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Sweden Does Telematics

By [Kermit Whitfield](#), Senior Associate Editor

In automotive circles Gothenburg is known mainly as the home of Volvo. But Sweden's second largest city has become a hotspot for telematics research that is drawing global attention.

Estimates indicate that of the approximately 10,000 people worldwide who are conducting research and development on telematics, a full 1,000 of them are located in Gothenburg, Sweden. That ratio is pretty impressive when you figure that with a total population in the neighborhood of only nine million to draw from Sweden should hardly be a telematics R&D powerhouse. But it is, thanks in part to its status as the home of the sophisticated automakers Volvo and SAAB, wireless giant Ericsson, and a homegrown defense industry that designs everything from jet fighters to stealth warships. Now Sweden is keen to cast itself in the role of Detroit's secret weapon in the expanding global telematics market. The logic runs: With the car divisions of Volvo and SAAB being owned by Ford and GM respectively, those U.S. automakers should view Sweden as a high-tech extension of Motor City. "Gothenburg is the best opportunity for Detroit to compete with Stuttgart and Japan in telematics," says Rolf Rising, head of IT & Electronics, Invest in Sweden Agency. That argument is already having some resonance, with Ford locating its Premier Automotive Group telematics development center in Gothenburg. So in an attempt to achieve a critical mass of research activities, a cluster of small and large companies and research universities called "Telematics Valley" was formed. The group's annual conference has become one of the best places to see emerging telematics technologies and to try to parse the future of the overall industry. Here's a sampling.

Better Mapping. One roadblock to developing more sophisticated mapping data for automotive navigation systems is the sheer amount of data involved. Adding details like road surface angles and topographical data can bump a country's database from one manageable DVD to an unwieldy 10. To solve the problem of more data in less space, Swedish start-up company Idevio (www.idevio.com) developed RaveGeo, a compression and streaming software tool that achieves 90 to 95% compression. Consequently, those 10 DVDs can be brought to one without losing the additional data. To do that, RaveGeo eliminates repetition. Instead of using the current practice for storing mapping data as distinct areas where border data is saved several times, it saves that data only once and then calculates differences, thereby greatly reducing the overall amount of required storage space. It also uses the same data source for all resolutions, adding and subtracting details as needed, but not switching databases to obtain more information, which speeds information access. "This software offers more data in a format that is more easily accessible, which is key for automotive applications," says Patric Nordstrom, Idevio's CEO. RaveGeo is currently being evaluated for use in defense applications like anti-submarine warfare, and Nordstrom sees the first automotive applications in commercial fleets. "It will be two or three years before it makes it into personal use cars," he says.

Virtual Networks Now. Much has been made of the idea of creating on-the-fly virtual networks where cars wirelessly share information with each other on road conditions, traffic snarls and the like. Mobitex Technology AB (www.mobitex.com) has already done it. The company has equipped a fleet of over 8,000 taxis in Singapore with wireless terminals that allow the vehicles to gather and transmit information on congestion and

accidents while they transport customers. This data can be relayed in real-time to other drivers to help them avoid trouble spots. The backbone of the system is a wireless packet switched data network (the same method used to transmit data over the Internet) designed by Mobitex. Folke Bergqvist, vice president, Mobitex, says that a key advantage of the technology is that it is remarkably robust. In fact, he claims that it can achieve 100% accountability for all information packets, and that its network cannot be blocked by other transmissions, like cellular phone calls.

RaveGeo software uses compression and streaming algorithms to squeeze high resolution maps into small spaces, enabling even memory-challenged devices like mobile phones and PDAs to access detailed navigation routes.

One Take On Telematics "Telematics has been a nightmare for the OEMs," says Phil Magney, principal analyst for the Telematics Research Group, Inc. "There have been a lot of wrong decisions made, overengineering, and lengthy design cycles that ultimately result in a product coming into a market after its technology is obsolete or reaching the end of its life cycle." Having lived through the nightmare though, automakers have realized that telematics needs to be outsourced. What the OEMs are looking for now, according to Magney, are "solutions that are easy to implement and easy to upgrade." These are coming in the form of telematics units that employ thin-client software programs to attach to an existing in-car network and provide a simple wireless gateway. But while these solutions shift the development burden away from automakers, they don't solve the problem of cost. Magney estimates that the units range in price from \$200 to \$400—a fortune to OEM purchasing departments that regularly haggle over pennies—but notes that rising installation rates (thanks largely to GM's bundling strategy with OnStar) should pump up volumes and bring prices down. And while many who follow automotive telematics are wringing their hands over the low percentage of customers who choose to pay for telematics once their free subscription has ended, Magney thinks the industry could eliminate subscription fees altogether and still construct a viable profit model for installing telematics: "Long term, the best opportunity in telematics for OEMs is cost avoidance. The value of the data coming out of the car for design, development, warranty, recall and even CRM [customer relationship management] more than offsets the cost of putting a control unit in every vehicle." When asked if automakers share that view, he says, "They all believe it, but I don't believe they have quantified it yet in terms of what the impact will be to the bottom line." As for obstacles to the proliferation of telematics in vehicles, Magney points to the lack of standards as one of the biggest hurdles. "There are a lot of initiatives in place to bring standardization to telematics, but nothing has stuck," he laments. "And we're probably a few years away from an open standard that everyone will sign on to."

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