

Accelerating Innovation through Effective Supplier Collaboration

Robert M. Monczka, Ph.D.
CAPS Research and
W. P. Carey School of Business
Arizona State University
248.988.9334

Thomas V. Scannell, Ph.D.
CAPS Research and
Haworth College of Business
Western Michigan University
616/387-5031

Phillip L. Carter, D.B.A.
CAPS Research and
W. P. Carey School of Business
Arizona State University
480/752-2277

Joseph R. Carter, D.B.A., C.P.M.
CAPS Research and
W. P. Carey School of Business
Arizona State University
480/752-2277

Sponsored by CAPS Research

95th ISM Annual International Supply Management Conference, April 2010

Abstract. This research examined corporate and supply innovation strategies and the development of supply networks that companies form to develop innovative new product technologies, to identify sources of new technologies, and to accelerate the pace at which those technologies are transformed into profitable products. Field research was conducted with five multinational companies across nine business units and their innovation suppliers. Key findings indicate that a comprehensive approach at the corporate level needs to drive an aligned and robust integrated supply strategy.

The Opportunity. Primary elements for accelerating innovation through effective supplier collaboration are captured in two broad categories. The first is a company-wide strategic focus and structure including at least corporate culture, innovation metrics, product development, stage gate processes and innovation clarity. The second is a supply and supplier management focus including organization structure, supply innovation strategy, search for and qualification of innovative suppliers, management of intellectual property and developing trust.

Objective: Our objective is to present practical information for developing the innovation strategy, structure, policy, process and personnel to increase the level, success and rate of innovation achieved by organizations and their collaborative partners.

Literature Review. Current trends suggest that innovative firms which have traditionally relied on internal R&D are increasingly working with external sources to generate new concepts and create new technologies for product development (Chesbrough 2003). Companies may involve suppliers in innovation and development activities to focus on internal core competencies, reduce risks, gain access to knowledge and technology, increase speed to market or gain performance advantages for example (Prahalad and Hamel 1990). Chesbrough (Chesbrough 2003) suggests that companies should adopt an “open innovation” model as opposed to a “closed innovation” model. The closed innovation model is characterized by internal control and a “not invented here” as well as a “not sold here” mindset. The open innovation model leverages the disparate knowledge, assets and resources of people who see the world differently and thus cuts across different institutions, companies and disciplines. Thus, supply chain strategy should support the innovation positions of the firm (Porter 1979).

Factors that impact successful innovation and collaboration on innovation include the following. The organization’s strategic orientation, competitive environment, purchasing involvement and supplier involvement all impacted new product success (McGinnis and Vallopra 1999). Relationship structuring mechanisms (e.g., management commitment, shared education and training, trust development) and asset allocation (e.g., intercompany communication, technology sharing, co-location, shared plant and equipment) (Ragatz, Handfield et al. 1996). Frequent inter-company communication, building trust, establishing partnership equity, ensuring that parties contribute as expected, and employing a product or collaboration champion (Littler, Leverick et al. 1995), Monczka et al, 1997.) The length of a buyer/supplier relationship (Dyer and Ouchi 1993).

Part of the challenge with successful innovation in general and successful supply collaboration for innovation in particular is focusing resources on “type” of innovation called for by the business strategy. For example, “innovations” may be measured on one extreme as “radical / new to the world” and on the other extreme as “incremental / improvement” (Crawford 1994). A categorization of “innovations” that describes the breadth, depth, scope and impact of an innovation is presented below. Clarity in innovation purpose is key to innovation collaboration success. The research investigated innovations across all of the dimensions below.

	Product	Service	Process
New to the World/ Major Innovation	Segway personal transporter	Heart transplants	eRAs
New Category/New to Company/New Business	Canon laser printer	Safeway home delivery	Wal*Mart on-line shopping
PSP Line Extension	Bud Light	On-line banking	Amazon “one click” buying

Adapted from: Crawford, C. M. and Di Benedetto, A. (2008). *New Products Management*, Irwin Publishing.

Research Method: The objectives of the research were to: 1) Determine the company strategies and approaches that can be used to identify, select and effectively collaborate with suppliers and supplier groups to accelerate innovation; and 2) Identify the specific role supply management can play in accelerating innovation across the stages of product, service and process development. Field research questionnaires were developed based on an extensive literature review, initial interviews and testing of the instrument with industry professionals. Five multinational companies and nine business units participated in the research. Key suppliers to the focus companies were also interviewed.

The interview guides were first divided into “company-wide” and “case specific” questions. Within each instrument the questions were further categorized by assigning questions to specific managerial and functional positions in the organization. Across all five companies, over sixty interviews were conducted with personnel representing Innovation, Engineering/Technical, Sales, Marketing and Purchasing leadership. Seven detailed supplier innovation case analyses were developed. Three researchers participated in most of the interviews, though on occasion only two interviewers were present. Each researcher drafted their own notes. Discrepancies or omissions were resolved through team discussions and/or follow-up interviews.

Key Findings: Accelerating innovation through effective supplier collaboration requires both an overall company wide innovation strategy and an integrated supply innovation strategy. The most significant opportunities for driving innovation and collaborative innovation at the company level are depicted in the diagram below.



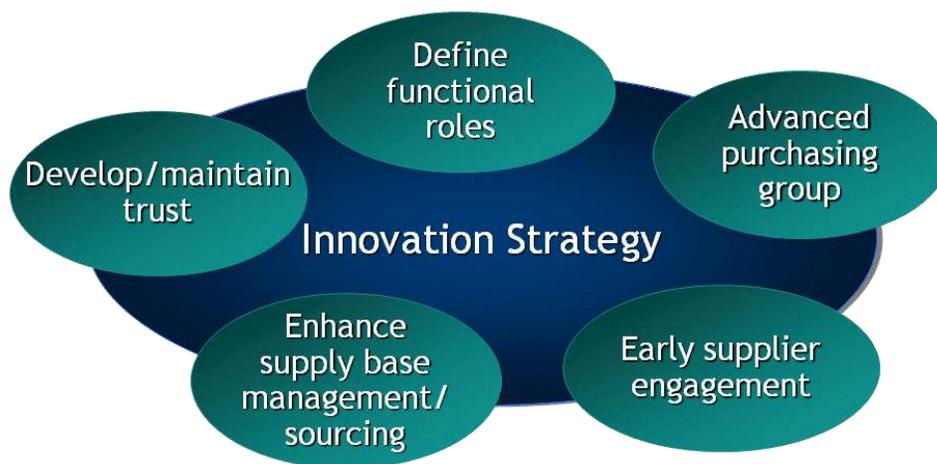
Most Significant Innovation Opportunities: Overall Company Focus

An open innovation strategy requires executive leadership and culture change. This innovation strategy needs to be communicated internally/externally. Management must commit resources and processes (e.g. innovation portal and third party providers) to support the strategy. Further, the innovation strategy must be linked to overall firm performance and assessed by objective metrics. Definition of innovation and establishment of innovation metrics requires a cross-functional consensus and alignment from top to bottom of the organization. The innovation metrics with weightings based on innovation needs should be linked to company and supplier performance evaluation. Both hard and soft metrics need to be developed. Risk management strategies enhance the speed and likelihood of successful

commercialization of new products. Risk must be defined as a combination of uncertain events and outcomes for both buyer and supplier during any new product development stage gate process. The companies should establish alternative plans if required innovation does not pass the stage gate risk/reward evaluation.

Supplier innovation e-systems enable innovation suppliers to introduce innovation via a company portal, company “open houses” and face-to-face contacts. This requires resources to conduct preliminary and next stage reviews of innovative ideas with feedback to suppliers. It is also critical that an IP protection process is in place and that trust is established that a successful innovation will result in equitable and timely benefits. Preferred customer status may be accomplished through balanced and equitable approaches to intellectual property ownership and joint development agreements. This requires business legal review of the company’s position regarding IP needs and what can be negotiated and why; it also requires segmentation of IP ownership requirements by technology and purchase categories.

The most significant opportunities for driving innovation and collaborative innovation at the supply level are depicted in the diagram below.



Most Significant Innovation Opportunities: Supply Focus

The company needs to develop clearly established functional roles for innovation projects across the new product development stage-gate process. This cuts across internal functions and supplier networks. Cross functional consensus needs to be developed and roles documented. The required sign-offs and hand-offs (deliverables) by stage-gate process need to be identified. An Advanced Purchasing Group (APG) integrated into all company-wide innovation activities will enhance joint technical/ commercial decisions and maximize sourcing innovation opportunities. An APG has requires executive support, financial resources and the appropriate technical background and skill set.

Engagement of suppliers early in the development process results in better product definition and supply requirements thereby increasing ability to produce and reducing later product fixes. To achieve this requires the identification of suppliers with innovation capabilities to contribute to product development, alignment of key suppliers’ longer-term business goals and technologies with the need for innovation and the business goals of the buyer based on open

communication. Supply base management/sourcing must be enhanced to accelerate and acquire supplier innovation. Three critical components of this include supplier innovation capability assessment, supplier innovation performance scorecard, and cost models that compensate suppliers for innovation. Developing and maintaining trust with innovative suppliers was identified as one of the most critical components of success. Examples of buyer/supplier behaviors negatively affecting trust included overpromising, volume or capacity forecast shortfalls, switching suppliers without understandable reasons and pushing business risk onto the supplier. Good practices for improving trust included treating supplier IP as confidential, sharing information appropriately, promising only what can be done, considering equity in the risk/reward equation and providing assistance where feasible in response to unforeseen events.

A holistic approach is required to accelerating innovation through effective supplier collaboration. Overall company wide innovation strategy integrated with a supply innovation strategy creates an environment most supportive of potential innovation success.

REFERENCES.

- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press.
- Crawford, C. M. (1994). *New Products Management*, Irwin Publishing.
- Dyer, J. and W. Ouchi (1993). "Japanese-Style Partnerships: Giving Companies a Competitive Edge." *Sloan Management Review* 35(1): 51-63.
- Little, D., F. Leverick, et al. (1995). "Factors affecting the process of collaborative product development: a study of UK manufacturers of information and communications technology products." *The Journal of Product Innovation Management* 9(3): 200-212.
- McGinnis, M. and R. Vallopra (1999). "Purchasing and Supplier Involvement: Issues and Insights Regarding New Products." *Journal of Supply Chain Management* 35(3): 4-15.
- Monczka, R., G. Ragatz, et al. (1997). Supplier Integration into New Product Development: A Strategy for Competitive Advantage. *Executive Summary of NSF and GEBN Research*.
- Porter, M. (1979). "How Competitive Forces Shape Strategy." *Harvard Business Review* 57: 137-145.
- Prahalad, C. and G. Hamel (1990). "The Core Competence of the Corporation." *Harvard Business Review* 68(3): 79-91.
- Ragatz, G., R. Handfield, et al. (1996). "Success Factors for Integrating Suppliers into New Product Development." *The Journal of Product Innovation Management* 14(3): 190-202.