



CIO Issues

General Motors CIO Ralph Szygenda on Driving I.T. Innovation

By Pam Baker

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"The pressure on the CIO to keep it all running is immense," said GM CIO Ralph Szygenda. "We are no longer automating. We are trying to sustain everything. It used to be that if something went wrong, you could fix it manually. Not any more. Manual intervention is gone."

▶▶ GM CIO and Group Vice President Ralph Szygenda is one of the most powerful men in I.T. Sitting at the helm of the world's largest automaker, he is in the process of bidding out the world's largest I.T. buy in history -- to the tune of \$15 billion. The largest of the bid winners will be announced by the end of the year, he says. And when he says anything, the I.T. world trembles.

Under his command at any given time are up to six process information officers (PIOs), 40 CIOs, one CTO and 2,000 I.T. brokers -- all of whom use an incredibly complex and sophisticated strategy for buying and implementing technology throughout all of GM's many business

divisions.

In effect, Szygenda has built the largest I.T. department ever known. And his methods are working. Under his leadership, he has moved GM to standardized processes; dropped 7,000 legacy systems to fewer than 3,000; developed common desktop, e-mail and global CAD/CAM systems; moved from one vendor (EDS) to multiple vendors; cut vehicle development process time in half; and trimmed a billion dollars from the company's I.T. budget.

All these efforts were major undertakings, especially considering that GM employs over 317,000 people, produces vehicles in 32 countries, sells them in 200 countries and has an intricate, global supply chain that uses a multitude of languages and just as many currencies.

Szygenda joined GM in 1996 after a three-year stint as CIO of Bell Atlantic. In the previous 21 years, he served as CIO of Texas Instruments. He holds a bachelor's degree in computer science from the University of Missouri and a master's degree in electrical engineering from the University of Texas.

Szygenda spoke with CIO Today about the secrets to success in running the most dynamic and sophisticated I.T. operation in the world. His authority is palpable, and his voice is clear and strong. He dodges no question and is highly focused on the moment. Paradoxically, nothing escapes his notice yet nothing distracts him.

CIO Today: What are your top concerns as CIO?

Szygenda: I have many concerns: globalization, growth, regulations, [security](#) 🛡️ and departmental issues all need my attention. GM has been global for over 100 years and traditionally did everything regionally, meaning we built and sold vehicles in the same geographic area and then repeated the formula worldwide.

Now we do everything globally; we source \$90 billion in materials, build cars in plants all over the world and then ship them to over 200 countries to sell. No other company in the world has those kinds of logistic problems. Many companies say they are global, but they actually operate regionally. Few are truly global.

We continually optimize and integrate to keep everything running more efficiently. That's easier said than done. Take, for example, China, where we have moved to number one in just 10 years. It is a great growth market for us, and we have joint venture partners there to ensure we never accidentally inhibit the market. That means we don't have the final say on some of the technology used -- so nearly constant adjustment is necessary.

Regulatory issues also fluctuate and differ between countries and even between sections of the same country, so that requires close attention, as do security issues that exist everywhere.

Meanwhile, we have come to the end of our 10-year separation agreement with EDS and are bidding out the largest I.T. tech buy in history. It is a very sophisticated process. There are probably more I.T. dynamics at GM than in any other company in the world.

CIO Today: Has the I.T. environment changed from five years ago?

Szygenda: The biggest change is the digital world. The Internet has so changed the world that everything is connected and linked together digitally.

The pressure on the CIO to keep it all running is immense. We are no longer automating. We are trying to sustain everything. It used to be that if something went wrong, you could fix it manually. Not any more. Manual intervention is gone.

The ubiquitous aspect -- the mobility issue -- is much more sophisticated, linking auto, home, office and everywhere in-between.

There is a whole mindset change that came from the current regulatory environment. Security and privacy issues are now top priorities when they were hardly even an issue five years ago.

Everything is going "Wal-Mart." You have to produce a premier product at a low price, so there is constant pressure to find a better, cheaper

way of doing things.

CIO Today: How have new legislative demands affected the I.T. department and the CIO in particular?

Szygenda: The impact is immense in the auto industry. Beyond the expected Sarbox, privacy, financial and export-control regulations, there are crash testing, safety, fuel requirements and simulations, auto-computing device regulations and the like.

And more legislation is coming, I think.

We have to segregate information, because of regulations, from people working side-by-side on the same floor in the same building. It is an immense undertaking just to satisfy all the regulations from all the countries and even from the state level like California's privacy laws.

It has had an immense effect on us and we expect even more to come.

CIO Today: Which enterprise component or technology will be growing most in terms of its slice of your company's budget pie in the next 12 months?

Szygenda: Collaboration capabilities that allow design teams to communicate in visual, voice and data as though they were working in the same room together even though they are continents apart, will get a big piece of our budget.

Anything that will help drive revenue, increase my quality and decrease my cycles is going to get my attention.

Infrastructure and security will get a big slice. Whether you want to or not, you will be isolating, zoning and so forth to secure your organization and your information as more and more bad guys show up.

We are moving from I.T. caretaker to a precision-information track. We are only interested in real, demonstrable ROI.

CIO Today: Can you walk us through the decision-making process of implementing a large-scale business process management initiative?

Szygenda: We have a precision decision-making process. We begin with a portfolio process, evaluating and ranking ideas and technology for the company as a whole. And we do a competitor analysis every year.

We analyze needs and technologies through a combination of CIOs and PIOs. The CIOs have responsibility for vertical business units and geographic areas. For example, the CIO for GM North America is responsible for the I.T. [infrastructure](#) 🎁, systems and processes applicable to operations in the U.S., Canada and Mexico.

The same is true for the CIOs of GM Europe, GM Asia Pacific, GM Latin America, GM Africa, GM Middle East and so forth. Each CIO reports directly to me and to the sector president.

The PIOs have horizontal global responsibility for a process, such as sales and marketing, product development, supply chain, manufacturing quality and business services. They ensure all CIOs are employing the common processes for those disciplines across the globe.

Our precision I.T. process has enabled us to significantly reduce our expenditures and increase our efficiencies in real-time infrastructure and process change, which has shown positive impact on corporate culture, collaboration, product development and customer engagement.

CIO Today: What are one or two software or hardware products your company uses that you would describe as outstanding?

Szygenda: It is very difficult to find anything I would call truly outstanding. It is a very immature industry. For example, we give warranties on GM products, but you can't get a warranty for software.

Most of these suppliers are just struggling to meet demand as opposed to achieving stellar performance. But, to be fair, part of the problem is that our systems are so sophisticated it is hard for them to measure up to our specific needs.

So, some are quality products, but not what I would deem outstanding. UGS, or Unigraphics, is excellent in product-management systems

and computerized design.

We also have a Collaborative Team Center, custom-built by GM, where we have worked with UGS, Hewlett-Packard and [Microsoft](#) 🎁, among others, to develop the things we need.

The results of these collaborative efforts have filtered down to PCs throughout the world. For example, we brought 3D modeling to the desktop. Collaboration efforts and tools continue to be our mainstay.

CIO Today: Which emerging technology do you see as most important to the enterprise?

Szygenda: The ubiquitous capability of mobility technology -- the real-time information flow -- is important to us. Sophisticated middleware for next-generation integration is also important. Companies will cannibalize systems and have to integrate them quickly. Speed is essential.

Also important are automated-compliance technologies -- like Virsa -- that will let you know if you are complying with the various regulations or not. GM and SAP are the first to use it. SAP is beginning to remarket the technology now.

Automotive telematics is the last aspect of tech nodes on the network. GPS, diagnostics and entertainment are completely wireless in telematics. The vehicle is the ultimate wireless tool. And, of course, enterprise security technologies are important.

CIO Today: Where do you go to do your research on new technologies?

Szygenda: Our model is an outsource company, so it is the PIO's job to know all about I.T. capabilities outside GM. Their entire job is to research new technology, and, like a broker, buy and use it.

Our CTO is constantly looking ahead, visiting labs and universities. We also have direct links to venture-capital firms so we are the first to review new ideas and emerging technologies. That's how we found Virsa, actually.

Our GM teams meet with the development teams of every major I.T. company every year for a full day each. And I am a member of The Research Board, which is helpful.
