

# Telematics Drives the New Automotive Business Model

The emerging technology of telematics heralds the convergence of two-way mobile telecommunications with in-car infotainment services.

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Historically, the business model of the automotive industry has been one of large corporations, long time scales from conception to production – and far from the leading edge of electronics systems.

Those days are gone.

Now, both the business model and design environment of the automotive industry are experiencing rapid change and growth. Telematics – the convergence of mobile telecommunications and information processing in cars – is driving much of the change. Some companies have embraced the telematics concept and are striving to be first to market with new in-car “killer applications.” For example, Viasat (a Magneti Marelli and Telecom Italia joint venture) has produced a prototype version of an “Internet car.” Other ventures include “WirelessCar” (Volvo, Ericsson, and Telia) and “OnStar” (General Motors). These companies recognize that we are on the brink of an in-car revolution that is bigger than the car manufacturers, bigger than the telecommunications manufacturers, and bigger than the service providers.

For me, as a consumer, telematics means not getting stuck in traffic. A telematics system tells me where I am, where the traffic jams are, and where I must drive to get where I’m going on time. A telematics in-car system knows who I am and automatically adjusts my seat, my steering wheel, and my mirrors the way I like them. The system automatically detects and synchronizes my personal digital assistant (PDA) and my mobile phone with my on-board personal computer when I enter the car. With telematics, I can dial my PDA or mobile phone list using voice recognition while keeping my eyes on the road and my PDA and mobile phone in my handbag. To preserve security, the system automatically erases the call data when I leave the car.

I want all of these information exchange functions and services, but I want only one

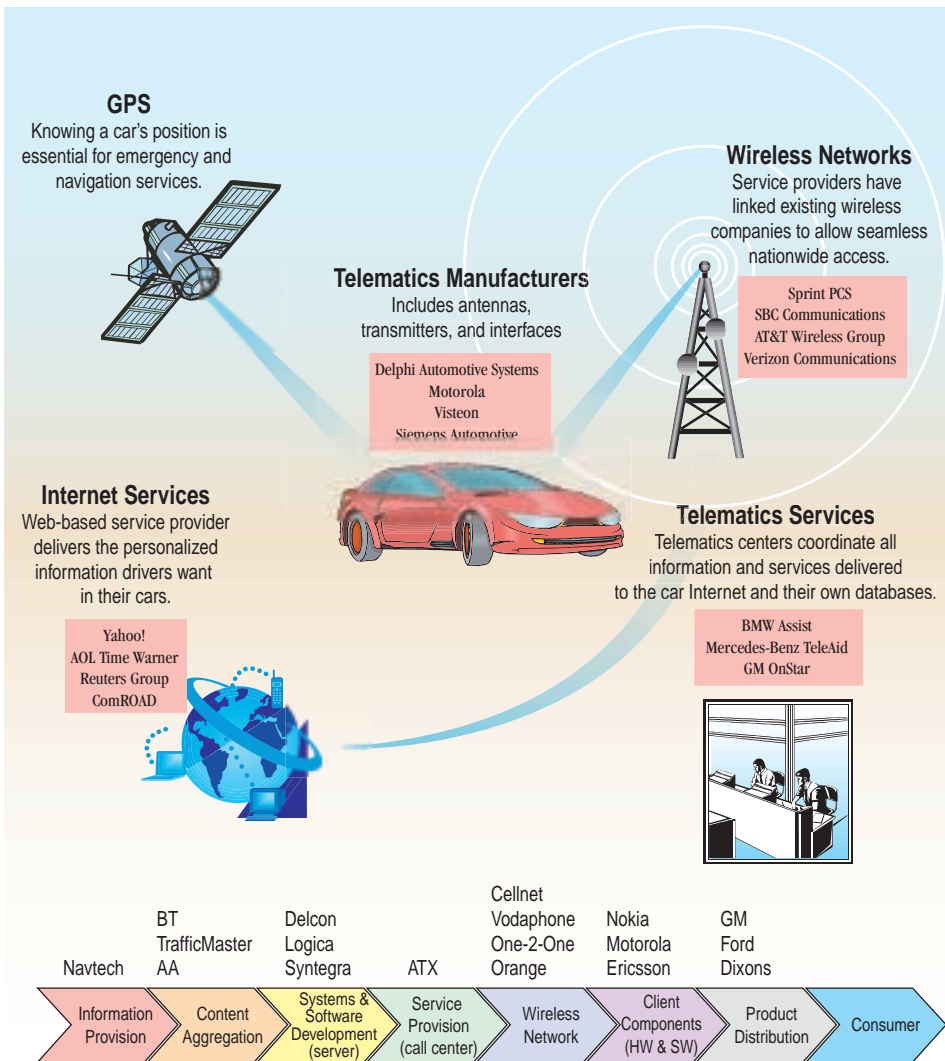


Figure 1 - Telematics value chain

point of contact – typically through the car company or the mobile phone service provider. For telematics-based products and services to succeed, automotive manufacturers must partner with the leaders in other fields. This new business model leads to more consolidated offerings. Examples of successful partnerships are:

- In 1998, Citroen and Trafficmaster™ announced the factory installation of Trafficmaster Oracle in all Xantia models.
- Webraska, the worldwide provider of wireless navigation services and technologies, has signed a contract with Borg Instruments, a first-tier automotive supplier for innovative electronics, to provide off-board navigation services.

### Telematics Offers a New Value Chain

Car radios are mutating into a variety of products with increased communications and entertainment functionality, starting with the digital convergence of the audio and navigation functions into one unit. Going forward, we will see further convergence with gaming consoles, PDA-type functionality, and Internet connectivity.

With mobile phone or set-top boxes, we can offset higher hardware costs through server-based applications (for example, off-board navigation) as wireless data transfer rates increase. But the costs depend on the relative cost of in-vehicle hardware versus the airtime charge per byte. In this model, the mobile phone manufacturers work

with the network providers to offset the cost of the hardware.

We can now add to this value chain the provision of a vehicle emergency messaging system (VEMS) (Rescu in the U.S.). This could mean, for example, using the services of ATX Technologies, Sprint networks, and Motorola (and Visteon) hardware.

The next step in the telematics value chain is adding fleet management and wireless application protocol (WAP) or third-generation (3G) wireless Internet access. At this point, we realize that no one really “owns” the customer. Figure 1 shows the full telematics value chain.

### Conclusion

The automotive industry is facing one of the most exciting and challenging times in its history. New design practices, schedules akin to those of the consumer electronics market, and the Internet connectivity challenges of mobile communications products, all converge into one system that has restricted space and is often exposed to harsh environments. It has been said, “If you can design a reliable, full-functioning system within the cost constraints of the automotive industry, you can design anything.”

As we reported in “You Can Take It With You: On the Road with Xilinx” in the Summer 2002 edition of Xcell Journal, Xilinx has developed a new “IQ” grade of industrial FPGAs and CPLDs with an extended temperature operating range specifically designed for telematics applications. ❧

To learn more about automotive telematics, please visit the following websites:

- [www.atxtechnologies.com](http://www.atxtechnologies.com)
- [www.magnetimarelli.net/eng/inf\\_d.html](http://www.magnetimarelli.net/eng/inf_d.html)
- [www.navtech.com](http://www.navtech.com)
- [www.onstar.com](http://www.onstar.com)
- [www.trafficmaster.co.uk](http://www.trafficmaster.co.uk)
- [www.webraska.com](http://www.webraska.com)
- [www.wirelesscar.com](http://www.wirelesscar.com)
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