

Inside Supply Chain

Scaling to different markets around the world calls for innovation and flexibility in the systems that support the business processes. Here's what GM is doing to meet the challenge.

Adriana Karaboutis is the process information officer for Global Purchasing and Supply Chain (GPSC) at General Motors. She has been with the company for three years and reports to both the group vice president and chief information officer, Ralph Szygenda, and the group vice president of GPSC, Bo Andersson.

Karaboutis is responsible for GM's IT innovation and modernization for purchasing, order fulfillment, supply operations and logistics worldwide. The systems she is responsible for support the more than \$100 billion that GM spends for direct and indirect materials as well as for inbound and outbound logistics.

In this interview, conducted by *Supply Chain Leader* editor Victoria Cooper in Detroit in early August, Karaboutis describes the impact of globalization and digitization on GM's IT strategy for global purchasing and supply chain.

How did you get into the field of supply chain management?

My career has been in and out of IT—I received my degree in computer science and electrical control systems from Wayne State University—but I've always been fascinated by the complexity of supply chain issues. As supply chains become longer due to globalization, the problems get even more complex.

I've worked in IT as well, in the supply chain business organization. At various automakers, I ran production scheduling as well as worked on the IT side. My business process knowledge has definitely helped me in this role at GM, lending to more credibility on the operations side of the business. The supply chain organization here centers around processes, and the IT people work in lockstep with



Photos: Scott Stewart

Globalization at GM

the process leaders. I believe GM has a history of integrating technology and business processes very effectively.

Is on-time delivery still one of GM's primary areas of concern?

Today more than ever—with the globalization of the company—delivering parts and vehicles on time is critical. We source, build and sell across the globe, and the accuracy and timely delivery within the supply chain of finished product is critical for our suppliers, plants and dealers. Order-to-delivery (OTD) time is something we watch very closely to meet each market's specific demands. For example, in California people typically want a car "right now." The market pattern is to buy off the lot. People want to see the car, feel the car and drive the car quickly. Outside the United States and in other parts of the country, the buying pattern may be different: ordering a vehicle might be expected to take 25–30 days. In Germany, for example, you see a significant amount of build-to-order requests. So, while delivering on time is still very important to us throughout the supply chain, build-to-order, or OTD times, are designed to meet specific market demands by region or country.

If you think about globalization and what we're trying to support in the supply chain and our global systems, we're looking at a "produce anywhere, source anywhere, build anywhere, sell anywhere, service anywhere" kind of paradigm. It's not all about regional build and sell anymore. Now the globe is the footprint for all of our processes. From a systems perspective, this presents a new set of challenges around flexibility, speed and global availability of our systems.

What is the biggest challenge of globalization for GM, in your view?

GM is handling globalization extremely well. We are currently looking at our emerging-market strategies and working from an IT perspective to ensure that we have cost-effective, scalable global solutions that will support the business in these markets. Bo Andersson, our Group VP of Global Purchasing and Supply Chain, is looking to source parts at "best-shore locations," so we need to make certain that we provide systems capability so he can make the best-informed decisions, based on best total landed

cost, very quickly. Bo makes purchasing decisions 24/7 through buying organizations that are strategically placed around the globe. These organizations buy for all vehicle platforms around the world.

If we don't provide 24/7 systems availability for these buyers with near real-time information, we will fail the organization. Equally, we need to have supply chain systems in place to support the release and movement of parts from suppliers to plants and of vehicles from plants to dealers—seamlessly.

GM has a history of integrating technology and processes very effectively.

GM has no boundaries—geographical, structural or organizational. And we want to use our entire supplier and manufacturing base to address global demand. So, our systems need to follow the same paradigm: global, seamless, cost-effective and scalable.

What are your major IT initiatives right now?

Our IT initiatives align strategically with GM's business goals. In GPSC, we're currently working to standardize on global systems that are in our "bill of IT," which is similar to a "bill of material" for vehicles. By reducing regional-specific systems, we ensure that we will have commonality around the world, that we can release upgrades to our systems and that all regions will benefit immediately from these upgrades. This allows us to be in a much stronger position to react to business process changes and requirements.

Simultaneously, we're focusing on bringing all of our logistics systems in-house—these systems were historically part of a joint venture—as well as creating new functionality around best total-landed-cost analysis, steel purchasing, resale systems and overall modernization of our legacy systems.

What will be your next areas of focus?

We are going to continue working on our legacy modernization with an eye toward creating the fastest, lowest

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cost systems for our emerging markets that align with our bill of IT. Also, visibility tools are becoming more and more critical with our expanding supply chain, and we need to streamline the number of order management systems.

What did you inherit when you came into your role?

I inherited some very robust, solid systems that were designed extremely well to serve our current environment. Unfortunately, I inherited a lot more of them than we ultimately want! That's why we're looking to retire regional applications that have duplicate functionality around the globe as we modernize our legacy environments. We have an excellent materials management system and a world-class purchasing system. These are the cornerstones of our GPSC suite. We are continuing to improve these from an architectural perspective and working to make them "lighter" and less monolithic in some areas. I also inherited multiple order management systems, and this is an area where some strong convergence needs to happen globally. We have a very strong agenda in this space. It involves componentizing the order management systems into services and taking advantage of service-oriented architecture.

GM has no boundaries — geographical, structural or organizational.

What has happened with electronic data interchange (EDI)? Is it still useful?

We're very strong in EDI. Covisint is our strategic partner for EDI, and it supports GM globally.

What about the 1990s purchasing portals GM got involved in?

Our purchasing portal is our own in-house portal that serves us well. GM SupplyPower is a solid portal that serves as a gateway for suppliers to access GM's Web-based systems. It's a common system for GM to meet suppliers' needs across all process areas. We will continue to use it into the foreseeable future.

What are some examples of the new functionality and capability GM wanted?

In addition to bringing our logistics systems back into GM with our systems integrators, we are working on new functionality in the areas of supplier capacity planning and control, best total-landed-cost analysis tools, vehicle visibility tools, and new metrics and reporting capabilities. Also, we're working on a new steel purchasing application.

As part of our strategy, we are commonizing on a standard suite of supply chain software from i2 as the basis for most of this new functionality. Our objective is to leverage a common backbone and move away from custom code where it makes sense to do so.

We have very solid global systems in the core purchasing and supply chain functions. We're looking to improve these systems while delivering the new functionality that I mentioned earlier.



Andi Karaboutis is sitting in GM's 2007 Pontiac Solstice.

Could you elaborate on your use of one platform?

While we're using the i2 Agile Business Process Platform for functionality within i2 applications, we're also using other methods for our legacy system modernizations. Essentially, we are determining, system by system, the best approach for moving into the future.

The i2 system is a decision-based tool set. You can go into particular solutions and pick the modules that work for you. So, my first point of call is i2 for several purchasing and supply chain applications. I have found the i2 suite to be the most robust at this point. But, if there's another product that is best for us in a particular area, we certainly will go with it. We have a good commercial agreement with i2 that allows us the flexibility to engage quickly on new projects. It has taken all the noise of negotiations out



of the way. As Bo Andersson always advises, "Focus on getting systems delivered quickly, efficiently and at the best cost. Avoid getting caught in redundant planning, talking, reviewing and contracting cycles that do not add value to the business."

How do you rate GM in its systems sophistication?

If you look at GM as a business, we have one of the most complex supply chains of any company in the world. We have \$86 billion worth of direct materials purchased globally, and 2,000 inbound trucks a day and 2,800 outbound. We have more than 175 manufacturing facilities in 33 countries. The supply chain is daunting. I believe our systems rank among the best in the industry for managing this complexity and providing seamless capability with zero disruption to the daily manufacturing process.

Our challenge is that we still have too many systems in regional applications. I mentioned the bill of IT earlier. Each process area has a bill of IT, and the bill dictates what systems are designated for every element of the processes. The goal is for these systems to be standardized and deployed globally. In GPSC I have a little more than 300 systems; however, my bill of IT dictates that I should have much less than that number, after I've completed global rollout and alignment.

Ralph Szygenda, our CIO, runs IT so that each process area has a bill of IT, like a bill of materials.

What are the biggest challenges today compared to those of a few years ago?

The extended supply chain and globalization of our business dictate that we must have flexible, scalable, low-cost, high-performing systems. Real-time information at people's fingertips with increased collaboration capability is a must. In order to get there from here, we have to modernize our legacy systems, develop new functionality and work with the business to drive business process alignment globally. I don't believe we've ever had this level of demand from our systems capability at any time in the past. We have a lot of opportunity ahead of us.

From an IT perspective, we're relying on standardized work and our basic focus on bill of IT as the cornerstones for what we do going forward. Each year we set objectives for improvement against this bill and then execute. The IT organization operates as a global matrix organization at GM. We operate an outsourced model and look to our systems integrators to deliver projects with us.

What has been critical for us in GPSC is the purchasing and supply chain expertise that our people have. We've found that unless you have domain expertise, you're not going to be successful in commonizing processes or in establishing supporting systems that hold up those processes.

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What are the core processes you are focusing on now within the supply chain organization?

Our key focus is on supplier footprint optimization, or what we call SFO. This refers to sourcing to the best suppliers globally based on performance, quality, piece price and capability to meet GM's needs. Bo Andersson is very focused on that. We're trying to provide the best tools to enable quicker decisions with more supporting data. The best total-landed-cost tool, the supplier capacity control tool, the vehicle and part visibility tool, as well as the others I mentioned above are all new capabilities we're developing to support globalization within the business.

Real-time information at people's fingertips with increased collaboration is a must.

What do you think of as innovation in supply chain management?

Clearly, the next level of real-time collaboration and seamless support of the global environment is what we need to focus on within the supply chain in support of our emerging-market strategies. Ralph Szygenda has always pushed the information systems and services organization to execute today's needs while stretching us to innovate, transform and re-engineer our systems landscape for 5-7 years out.



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