performance and on-site assessment results. In addition, Frameco was selected over Suspendit because of its business model. While Frameco was working solely for OEMs, Suspendit used dealers to sell its products, which affected price, distribution and communication. It was also conceivable that Suspendit would ultimately become a competitor because of its work with dealers. Final approval from Frameco would have to come from all stakeholders, chiefly engineering, project managers and supply management.

The companies drew up a development agreement for full concept development by Frameco. At the end of the development project, a business contract was signed. The time from project start to initial supplier selection lasted three months. Supplier qualification (concept and feasibility) took six months. The project team then had six months to move from concept to the first version of the product.

Contract Development

As mentioned previously, neither of the suppliers competing for the business were guaranteed a production contract even if selected for development. They both took on some risks, although the winner was
relatively confident that it would receive the production contract.

**Trust and Intellectual Property (IP) Rights**

Nondisclosure agreements (NDAs) with all potential suppliers were in place from the beginning of the process. However, this product was not considered to be extremely complex or high tech, and it was not likely that important IP would be developed. Therefore, ECOMP did not focus significant efforts on IP protection.

Frameco was a new supplier, and ECOMP established Frameco’s “trustworthiness” and “competitiveness” through a review of its general reputation and work with a competitor. Frameco trusted ECOMP because of ECOMP’s reputation for honesty. In the past, when there was a breakdown of “trust” between ECOMP and a supplier, the cause could be traced to systems or unreliable processes rather than the actions of employees, such as intentionally misleading a supplier.

Eventually, an IP agreement was finalized between Frameco and ECOMP. ECOMP generally filed for all application patents and, depending on how advanced the technology was, it could also apply for the manufacturing patents. In this case, ECOMP applied for the application patents while Frameco filed the manufacturing patents. Only one application for a patent resulted from development of the E/MS, and that came from Frameco.

The ownership of the E/MS and drawings resided with Frameco. The supplier was free to use its knowledge to provide other companies with the product. ECOMP did not have access or control of the prints, but the contract enabled ECOMP to reverse engineer the product and source it from any other supplier if, for any reason, Frameco and ECOMP terminated their relationship. This provided competitive pressures at the supplier level and supply protection to ECOMP.

**Collaboration Strategy, Structure and Process**

The two companies established a development project plan that identified the project steps and communication processes for the project team. This project plan included all the people involved, their roles, contact information, communication schedules and project schedule. The plan drove high communications expectations between the companies. Communications were primarily peer-to-peer by email or via face-to-face meetings. Computer-aided design (CAD) models were also shared electronically to good effect.

At ECOMP as well as at Frameco, mechanical and electrical engineers within and across the companies regularly talked with each other. Supply management also was involved from the beginning of the project. Most communications regarding commercial issues were channeled through supply management, while most technical communications were channeled through the engineering project manager. On-site visits and meetings among all groups were also organized. It was important for ECOMP to sit together with key people from Frameco to discuss issues, especially since this was a new supplier.

The technical interfaces between Frameco’s product and ECOMP’s system were simple, so there were limited technical issues. However, the two companies communicated in detail about design changes, as originally agreed-upon in the development agreement, to ensure that all were working to the same specifications. All design changes, from critical to seemingly minor, typically began with engineer-to-engineer discussions. “Minor” changes were communicated to the project team, while “critical changes” were discussed by the entire team before being adopted. Frameco monitored and reported progress on modification proposals using SAP.

Even though the E/MS was not technologically complex, it was not “easy” to design and develop. New functionality was added to fit different-size monitors without excess gaps between the monitors, while at the same time the E/MS had to be low cost. The overall view of the monitors depended on the size of the monitors installed as well as factors like the framing and handgrips — all of these requirements had to be taken into consideration. All drawings, minutes, communications and other documents were stored using SAP.

The E/MS was designed and developed within a three-stage process:

1. Feasibility of concept proven — This involved module and prototype tests. Category-one risks were mitigated using failure mode and effects analysis (FMEA), and lifetime testing occurred during these tests. Reliability and cost targets were established, and the project plan was developed. Another assessment of Frameco was also conducted that focused in greater detail on its supply chain management processes, overall management, production and development capabilities.

2. Engineering of concept proven — This step included consolidation and assessment of FMEA results and further risk mitigation. Reliability and cost targets were updated, and the project
plan revised accordingly. A prototype also was developed.

3. Pilot run — This final step included the pilot run and production ramp-up leading to finalization of mounting instructions, production and test tooling.

**Project Challenges and Opportunities for Improvement**

On the surface, the concept of hanging an E/MS from a ceiling seems relatively simple. However, given all of the performance, technical, safety and business requirements, the challenges were significant.

**Timing Pressures**

New feasibility models needed to be developed quickly (within six months) for an upcoming trade show. Such shows were critical to sales. Even if ECOMP demonstrated the product and it was well received at the trade show, ECOMP would have to be able to provide the product, or at least an estimate of when the product would be available, to meet customer expectations.

**Outsourcing Resistance**

Although ECOMP was increasing its use of outsourcing, its engineering division preferred that all design and development be done internally and outsourcing be limited. The technical community was somewhat resistant to increased outsourcing, as it might be a threat to their jobs. Therefore, the project team was intentionally kept small and focused. The core team consisted of one person from each company from six different disciplines — project management, supply management, mechanical engineering, R&D, quality management and service — providing for one-to-one contact at each company.

When the first prototype was received from the supplier, several people external to the project team had negative comments about the prototype and supplier. If a supplier made a mistake, ECOMP personnel generally would react negatively to the product and the supplier. But when ECOMP made a mistake, it was rationalized as a way of gaining “advanced insights.” While there were significant differences between how ECOMP and supplier mistakes were judged by some, the project manager took a positive view and limited any impact of the “naysayers,” stating: “The project will continue to completion.” Executive management also supported the project team by reinforcing the outsourcing strategy as important to overall business success.

**Project Team Stability**

During the project, especially at ECOMP, many employees changed positions and responsibilities. For example, the project managers at ECOMP and the supplier had been working closely together, but both left the project before it was finalized. When new people were assigned as project managers, the handoff of information was not always clear, and timing and technical problems developed. ECOMP recognized the need to involve potential “successors” in the project before people, especially project managers, transitioned off the project. This was a small project relative to other projects at ECOMP, so even if ECOMP had a “successor plan” in place it would have been unlikely that this project would have required one.

**Coordination of Supply Chain**

Cabling was critical to E/MS performance and appearance. The cabling systems were very complex, as was the supply chain for the E/MS. For example, a cabling supplier for a different product twice shut down ECOMP operations because of the inadequate management of cable supply, and the company lost significant sales volume. In the past, the integration of cabling with the E/MS was done by ECOMP. However, the project team decided to outsource cabling for the system, which increased uncertainty and risk. In the current situation, ECOMP suggested that Frameco source cabling from ECOMP’s preferred supplier. However, Frameco was not obligated to use this supplier if it demonstrated that another supplier could be qualified and perform better. Nonetheless, it was assumed that the new E/MS would use current cabling from ECOMP’s preferred cabling supplier. At this time, another design group within ECOMP was changing cable specifications, and the group did not notify the E/MS design team or Frameco. The specification change caused E/MS cabling interface problems and project delays when Frameco received the redesigned cable. ECOMP moved quickly to resolve the specifications and potential use problems. In the future, all cabling changes would have to be approved by Frameco.

**Specification Creep**

ECOMP had “frozen” specifications on the E/MS. However, after prototype development the specifications somehow became “unfrozen.” Earlier, the project manager had attempted to “connect all the departments” and obtain design input from them prior to prototype development to prevent design change problems from developing. However, when prototypes were actually in-hand, people become “more serious” about the need for their input and designs and specifications actually changed.
Innovation Project Results

Outcomes from the outsourcing and innovation project were compared to similar prior projects that had been previously executed to determine effectiveness. Overall, the project was determined to be a success. Key performance indicators (KPI) included time-to-market (speed-to-market introduction versus plan), cost (non-recurring engineering and product costs versus plan) and amount of internal resources required to commercialize the new E/MS. In addition, innovation in the product design and material specifications enabled the project to meet VOC requirements. More full-time employees were required for this project than had been expected. This was driven to some degree by the personnel changes during the project, which required extra time to make effective handoffs.

The existing E/MS was the baseline for initial cost targets for the project. The cost target was then adjusted, taking into account innovative design changes and added functionality. Actual costs exceeded targets by 2 to 3 percent due to the specification changes made after prototype. Overall, a 10 to 15 percent cost reduction from the previous E/MS was achieved.

ECOMP also benefited from the skilled and knowledgeable employees at Frameco. Frameco’s role was critical to successful development and finalization of the E/MS design and specifications. It also regularly challenged ECOMP’s thinking and helped drive innovation. Overall, customers responded positively to the E/MS innovations.

Supply Management’s Role

Historically, the product development process at ECOMP had been vertically integrated, with little early involvement of external suppliers. To the extent that external suppliers had been involved in new product development, most efforts focused on incremental innovations. This is changing as the company continues to redefine itself and its processes. The involvement of suppliers and supply management in the innovation process at ECOMP was supported at the executive level. However, change was taking time, in large part due to the industry structure and prior practices at ECOMP. For example:
- ECOMP traditionally did not expect suppliers to provide breakthrough innovations. As a result, many current ECOMP suppliers did not have the capacity and capability to provide major innovations.
- ECOMP typically was not forced to quickly change its strategies, practices or products because of regulation, long product life cycles and large investment requirement, combined with a lower tolerance for risk in the industry.
- Product development times were long and product volumes relatively low. Therefore, many suppliers were not interested in making innovation investments in a low-volume, long timespan product development environment as return on investment took extended time to achieve.
- Product life cycles on some products were relatively long (e.g., 10 years). This forced suppliers to carry capacity to service a low-volume product for a long period of time, without any promise of new business on that product line. Therefore at best, the focus is on incremental innovation after launch.

To help overcome these challenges, supply management was asked to play an increasingly critical role in the innovation process. ECOMP recognized that it needed professionals in supply management with innovation experience and the ability to identify external supply opportunities for innovation. These supply management professionals also needed to manage key supplier relationships. In the past, supply management might switch suppliers to obtain lower prices without a full understanding of ECOMP products and needs. Now, total cost decisions are the focus.

Supply management has responsibilities for a number of activities that support innovation:
- Search for suppliers with innovation capabilities
- Influence the attitude of project teams regarding outsourcing
- Convince ECOMP project teams that a supplier can do the job or grow into it. It is important to demonstrate to the ECOMP team that the supplier has the same level of project and innovation commitment as the ECOMP team does
- Manage cultural differences
- Navigate and reduce process differences

Overall, while supply management continues to play a traditional sourcing role, it also works at the front end of product development and fosters early supplier involvement in an effort to achieve innovation.

Important Lessons

Lesson 1: Suppliers Can Drive Innovation
Overall, E/MS project success was primarily driven by Frameco’s strengths, competencies and contributions.
combined with strong project management. Suppliers selected to support and/or drive innovation can make or break the project.

Lesson 2: Cooperation, Communications Key to Success
Close cooperation between innovation/technical groups, supply management and the supplier was required for success.

Open communications and a clear definition of responsibilities within and across the firms were key to positive and complete information flow and trust development. A structured process was adopted that included clear team definition and responsibilities, project schedules and milestones agreed to by both parties. Even with jointly developed expectations, the companies monitored and adjusted expectations during development as needed. Regularly scheduled supplier meetings were conducted to exchange ideas and monitor progress.

Lesson 3: Manage Personnel Transitions
Personnel transitions could negatively impact project timing and cost. However, transitions could be mitigated through successor planning and frequent communications, which was important to success.

For example, both the supply management and engineering project team leads for ECOMP were concurrently being transitioned to other responsibilities. Neither person had as much time to spend on the project as originally planned. Face-to-face communications with Frameco became less frequent. The reduced communication level lowered Frameco’s focus and effort because it assumed that the project priority had lessened, even though this was not the case.

Lesson 4: Personal Relationships Important
Positive personal relationships between key persons at both companies were important to project success. While robust processes and procedures are important, ultimately it is the people who solve problems. Strong personal relationships were found to enhance communications, raise levels of trust and increase the willingness to solve problems collaboratively.

Lesson 5: Team Members Need to Be Cross-Functional
As suppliers were becoming involved earlier in product development, supply personnel needed a technical background and/or understanding combined with commercial know-how.

Supply management personnel did not need to be “technical experts,” but they needed enough technical knowledge to be good partners with the internal engineering and R&D team as well as suppliers. Similarly, technical personnel should have enough commercial knowledge to know the impact of their actions on costs, contracts and supply relationships. Ultimately, project success required a cross-functional/organizational team effort. Team members had to be able to work together effectively. There was some concern at ECOMP that it should be more integrated across functions to fully support a team approach.

Lesson 6: Culture Change Regarding Supplier Innovation Can Happen Through Strong Leadership and Results
Executive and project leaders at ECOMP were able to change the perceptions that suppliers could not innovate and were not as capable as ECOMP. This was achieved by executive direction that suppliers be a source of innovation, project leadership that treated supplier product innovation problems as fixable as opposed to a reason to fail, demonstrable results, and supply management scouting for and finding excellent suppliers with innovation capabilities.

Key Insights

- Buying firms can stimulate supplier innovation and competition concurrently while working collaboratively.
- Time and resources devoted to understanding current and future supplier innovation capabilities and focus (beyond traditional management, manufacturing/operations and logistical capabilities) is critical to gaining and commercializing supplier innovation.
- Effective project management and personal relationships, with smooth succession of leaders, is a key enabler for achieving innovation success.
- IP emphasis can and should vary based on a firm’s core competency. Maintaining all IP as a blanket policy is not always critical or necessary, and may even stifle supplier innovations.
- Firms need to be aware of and modify a company or functional culture that stifles supplier contributions to innovation.
- Companies need a formal approach to stimulate and achieve supplier innovation, especially when transforming away from a highly vertically integrated model.
Purpose

This case study provides an example of how a global consumer products company was able to work with two of its larger suppliers to provide a required innovation. While both suppliers were important to the company, neither was initially a strategic partner. Because the company was not a strategic partner, the innovation effort required further development of the company’s relationships with each supplier to achieve the necessary innovation. This case study also illustrates how “temporary outsourcing” was used to develop internal capabilities to support future insourcing and innovation efforts.

Company Background and Competitive Environment

DC Corporation is a public company with global operations engaged in the production and sale of nondurable consumer products. DC produces and sells food, beverage and household products. Its vision is to be the first choice of consumers and customers around the world by driving innovative ideas and continuous improvement. The company’s values support innovation and collaboration, including imagination, teamwork and excellence.

DC’s North American businesses were off to a strong start in fiscal 2009. Each of its main divisions reported higher sales and double-digit gains in adjusted operating income in the September quarter. The company was having a more difficult time in foreign markets, where it generates significant revenues. The weakness partly reflected strategic investments made in order to support future growth. A challenging economic environment in key European markets was also a factor, and DC expected these conditions to linger in the quarters ahead.

Company and Supply Innovation Strategy, Structure and Process

DC uses an innovation process similar to the well-known stage-gate processes in which many ideas enter the “wide-rimmed side of a hopper” but are increasingly screened out based on strategic, technical or market requirements. Ideas that make it to the narrow part of the “hopper” then enter the set of screened ideas for stage-gate development.

Innovation is the responsibility of everyone in the organization, including marketing, R&D, finance and supply management. Ideas may come from internal or external and new or existing sources. But while an idea can come from anywhere, every idea must go through a product development evaluation. The company historically had a difficult time determining linkages between new ideas and new product lines. An improved evaluation approach was established early in the evaluation to better match ideas to products and to give the business units a process for matching ideas to product roadmaps.

The degree of intensity of collaborative supplier innovation in the stage-gate process varied by industry, company, product and/or commodity. The degree of open innovation also varied. The company was moving toward an open innovation approach that was in its very earliest stages and was most likely to focus on existing suppliers for needed innovation.
Case-Specific Product and Project Description: Ingredient A-Free Food

DC faced a significant challenge when a certain food additive, “Ingredient A,” that was used in many of the company’s products was deemed “unhealthy,” with government agencies and consumer groups calling for its immediate removal. DC faced a strategic competitive need to remove Ingredient A from all of the food service items it sold in major metropolitan areas. This innovation initiative was driven by the need to comply with a new regional law declaring that artificially added Ingredient A would not be allowed in food service items. This law did not impact products sold directly to consumers because the packaging enabled consumers to read the label and make their own choices. For food services, consumers could not be expected to know the food ingredients, so they warranted protection against Ingredient A. In addition, theIngredient A-free initiative would not initially be carried over to the retail business due to the costs involved (e.g., new formula, new packaging, new marketing, etc.).

Insourcing/Outsourcing and Collaboration Decision Process

The new regulation had significant implications for DC. It had to comply with all regulations to sell food service items in major markets. In addition, other large municipalities were either studying or implementing similar laws. The company also faced a major time constraint, as compliance was required within a year of the regulation’s passage.

The technical and schedule challenges required the company to examine two critical issues:
1. Insourcing/outsourcing: Did they have the internal capabilities and capacity to reformulate existing products toIngredient A-free products?
2. Collaboration: Which external suppliers ofIngredient A-free compounds would be capable of supporting this innovation initiative?

The importance of this market and product line suggested that the process should be insourced. However, DC determined that although it had internal capabilities, given the technical challenge and time concerns, it did not have the resources to manage this effort internally. Therefore, the company decided to temporarily outsource the effort. It hired Good Foods (GF) Consulting, a group of technical scientists with expertise in the food service industry, to initially drive the effort.

DC established a team of six employees and five experts from GF Consulting. This team would have full responsibilities for the Ingredient A-free initiative, including reformulation, sourcing and project planning. GF Consulting would direct the team.

DC typically had primarily developed innovations internally and did not practice “open innovation.” In addition, the company had recently begun to obtain and leverage supplier ideas to a greater extent as it undertook efforts to achieve a more open and collaborative model. Most of DC’s suppliers were complementary rather than competitive, so establishing more collaborative working relationships with suppliers would be possible. Actions to drive increased collaboration with suppliers included:
- Increased supply management responsibilities to support innovation
- Creation of a new vice president, strategic technologies role to support open innovation
- Creation of a new procurement innovation and value improvement manager role
- Creation of a director of open innovation role

These organizational changes helped open the door for innovation and collaboration with external suppliers. The DC team decided that it would need to collaborate with Ingredient A suppliers to meet the technical and timing challenges of the initiative.

Supplier Selection Process

In order to decide which supplier(s) might be best positioned to support CD’s innovation effort, the strategic technologies group and the DC team developed a matrix (shown in Figure 8-1) of all SKUs...
containing Ingredient A and the suppliers that provided the ingredient. For example, supplier 1 (S1) provided ingredient A for product 1 (P1) but not for product 2 (P2). This process was used to screen suppliers and identify where Ingredient A-free solutions already existed and where there were gaps.

The following questions were then asked:

- Do any of these suppliers have an immediate solution to evaluate?
- Which of the existing suppliers or potential new suppliers can develop an innovation solution?

In some cases the existing suppliers had off-the-shelf solutions for the product line. In other cases, some reformulation of the ingredient by an existing supplier, based on applications feedback, led to a solution. In those cases in which the existing supplier did not have a solution or the capabilities to develop a solution, DC needed to change suppliers.

Current suppliers were categorized as A, B or C. The A suppliers were identified as potential strategic suppliers with capabilities and scale to generate innovative ingredient solutions across the widest range of products. The B suppliers were also key suppliers that had technology capabilities. The C suppliers were identified as not strategic and unable to provide solutions.

Most current Ingredient A suppliers suggested that they either had or were working on a solution. Given the time constraints and capacity issues, DC could not evaluate all of the suppliers and all of the ideas. Besides meeting the product requirements on schedule, other solution objectives or goals driving the supplier selection process included:

1. DC wanted a solution for the largest number of products.
2. Time to market was critical. Cost was important but speed was the top priority, even if the Ingredient A-free product would cost more in the short term prior to cost reduction efforts.
3. DC’s supply management organization wanted to limit the size of the supply base. For example, if the company already had 10 Ingredient A suppliers, it wanted no more than 10 suppliers after the initiative. This was consistent with overall company goals to rationalize the supply base.
4. DC looked for opportunities to reduce the number of ingredients in its products (or at least not increase the number) as it moved to Ingredient A-free formulations.

Given these requirements and objectives, DC evaluated the supply base and decided to focus on its two A-category suppliers, ChemOne and Lipids Inc. These large global suppliers were already providing solutions to other customers. In addition, they supplied most of the existing Ingredient A to DC, and they had significant research capabilities. Two B-category suppliers were also selected for certain niche product lines.

Initially, DC asked ChemOne and Lipids Inc. the question, “What are you best at?” Based on the responses and a detailed supplier evaluation to determine which could most quickly develop effective solutions, it was determined that ChemOne was the better supplier to work with on the innovation initiative for the following reasons:

- The company had strong cross-enterprise “tech-to-tech” interfaces that were keys to the initiative’s success.
- ChemOne could quickly translate what was not working and commit resources to DC to achieve reformulating, quick turnaround and other solutions.
- ChemOne was willing and demonstrated a very collaborative working approach by visiting DC plants to “problem solve” to meet company’s needs.

Lipids Inc. was equal to ChemOne on many capability dimensions, but it did not provide the same level of direct technical and manufacturing support to DC that ChemOne did. DC believed that Lipids Inc. was providing rather limited support. For example, DC did not get the same fast turnarounds and technical support from Lipids Inc. that it did from ChemOne.

Contract Development and Management

ChemOne primarily focused on the food service side of DC’s business. The price of Ingredient A was not a major point of the discussion between the two companies because a significant percent of Ingredient A’s price was established by a Chicago Board of Trade benchmark. Final food price included the price of Ingredient A plus a premium.

Intellectual property (IP) ownership was not a significant issue because the company’s products were complementary rather than competitive. However, nondisclosure agreements (NDAs) were in place.

As a provider of goods like soybean oil for salad dressing and milling, DC was already a key account for ChemOne across other business lines. ChemOne was selected as the key supplier for two categories of Ingredient A-free products in support of the Ingredient
A-free project, which had been expanded across multiple products. The major contract focus was around the achievement of a required timeline.

**Collaboration Strategy, Structure and Process**

DC believed the process of working with ChemOne went well. The ChemOne employee who was linked to research & development at DC was critical to the project's success. This person had the technical expertise and influence within ChemOne to "make things happen." This was a critical point, because the employee demonstrated that ChemOne fully supported the DC projects. This person also had the ability to look beyond the technical solution to identify “total solutions,” including supply chain and packaging solutions. The companies developed a sense of a “one-project team” primarily made up of technical personnel.

DC's experience working with Lipids Inc. was less satisfactory. The process started the same as with ChemOne, but Lipids Inc. never provided a “key contact person.” DC began to question whether Lipids Inc. viewed it as a key customer for its Ingredient A initiative. DC did not believe that it was getting the support or turnaround times needed for this project. It also believed that it had to tell Lipids Inc. what to do when Lipids Inc. should have been providing the technology expertise. In addition, there were quality problems with a Lipids Inc. product during a time of high seasonal demand. Lipids Inc. did not believe it was at fault, so it did not help to solve the problem. DC believed Lipids Inc. was not using its expertise to partner and solve the problem. This experience was in stark contrast to the experience with ChemOne. ChemOne worked with DC to provide a solution and validate the process. DC provided feedback to Lipids Inc. to help the company become a better supplier.

DC relearned important lessons from this experience. It learned that a company has to “be on the map” as an important customer to get the support it needs. Further, it realized that a company may be an important customer for some products but not for others. DC faced a challenging balancing act — how could it share business with two key suppliers (ChemOne and Lipids Inc.) so that each would consider it a key customer? Similarly, how could a supplier share business across key customers without stretching itself too thin, while at the same time, maintaining preferred supplier status with key customers? This question is extremely critical if both suppliers have significant innovation capability.

**DC and ChemOne Collaboration**

Even though DCs team consisted of internal employees and consultants, GF provided R&D and general knowledge to DC and was the key interface with ChemOne. ChemOne stated several times that GF's knowledge and experience were critical to the success of the project.

To initiate discussions and possible collaboration, a GF consultant contacted ChemOne to provide background on the Ingredient A-free initiative in general and a food service project in particular and discuss several possible solutions. ChemOne also provided GF with some off-the-shelf options. An iterative process of options, testing and feedback then took place. Communications and feedback were “perfect” and included new formulation impacts on factors like taste, shelf life, nutrition and appearance. There was open and “great communication.” Within a short time, a solution was developed. ChemOne turned around things quickly, in large part because of the open communications and feedback.

The collaboration resembled a friendly tennis match. Each party took a turn at an improvement and presented the results to the other. There was no “traditional” co-location or co-innovation. Each party trusted that the other knew its own side of the business and its own technology and applications. For example, if DC said an ingredient would not provide the consistency needed, then ChemOne believed DC rather than question the total mix of ingredients used by DC. Similarly, DC did not get involved in reformulation of compounds. Co-development was not a focus, although each party provided detailed feedback about outcomes and provided ideas for improvement.

Early in the process of working together, there was lack of communication about what each party expected of the other. This may have stemmed from DC not clearly understanding ChemOne's capabilities. During March 2007, the companies met to recalibrate each party's expectations and decide how to move forward. This was the only somewhat significant “hiccup” in their communications.

After about a year of employing GF, DC weaned itself from the consultants. It then assigned some of its own employees to continue the Ingredient A-free initiative and subsequent projects. A subsequent product collaboration project was a big success. Personnel from DC and ChemOne worked on the BIGCO project, in which DC was providing product to BIGCO. While ChemOne proposed an off-the-shelf solution, DC had to make a few minor modifications to the product formula.
— otherwise, everything worked well. Continuous and detailed feedback was critical to the project. The BIGCO product took longer than expected to roll out because it required time for BIGCO to work through its own approval process. The companies have subsequently developed Ingredient A-free solutions for three other products.

Project Challenges and Opportunities for Improvement

A number of challenges were encountered and subsequently resolved during the Ingredient A project.

Maintain Focus
There was concern at one point that the relationship was becoming stagnant because DC and ChemOne had allowed the one-on-one meetings to lapse for a time. Without a project focus, the business relationship can suffer.

Transition Plan Needed
After DC disbanded the Ingredient A team, ChemOne did not know who the point person was at DC. When the R&D project champion left, it also was unclear who the new point person was. ChemOne had a great relationship with the champion and her team, and the transition limited forward momentum between the two companies. If supplier innovation collaboration is based upon a project orientation, then a clear transition plan needs to be established.

Internal Communications Are Important
There seemed to be limited communication between DC's research & development and its operations/plants. Communications between the two groups could have been enhanced. The internal firm ecosystem exists, but communications can be limited.

Examine Risk/Reward System
ChemOne would like DC to increase the rate of consolidation of its suppliers and its SKUs for Ingredient A-free product, thereby giving ChemOne more business. The risk/investment/reward system needs examination and planning before collaboration.

Innovation Project Results
The results of this project can be assessed in terms of direct project outcomes and overall impact on business relationships. The Ingredient A project lasted 18 months, but different projects were phased in over time based on priority. DC met its goal to introduce Ingredient A-free products into select markets within a year. DC also was first to market with many of the Ingredient A-free products. Being first to market is well regarded by Wall Street analysts.

In terms of business relationships, all companies achieved positive outcomes. GF Consulting proved its value to DC and ChemOne. GF's potential to win future business from DC was increased by its performance on this project. ChemOne gained a part of DC's business that it had attempted to capture earlier. It established itself as a strategic supplier in a new segment of DC's product portfolio. ChemOne also demonstrated its ability to be a good partner, to innovate and to communicate. DC gained knowledge from both GF Consulting and the supplier. New internal capabilities were developed and instituted. The project also strengthened the case for increased involvement of supply management and suppliers in future new product and innovation efforts. Ultimately, all of the companies learned from each other and developed a trust that none of them would exploit the knowledge they gained in a way that would adversely affect any other company.

Supply Management's Role
Supply management's role during the initial stages of this project was to identify all existing sources of supply for the many food categories impacted by the Ingredient A-free regulations. The development of the resulting “product/supply” matrix was key to developing a plan to move forward. The maintenance of an approved supplier list enabled DC to identify off-the-shelf solutions for certain products, and then identify critical suppliers to fill the innovation and supply voids. During the actual collaboration process, supply management had a limited role when things were going well. However, when issues came up supply management helped manage the relationship because it had greater insight into the total buy and working relationships than the other functional areas did.

When suppliers become involved in innovation, supply management also is involved to some degree though there is still some engineering/R&D resistance or skepticism about why and when supply management needs to be involved. In addition, engineering and R&D continue to reach out to suppliers directly without supply management involvement, which could lead them to overlook production capabilities and other potential risks. The organizational changes discussed earlier, such as the creation of a new procurement innovation and value improvement manager position, will help mitigate some of those issues in the future.
Supplier Perspective and Comments: ChemOne

A senior technology sales manager for food compounds at ChemOne provided a supplier’s perspective about this initiative and his company’s relationship with DC. This sales manager’s role is to interact with groups like customers, sales, product development and production. His role also is to serve as the conduit to “obtain business” for ChemOne by taking on projects from customers and helping them through ChemOne processes, such as R&D and development, in a timely, efficient and effective manner.

Since 2002 and prior to being approached by DC to work on the Ingredient A-free initiative, ChemOne had conducted significant research and development around the removal of artificial Ingredient A from foods. The Ingredient A work at ChemOne continues with DC and other food companies throughout North America.

The relationship between ChemOne and DC was not always strategic, despite prior efforts by ChemOne to strengthen the relationship. For example, two years prior to this initiative the sales manager and ChemOne met with DC, but DC did not embrace ChemOne as a “strategic supplier.” ChemOne even specifically discussed low-to-zero Ingredient A food solutions for food products with DC, but it had limited success generating interest much less generating business. Sales and business relations between DC and ChemOne were good for other product lines, but there was no strong business or technical relations around Ingredient A.

There were some higher level discussions between the companies over time that perhaps smoothed the way for future work in compounds. In January 2007, DC invited ChemOne to discuss the Ingredient A initiative. The portfolio of DC and ChemOne products was reviewed and they decided to focus on two segments of that portfolio to reformulate without Ingredient A.

For DC, the relationship was developed out of the mandate to meet new food service requirements in a major market. ChemOne had been working on Ingredient A for some time in reaction to previously enacted FDA labeling laws, but the new regional law accelerated the effort. To some extent, both companies were motivated to:

- Protect business overall
- Protect a major market
- Minimize potential negative impact on dollar sales change
- Meet customer and consumer satisfaction
- Meet time and budget requirements

Important Lessons

Lesson 1: Feedback Is Critical
Timely and relevant feedback to a supplier during a project is critical to success.

Lesson 2: Avoid Being Considered a Bad Customer
Some of the characteristics of a bad customer include failing to provide feedback, failing to give a supplier the chance to improve (switching to new suppliers unexpectedly) and maintaining a perspective that the supplier is just trying to push products rather than trying to provide a holistic solution.

Lesson 3: Understand Risks That Suppliers Face
Generally, suppliers evaluate customers in terms of benefits and risk. The primary risks that suppliers face include building inventory that will not be sold, pricing incongruence, availability of critical planning information, ongoing business and the risk that the customer will switch to another supplier.

Lesson 4: Become a Key Customer
A company needs “to be on the map” as an important customer to get needed supplier support. The buying firm may be an important customer for some SKUs and not others. This is a challenging balancing act — how does the buying firm keep enough business shared among key suppliers so that each supplier considers the buying firm to be a key customer? Similarly, how does a supplier share enough business across key customers without stretching itself too thin and still maintain key supplier status with key customers?

Lesson 5: Commercial-Technical Alignment Needed
Besides business alignment, companies involved in joint development need to ensure technology and capability alignment.

Lesson 6: A Cultural Fit Is Necessary
Successful innovation partners need to have a cultural fit. True partners require a culture of mutual trust, information sharing and openness for innovation to thrive. For this project, there was a cultural difference (non-fit) between the buying firm and one supplier, Lipids Inc. The buying firm was driving to a “win-win” situation and was willing to be more open. However, because Lipids Inc. was not transparent and did not share information as much as needed, this relationship went nowhere.
Lesson 7: Gather Necessary Competencies

Not all critical capabilities need to exist in either the buying firm or supplier. A third party can add value and work well if managed properly. In this case study, the buying firm hired technical consultants because it lacked the time to internally develop the technical expertise required for this project. The third-party firm provided R&D and general knowledge to the buying firm and a key interface for the supplier. The supplier stated that the consultant was critical to success.

Lesson 8: Organizations Must Be Open to Innovation

Innovations need to be resourced by all appropriate functional and other personnel in the organization. The points of entry and the level of intensity of collaborative supplier innovation in the stage-gate process will vary by industry, company, product or commodity. The general approach and openness to collaborative innovation will vary as well.

Lesson 9: Target the Right People for Innovation

Targeting the correct people throughout the organization can be critical to a project’s success. DC targeted the right people — not necessarily the highest level executives — at each organization to get their attention. At ChemOne, it was account managers and salespeople on the ingredient side of the business that had the “right” experience. At Lipids Inc., it was a “super customer rep” on the flour side of the business. Actions and responses by individuals in an organization will show if that organization is just interested in selling or interested in innovation.

Key Insights

- Accelerating innovation and collaborating with suppliers can be driven by a “burning platform.” In addition, innovation can languish without a culture that supports frequent and necessary innovations.
- Specific innovations can be achieved based on a specific need. However, innovation will not flourish without an innovation culture and supporting processes. This is especially true if supplier innovation is required.

Timely and relevant feedback to a supplier during a project is critical.

Successful innovation partners need a cultural fit. There needs to be a culture of trust, sharing and openness for innovation to thrive.
Chapter 9 Supplier Innovation: Key Learnings

The following learnings are meant to provide guidance to supply management and organizational executives for obtaining and accelerating supplier innovation. These ideas are based on the seven detailed case studies contained in this report and influenced by multiple other, shorter case vignettes and the overall research interviews.

Intellectual Property (IP) Ownership

1. Establish an IP strategy and negotiate IP rights with suppliers prior to the start of an innovation project.

A company should have a clearly established IP ownership strategy, with supporting logic, before beginning negotiations with a supplier about ownership of innovation IP. The company can strive to own all, some or none of the IP. However, the IP ownership strategy should be flexible based on the situation and need. In the course of negotiations, IP ownership should be clearly established; otherwise, lack of IP ownership clarity can become a barrier to collaboration, cross-enterprise communications and information sharing throughout a project.

At Desco, where ownership of all innovation IP was a goal, TFI and other suppliers were reluctant to provide leading-edge innovation without some form of inducement (payment, production contracts, future business, etc.) and/or guarantees that they could use the IP with other customers. However, at I-Com IP ownership was not an absolute requirement, resulting in a more open approach by suppliers to providing innovation.

2. Recognize that suppliers can and do exchange IP rights for market access.

Larger companies can exchange their development resources, market volume and global reach for IP rights from smaller suppliers. In many cases, small suppliers with new technologies or product offerings face significant challenges in getting innovations to market. Partnering with a larger company that has established channels of distribution and market brand can create a situation in which both companies benefit. By giving up some or all IP rights, the smaller supplier may be able to turn potential IP value into realized value while the buyer creates longer term value for both firms.

Project Management

3. Establish effective project management approaches.

Effective project management is critical to the successful commercialization of innovation. The case research illustrated that effective project management of innovation projects can help a project keep on budget and schedule. No innovation project goes entirely according to plan; leaders are needed to keep them on track, solve problems, oversee communications, maintain team stability and keep necessary resources assigned to the project.

In addition, all companies utilized some form of project management. A lack of structured project management approaches and problem-solving ability can derail innovation projects.

4. Manage personnel transitions on projects.

While personnel transitions can negatively impact project timing and cost, this risk can be mitigated through successor planning and frequent internal and cross-enterprise communications during project team transitions at both the buyer and supplier. Project personnel turnover was found to result in information loss, priority changes, changing personal commitments and overall loss of continuity. Maintaining key persons
on a project (or specifically educating and training replacements) is important to overall project success.

Continuity of the champions of a collaborative innovation effort is critical to achieving objectives and meeting targets. Personnel changes should be closely monitored to ensure that correct leaders and team members are in place on an ongoing basis.

5. Innovation projects that involve multiple companies require robust project teams to manage complex relationships.

Relationships and collaboration were required between buyers and suppliers. Technical personnel at each company had to work closely together on system integration and other tasks to achieve success. Supply management played a significant role in coordinating multiple communications and integration between functions and companies.

For example, at DC a team consisting of six internal employees and five experts from GF Consulting was established to drive project innovation. The team had full responsibilities (e.g., reformulation, sourcing, project planning, etc.) for the innovation initiative. GF Consulting directed the team. A ChemOne supplier person linked to DC R&D was critical to the success. This person had the technical expertise and influence within ChemOne to “make things happen” at the firm.

At other companies, project teams were in place. However, there were some problems with team stability that affected responsibilities, priorities and results — further illustrating the importance of highly capable and stable project teams to innovation project success.

6. Trust development is required.

Trust between buyer and supplier, accompanied by business strategy goal alignment, appeared to influence innovation success and collaboration across all cases. For example, at Desco an IP ownership agreement would not be signed because of perceived inequitable terms and conditions, but the product innovation effort was able to proceed because of a high level of trust between Desco and TFI. Trust was considered to be an important factor positively affecting results.

However, even with higher levels of trust, we found numerous issues that could negatively impact trust and innovation if not immediately corrected. At one firm, a misunderstanding of what were considered appropriate non-recurring engineering expenses and the impact of project lead personnel changes resulted in communication and priority problems that negatively impacted trust until they could be resolved.

7. Successful collaboration and positive experience over time develops trust and innovation.

Both Desco and TFI considered each other to be “trustworthy” based on experience gained from years of working together. Desco “trusted” TFI and believed that TFI wanted to do the right thing and vice versa. As one Desco employee commented, “TFI employees are not snakes.” Similarly, TFI believed that Desco employees were honest. The companies did not always agree with each other on operating policies and business decisions, but both parties generally considered the other to be honest rather than opportunistic. Mutual honesty was important to the success of this and other innovation projects.

Small suppliers to InventCo trusted that they would be treated fairly by the much larger firm. This facilitated getting projects started quickly. Similarly, MPCo trusted GSCo and executed a development contract in a single day.

8. Invest in the relationship to build trust.

Good relationships require meaningful financial, human and technology investment by both the buying firm and suppliers to mutually signal that the business relationship and collaboration on innovation is important. Individual relationships between personnel from different firms are important to successful innovation, product launches and trust building.

9. Develop communications and information sharing approaches to ensure coordination/collaboration between key stakeholders.

All cases illustrated the need for good communications and information sharing between project team members and across enterprises. Communications between collaborating partners were needed at all times as well as at different levels at different times. At the beginning of an innovation project, effective two-way communications are required between the upper organizational levels at the firms to establish necessary alignment between the companies and develop frameworks for contractual agreements. These high-level efforts may be required for initial projects with periodic updates for subsequent efforts.

As an innovation project gets underway, communications become critical between project managers and functional members to ensure adequate exchange of information about technology development, changes,
technical data, project schedules, responsibilities, costs and so forth. The more complex and lengthy the project, the more need there is for communications between project team members both between and across the organizations. For example, the ability to establish a regular two-way flow of high quality and important information led DC to prefer ChemOne over another supplier.

Alignment and Risk/Reward

10. Collaborate with suppliers that are strategically aligned.
Commercial, technical and risk alignment between buyers and suppliers is required to increase the likelihood of innovations being successfully commercialized. For example, Desco’s assessment suggested that TFI was the most innovative, research intensive and capable supplier for the overlay project. Desco also believed that the two companies were aligned in terms of focus and work ethic.

In addition, alignment between firms around underlying product commercialization and speed-to-market processes is critical to successful collaboration. Alignment on approaches to quickly commercialize innovations was found to be important.

A company also needs “to be on the map” as an important customer to gain significant innovation support from suppliers. This requires buyer analysis of its overall importance to suppliers as well as by products purchased. This balancing of importance to suppliers based on annual purchase expenditures was found to be important to successful collaboration and innovation.

Finally, firms thought that innovation success was achieved because they were properly aligned on costs, speed, trust, ease of collaboration and IP rights.

11. Design supply agreements that fit project objectives and balance the interests of both buyer and supplier.

Buying companies and suppliers should consider what is fair compensation to suppliers for their innovation contributions to new product development projects. “Fair” compensation needs to carefully consider the value contributions that each party is making.

In addition, “fairness” can be evaluated both in terms of the initial and ongoing value accruing to both parties. For example, agreements can include initial payments to suppliers for development in return for exclusivity and preferential treatment to suppliers (or buyers) can be provided over time. Suppliers and buyers need to see explicit value in the relationship.

Firms can also leverage the possibility of significant future business to spur supplier innovation. At ECOMP, neither of the two suppliers in the feasibility competition had a contract, so the suppliers were “sticking their necks out.” The suppliers needed to recapture investment by winning the production contract and resulting volumes. Development costs were relatively low for the suppliers, so the substantial business potential justified the risk taking by the suppliers.

12. Align and balance the innovation risk/reward profile.

Supplier innovation contributions were clearly impacted by the innovation risk/reward profiles for the supplier and buying company. Three case examples illustrate key points.

I-Com was viewed as a fast-to-market firm with sufficient scale for suppliers to generate necessary return on investment in a reasonable time. I-Com was therefore viewed as a preferred customer for supplier innovations. A similar situation was the case with DC, which required commercialization of product innovations in a short period of time.

At MPCo, products required re-sourcing as the attractiveness of the business to incumbent suppliers waned due to required new investment in maturing technologies. Future technology innovation investments did not meet incumbent supplier risk-reward profiles, so they exited the business — which then necessitated re-sourcing to new suppliers.

At multiple companies, product innovation commercialization lead times were long (some projects took years) and suppliers were required to invest cash, which required them to justify the investment based on the projected net present value of revenues, profits and returns given forecast product volumes and timing. Supplier investments can be further rationalized and risk reduced by IP ownership, advance payments, payment for engineering work and guaranteed production volume contracts.

Supplier size and the magnitude of the required investment over time significantly affected supplier risk and their decisions. In addition, collaborative or adversarial approaches by the buyer also positively or negatively impacted suppliers’ attitude toward risk taking.

CAPS Research
13. Size of firms affects possible alignment. The size of both the buyer and supplier affects the success of collaborative innovation efforts. Typically, facets like risk profiles, financial investment capability, IP ownership approach, speed of decision making and culture vary significantly between firms of significantly different size, which affects the ability of these firms to work together. The smaller firm is limited by its financial and human resources, the risk it can take and the estimated time to commercialization.

Innovation Metrics, Supplier Capabilities and Performance Assessments

14. Companies require further development of innovation metrics. Overall, few hard metrics around innovation were found to be in use at the companies studied. All expressed a desire for better metrics and were working to develop them. However, companies were early in the development phase and found it difficult to establish hard innovation metrics and their weightings compared to other factors, such as cost, on which to base sourcing decisions.

In addition, an “upfront assessment” of potential suppliers was conducted at some firms to help determine innovation potential. This was a hands-on qualitative assessment of each potential supplier’s current product portfolio. It was a judgmental (rather than quantitative) evaluation of how well the supplier met and/or anticipated customer needs, the supplier processes for design and “added value” operations, its innovation capabilities and a review of the supplier’s customers.

All firms used supplier assessment tools that evaluated business capabilities and how “produceable” a product was, but these tools provided a limited view of supplier innovation capabilities and performance.

15. Focused worldwide supplier scouting, assessment and communication supporting innovation is required. At the companies visited, supply management was charged with scouting for innovative suppliers and participating in supplier assessments to determine supplier ability to meet company needs. However, the tools to assess supplier innovation capabilities were quite limited and qualitative in nature. Capabilities assessment typically focused on traditional manufacturing, operations and business assessments.

The limited nature of these assessments may result from firms having a “closed” approach to innovation and not looking to suppliers as a source of important innovations. For example, InventCo is just now starting to consider suppliers as a source for more substantial innovation ideas and is beginning to develop supplier innovation metrics to drive this process.

ECOMP was a technology leader that believed that suppliers were generally “followers” rather than technology “leaders.” However, ECOMP was attempting to gain more innovation from suppliers, especially in areas not considered to be a core technology or competency. For this reason, it was increasingly involving suppliers more closely in the product development process and innovation to establish a foundation for “open innovation.” Soft measures were also being implemented to track performance.

The lack of a formal supplier assessment process that resulted in a negative outcome was best illustrated at ISD, which had to dedicate additional technical resources to the project because of a supplier capability and resource shortfall. In addition, at other firms sourcing decisions were primarily based on historical relationships, experience and judgment due to the lack of innovation capability assessment tools. This approach was especially “tricky” when evaluating new suppliers.

In addition, it is important to clearly communicate the nature of innovation required from suppliers so that they can focus resources. This was only effectively done by two of the firms, with positive results.

Overall, it appeared that the companies could have benefited from more effective supplier innovation capabilities assessment approaches and tools.

Voice of the Customer and Suppliers

16. Use the voice of the customer (VOC) to guide innovation and link to supplier requirements. Multiple companies closely examined market demand for their new and innovative products and services to establish the VOC for the business and to develop supplier innovation requirements. ECOMP conducted a “customer insight” process with marketing, application specialists and an internal design group. After extensive analysis, including visits to more than 30 customers worldwide and open-ended question interviews, the most relevant clinical and E/MS needs were established, including supplier requirements.

After a number of negative experiences with internally developed technology push innovations, one company modified its approach to carefully listen to the VOC.
through both customer and consumer interview and analysis. Innovation efforts would focus on areas for which there seemed to be a clear customer demand, with determination of what suppliers needed to provide.

17. Communicate the VOC throughout the supply chain.
Buying company supply management personnel must be engaged across functions and firms to find solutions to meet end customer needs — a narrow functional focus will not suffice. The supplier, if it understands the customer’s business model, can frequently contribute to the meeting of customer needs and satisfaction. These VOC efforts help identify supplier innovation requirements to support customer-focused innovation projects.

Engineering, development and supply at the multiple buying firms were communicating to suppliers how a purchased item was actually being used. This was important, as suppliers typically lack deep insights regarding product end use — without this knowledge, it is conceivable that they would unwittingly make seemingly subtle decisions and engineering changes that negatively impact overall system or product performance for new products or those under development.

Cost Versus Innovation

18. Recognize that cost versus innovation focus differences produce different results.
At one company, suppliers were concerned that they would not be paid for innovation because product “should cost” models were based on the most efficient way to produce the product after final (or close to final) design had been completed. They were thereby hesitant to provide innovations. But Design-in-Workshops, in which suppliers actually create product designs to meet cost and performance targets, can be used effectively for both technology innovation and cost reductions. In addition, innovation versus cost reduction was the primary driver at two firms, resulting in early achievement of required innovation.

The case analyses also strongly suggested that innovation efforts can be slowed due to poor and deteriorating economic conditions and a primary focus on cost reduction, versus a more holistic approach to value and innovation achievements.

Stage-Gate Processes: From Concept to Suppliers

19. Formal stage-gate new product development (NPD) processes are critical to success.
All firms visited had formal stage-gate NPD processes. Most effective stage gates include very specific timing, handoffs by stage and clearly defined responsibilities with signoffs by function, including supply. Effective stage-gating processes generally shorten NPD, as cross-functional handoffs and signoffs are systematized with enhanced communications and clean-cut responsibilities. In addition, the stage-gate process may be accelerated for speed (shortened) for high-priority or lower risk projects.

20. Implement a common technology and product development process.
The implementation of common technology and product development processes across functions and multiple business units improves innovation success and technology road-mapping with suppliers across the firm. Such a framework ensures that technology innovation efforts are linked to product life cycles and the overall portfolio of product and technology platforms that are important to both the firm and suppliers. The evaluation of human resources available across functions and the company before initiating a new project is enhanced with clear understanding of technology and product development needs.

In addition, there are typically two major interdependent stages to the innovation process. Long-term to intermediate planning involves the development of new technologies, portfolio management of products and projects, knowledge development and platform generation. Intermediate to shorter term planning and processes involve the “commercialization” of a new product. During each stage, strategic imperatives and internal capabilities are compared to technical needs to make insourcing/outsourcing decisions and identify opportunities for collaboration with important suppliers.

Culture

21. Develop companywide innovation culture.
At the companies visited, significant cultural change was required to stimulate and achieve supplier innovations. At all of the companies but one (a technology leader with a strong innovation track record), the following typical changes were made:
• New executive-level innovation leader and position established
• Change in purchasing/supply structure and role
• Development of new company and supply approaches to obtain supplier innovation
• Changes in mindset regarding outsourcing and a more open approach to supplier innovation
• Increased focus on speed and being quick to commercialization

Without a corporate culture change that emphasizes innovation in general and supplier innovation with supporting management approaches in particular, obstacles to innovation will limit change rates.

Supply Management

22. Expand supply management’s role in acquiring innovation.

The case studies illustrate three key findings regarding supply management. First, supply management must be aligned with the company’s innovation strategy. Second, supply management was generally engaged at later stages in the stage-gate process and rarely, if at all, in the discovery stage. Third, there was increasing awareness of the benefits of getting supply management more actively engaged earlier in supplier innovation development and the new product development stage-gate process, as well as throughout implementation.

However, at all companies visited, supply management was increasingly becoming engaged earlier with expanded roles. For example, at I-Com the supply management function had broad-based responsibility to motivate and secure supplier innovation. At ECOMP and ISD, executive management had established a broad charter for supply management to become engaged in acquiring supplier innovation and participate earlier in the NPD process, while scouting the world for innovative suppliers. At InventCo, supply management had established a new product introduction specialist to work with engineering early in the new product development process. At MPCo, supply management led the charge to achieve both product technology innovation and cost containment over multiple generations of the NCOP. Finally, at DC, supply management “owned” supplier relationships and was engaged with suppliers during the product innovation process. At Desco, supply management was seen as a facilitator of supplier innovation and supplier participation in NPD.

23. The role of supply management should be aligned with the company innovation strategy.

At I-Com, supply management played the role of auditor in evaluating the financial value of projects in the NPD process. Supply management was engaged in understanding the product and customers and could not simply act as “buyers.” It needed to be end customer-/consumer-centric, while continuing to negotiate price.

The role of supply management was shifting at ECOMP and DC as the companies moved toward a more open approach to innovation. Historically, the product development process at ECOMP was vertically integrated and there was little early involvement of external suppliers. To the extent that external suppliers had been involved in NPD, most of the efforts focused on incremental innovations. This was changing as the company continued to redefine itself, its company strategies and its processes. The involvement of suppliers and supply management in the innovation process at ECOMP was supported at the company executive level. However, change was slow — in large part due to the industry structure and prior practices at ECOMP.

InventCo had a “closed” innovation model, which limited the role of supply management in innovation with suppliers. Nonetheless, supply management had a role to play, namely qualifying a supply base that could work on the minor innovation projects needed by InventCo and supporting technology efforts to find off-the-shelf supplier technologies and products.

24. Increase the role of supply management in reaching a consensus about the price/cost versus innovation tradeoffs with finance and other executives.

Frequently, finance and top-level executives may focus on short-term price reductions from suppliers rather than longer term innovation benefits. Supply leaders should use specific case examples to demonstrate the measurable benefits to be gained from innovation that may be achieved over time versus an immediate price reduction so as to establish a holistic policy and measurements using business case analysis to evaluate short and longer tradeoffs between price and innovation.

25. Supply should drive supplier innovation workshops.

Innovation workshops with leading suppliers that have innovation capabilities should be established and administered by supply in cooperation with the technical community. The aim of the workshop is to
accelerate supplier innovation and investment in required innovation areas.

26. **Lead development of online supplier innovation e-systems and processes to obtain, evaluate and commercialize supplier innovation.**

All companies had limited e-system approaches to acquiring supplier innovation ideas. A common limitation was that firms had inadequate commercial and technical resources to quickly and fully evaluate supplier ideas and provide feedback and incentives.

**Observations**

It appears that supplier innovation can be best achieved by the buyer that provides suppliers a combination of fast-to-market opportunity, sufficient volume, “fair pricing,” collaboration efforts and support/development of supplier capabilities as opposed to a strict cost reduction focus. Cost improvements or productivity can be achieved after product innovation introduction. In addition, target prices or cost targets driven by the VOC also help to achieve required innovation within established price/cost parameters.

Trust is also critical to successful supplier collaboration and innovation. Alignment of needs with effective communications across the supply chain or network also enables supplier innovation. An effective supply management organization with the right supporting structure and metrics also enables accelerated innovation from suppliers.

**Overall critical problem areas negatively affecting innovation development**

There were numerous situations we observed during innovation development that, if not carefully managed, could negatively impact cross-enterprise collaboration with suppliers and trust and cause the innovation initiative to deliver limited results or be cancelled. These include:

1. Unsatisfactory supplier performance at a particular stage-gate due to supplier or buyer causality.
2. Specification creep and/or change without clear communications between buyer/supplier, resulting in major cost impact or incorrect focus of development efforts.
3. Withholding or slowing of innovative ideas out of concern over equitable payment for innovation.
4. Differences in terminology and systems between buyer and supplier that were required to achieve the innovation(s).
5. Negative reaction to supplier innovation by the buying companies’ technical community due to concern over outsourcing, which can slow/disrupt supplier innovation contributions without strong company leadership.
6. Product innovation price/cost exceeding budget and/or customer willingness to pay for innovation changes requiring joint efforts to reduce and/or re-price.
7. Inadequate qualified personnel assigned to the innovation projects.
8. Significant economic decline resulting in loss of company profitability and negative cash flow.
9. Perception on the part of technical stakeholders that supplier innovation was of limited importance to the company.
10. Loss of focus or unexplained delays on a project by one party can cause the other to question commitment to the project and lead to shifting of resources to other projects.
11. An industry culture of freely appropriating or “shopping around” supplier IP severely restricts the flow of innovation.
12. The failure to “buck” impasses between lower to mid-level managers at buyers and suppliers up the chain of command for resolution can slow or stop progress on a project.
13. Inadequate investment over the longer term focused on supplier innovation activities and processes.
14. Inadequate communication of customer needs (VOC) to critical suppliers and innovation partners.

Careful attention to each of these possible situations can lead to appropriate company actions to stimulate, rather than stifle, innovation.
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