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**HARNESSING KNOWLEDGE: THE NEXT CHALLENGE TO INTER-FIRM
COOPERATION IN THE NORTH AMERICAN AUTO INDUSTRY**

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As the North American auto manufacturers transfer more responsibility to major suppliers while at the same time experiencing significant engineering personnel reductions due to layoffs and retirements, the industry landscape begins to change. Manufacturers' engineering staffs become smaller, and suppliers' staffs become larger as they attempt to meet manufacturer systems, globalization, and supply chain coordination requirements. These large suppliers, known as system integrators, are the pivotal point in the supply chain that links lower level suppliers and the manufacturers. As companies begin the process of incorporating the many companies they acquired during the extensive mergers and acquisitions during the late 1990s, they are finding new challenges that are very different from the time when they were build-to-print suppliers. Our recent research efforts look three of these challenges: system development, e-business, and knowledge management. Responses by suppliers to these challenges all have an element of knowledge sharing that offers companies opportunities to differentiate themselves and may provide competitive advantage in the future. How system integrators manage this transition may decide how well automotive supply chains will function and which supply chain model will prevail in the auto industry.

Our research on system development focuses on the views of manufacturer drivetrain executives in purchasing, engineering, and manufacturing on the challenges system integrators face in developing drivetrain systems. In particular, executives discuss supplier development,

especially the capability and knowledge needed in the supply base to actually develop, test, and deliver systems; cost pressures and the future role of the manufacturer in the value chain in terms of whether manufacturers can afford to maintain system development in house; and the technology/fuel economy/emissions solution that represents the most potential a manufacturer can garner from its supply base. Whether the supply base, in particular the engine supply base, has the knowledge to be able to deliver the advanced engine products manufacturers need is an issue the interviewees repeated throughout these interviews.

Our study of e-business and system integrators focuses on the tensions that occur between their customers and suppliers as the system integrators try to implement e-business solutions such as e-product development and e-relationship management. System integrators face a dilemma in the need for transparency of knowledge sharing, however security issues and the need to protect proprietary knowledge work against transparency. They think standardization also forms a key tension between groups because of the proprietary systems each company has in place. Some see a powerful third party like Covisint as a possible intermediary between the groups, offering industry standards and a secure portal for knowledge sharing. Finally, utilizing e-business technology can enable system integrators to take control of their supply chain. However, the same technology provides OEMs the opportunity to continue and even accelerate delegating responsibility while using transparency to maintain their traditional full control.

Finally, a case study of one system integrator's knowledge activities constitutes our most recent research on knowledge in the auto industry. The degree of success or failure companies experience in implementing knowledge initiatives may in large part be determined by how the initiatives deal with the complexity of the industry. For example, knowledge sharing, both acquisition and transfer of knowledge, may occur between different stages of a program which include research and development, concept award, component design and engineering, component validation, and production and logistics; among different programs within a company; across different company divisions; and among the company and its customers and suppliers.

The results of the survey uncovered six major issues that this company—and any company embarking on knowledge initiatives—needs to consider. Companies must understand thoroughly the value of knowledge within the organization; acknowledge likely gaps between the perceived benefits and reported knowledge activity levels; resolve discontinuities in knowledge sharing activities within the company; consider possible differences in the perceptions of knowledge activities among the company, its customers, and its suppliers; take into account differing emphases by the company, its customers, and its suppliers on people, technology, process, and culture as facilitators of knowledge activities; and measure and incent knowledge activities in order to manage them effectively.

Knowledge initiatives are a basis for future competitive success, yet they are often treated as tactical rather than strategic initiatives. In product development, for example, where staff may enjoy the clearest and largest gains from knowledge initiatives, time and resource pressures still can undercut their support. As was often the case with early quality initiatives, people report that knowledge initiatives are important, but staff behavior and incentives are not designed to support their full implementation. Many companies prefer to be “fast followers,” but, like quality initiatives, we think companies, and their supply chains, that properly implement knowledge initiatives will reap rewards and may establish a lead that forces fast followers into continuous catch-up mode. Knowledge may be the next competitive basis that differentiates which companies and supply chains win and which lose.