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How Supply Chains Respond to Crises: The Japanese Experience

The 16th Annual Mitsui USA Symposium

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Robert Young, Vice President Purchasing at Toyota Motor Engineering & Manufacturing North America, Inc., commenced the 16th annual Mitsui USA Symposium by outlining numerous risk-management challenges that confront the automotive industry and his company. He was introduced by Professor Hugh Patrick, director of the Center on Japanese Economy and Business (CJEB) at Columbia Business School (CBS). Mr. Young was followed by Albert Matias, Vice President and Chief Procurement Officer for the Americas at Hitachi America Inc., Ltd. Professor Fangruo Chen, MUTB Professor of International Business at CBS, provided commentary and moderated the symposium.

Mr. Young first outlined the process of manufacturing an automobile, which is complex and involves about 20,000 parts. Toyota has production facilities and supply chain partners around the world. The parts that Toyota sources from its suppliers represent a significant amount of the costs and of the technological innovation within every automobile. The strong dependence on its suppliers presents a challenge for how Toyota manages supply chain risk.

While Toyota faces numerous risks, Mr. Young highlighted how the firm approaches supplier and natural disaster risks. The company focuses on the "Toyota Way," which emphasizes continuous improvement and respect for people. The practice is strongly embedded in its procurement process in order to engender trust and collaboration with suppliers. Mr. Young added that Toyota tries to be proactive so that supplier risk is minimal.

Hugh Patrick

Toyota employs a similar approach for managing natural disaster risk. It focuses on people first and business recovery second. Japan's March 2011 earthquake and tsunami were a perfect example of this. Toyota focused first and foremost on making sure their personnel were okay and helping out impacted communities, even forbidding their employees from asking suppliers in the afflicted areas about the impacts on their businesses in the first few days. Though the disaster surely impacted the company and exposed risks within its supply chain, its collaborative approach strengthened the organization as a whole by necessitating close collaboration across departments in order to quickly restore operations. Furthermore, it gave the firm the opportunity to develop a deeper understanding of its supply chain and to identify previously unforeseen weaknesses. Toyota is now more pro-active in its risk-management and better prepared to deal with future crises when they occur.

Mr. Matias then spoke about Hitachi's approach to crisis management. Hitachi's products range from consumer electronics to nuclear power plants, so it has a complex set of multiple supply chains. Its initiative known as Business Continuity Planning (BCP) existed at Hitachi for a number of years before March 2011. As a result, the firm was well positioned for the disaster, and its operations recovered relatively quickly. Still, the disaster gave Hitachi the opportunity to review its BCP process and to identify areas for improvement.

Robert Young

Hitachi considers BCP part of corporate social responsibility. Planning helps the firm better respond to a range of operating risks. While it is difficult to foresee all potential risks, the firm attempts to address a multitude of situations. Learning from its experience from the March 2011 disaster, Hitachi now prioritizes specific contingencies in order minimize disruptions due to unpredictable events.

Albert Matias

Professor Chen then provided commentary about how various risks can affect a firm's supply chain. He suggested higher inventory levels, increased capacity, and greater supplier diversity as potential solutions. However, those countermeasures could reduce a firm's supply chain efficiency and increase costs. He then asked the panels how they think about *the trade-off between efficiency and risk* mitigation. Both panelists agreed that the terms of the trade-off are important. Mr. Matias suggested that firms need to invest more in risk mitigation and must consider the potential payoff.

Professor Chen inquired how companies quantify risk mitigation and maintain focus, since they are preparing for rare events. Mr. Young responded that, while the benefits are difficult to quantify, the disaster has helped Toyota better understand potential risks. Further, he said that the current generation of employees recognizes the benefit of preparing for rare events. The challenge is ensure that younger generations that did not live through a supply chain crisis will also understand the same benefit.

Finally, Professor Chen said that firms could achieve efficiency and risk-mitigation through standardization of inputs. Mr. Matias responded, saying that standardization involves a trade-off. Though it creates flexibility within a supply chain, it also reduces a firm's proprietary inputs vis-à-vis competitors. Professor Chen followed up with the idea that supplier concentration in specific geographies is another risk. Mr. Matias noted that firms should help suppliers develop the capability to produce in other geographies. Mr. Young added that there are many common suppliers within the automotive industry. U.S. automobile manufacturers were also affected by the disaster in Japan, so the risk of supplier concentration by geography is a real risk for the industry. Professor Chen then opened the floor for questions.

Fangruo Chen

Question and Answer session

Robert Young

An audience member asked how firms evaluate suppliers, because selection is not often determined by the capability of a single supplier, but by a supply chain cluster. Mr. Matias replied that global firms need to ensure that the quality of suppliers in a region is enough to sustain reliability. Similarly, Mr. Young added that supply chain capabilities vary by region, so the decision to produce locally or to import often resides in whether a region's supply chain has or can attain the required capabilities.

The next questioner asked whether there has been a change in resource allocation for risk management since March 2011. Mr. Young said Toyota now has a formal process to identify risks and review contingency plans. Mr. Matias mentioned that Hitachi had implemented BCP before the earthquake, but the event enabled it to fine-tune its process.

Professor Patrick next asked whether the response to a supply chain crisis is carried out in Japan or globally. Mr. Young said that most of the work is done in Japan, but North America also contributes. Similarly, Mr. Matias said that Japan does the heavy lifting, while North America and other regions remain on high-alert status, ready to provide support.

An audience member next asked how information security factors into BCP, specifically when a hacker penetrates a supply chain partner. Mr. Matias said that the shift toward cloud-based storage is a challenge because servers are not on site. Hitachi seeks creative solutions to manage the co-location of servers while maintaining encryption standards. Mr. Young said that all large corporations face IT risks. Firms need to share information with suppliers and protect that information. Hacking a supplier can expose risk in a supply chain. Professor Chen added that information security is indeed a new supply chain risk; Target was hacked through one of its suppliers.

Albert Matias

The penultimate question regarded whether there is a mechanism to

ensure that risk management awareness remains constant. Mr. Young responded that firms see value in risk management. The challenge is maintaining awareness for lower-risk disasters. Mr. Matias added that procurement is always about crisis control, but there is uncertainty about how severe and widespread a crisis will be.

Professor Chen posed the final question, asking how a firm can perform continuous improvement on BCP. Mr. Matias responded that it is indeed a challenge to improve the planning process. He added that making information more accessible will allow a firm to make better planning decisions.

David E. Weinstein, Carl S. Shoup Professor of the Japanese Economy, chair of Columbia University's Department of Economics, and CJEB's director of research, provided closing remarks. The Mitsui USA Foundation and CJEB co-sponsored this symposium, and the Weatherhead East Asian Institute's Toyota Research Program was the outreach partner.

Left to right: Eric Campbell, Toyoshi Irisawa, and Tadashi Sano, Mitsui & Co. (USA), Inc.; Takashi Hatchoji, Hitachi America, Ltd.; Albert Matias; Robert Young; Fangruo Chen; Cory Highland, Toyota Motor North America, Inc.; David E. Weinstein, Hugh Patrick, and Takatoshi Ito, CJEB