Vehicle-enabled Information & Communication Services:
Market Outlook and Real Business Opportunities

Thilo Koslowski - VP & Lead Analyst - GartnerG2
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This year marks the 25th anniversary of Gartner and the founding of our industry.

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• Telematics industry’s expectations become more realistic – dreamers are finally waking up.

• Companies wanting to succeed current market consolidation must develop a bullet proof market strategy immediately.

• Telematics vendors must understand the needs of the end customers to provide automakers with successful applications.

• Industry must think “outside” the vehicle to put telematics into overdrive.
Advent of the Internet and mobile computing

Reduced investment activity

Wingcast dissolution

Non-automotive content and app. providers see telematics as a new channel opportunity

New telematics service providers enter the market

Growing interest and investments from automakers, suppliers and technology providers

OnStar launch

Advent of the Internet and mobile computing

Search for new “second-tier” telematics market opportunities/segments

Growing market consolidation and company closures

Realization of true potential of telematics

Development of applications that meet consumers' needs

Integration of telematics services into broader mobile service offerings

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Technology Trigger

Peak of Inflated Expectations

Trough of Disillusionment

Slope of Enlightenment

Plateau of Productivity


Visibility

Actual Demand

Maturity

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### Our View on the Opportunity

<table>
<thead>
<tr>
<th></th>
<th>Commercial</th>
<th>Public/Government</th>
<th>Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market size</td>
<td>★★</td>
<td>★★</td>
<td>★★★★</td>
</tr>
<tr>
<td>Challenge</td>
<td>★★★</td>
<td>★★</td>
<td>★★★★</td>
</tr>
<tr>
<td>Competition</td>
<td>★★</td>
<td>★★</td>
<td>★★★★</td>
</tr>
<tr>
<td>Successful market penetration</td>
<td>Short- to mid-term</td>
<td>Mid-term</td>
<td>Long-term</td>
</tr>
</tbody>
</table>

★ ★ ★ ★ ★ = Very significant  ★ = Less significant

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Industry’s View of Telematics Opportunity

Potential of Telematics on a scale from Low to High opportunity

By 2006
During 2004

Worldwide
United States
Europe

High
Mid
Low

Consumer New Vehicle Market
Consumer Aftermarket
Commercial/Fleet New Vehicle Market
Commercial/Fleet Aftermarket
Public/Government

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What’s Holding Telematics Back?

How important do you think the following factors are for accelerating market adoption for telematics solutions in all market segments in Europe?

- Cost reductions in technology hardware and software
- Flexible Pricing Options (e.g. choice pay-per-use or subscription)
- Better education on benefits for target customers
- Establishment of industry consortiums (e.g. create open platforms)
- Telematics embedded onto new models of vehicles
- Partnerships/JVs between vehicle makers and TSPs
- Government Regulations (e.g. restriction on in-car phone use)
- Market rollout of telematics solutions by Network Carriers
- Consumer focussed telematics promotions by Dealerships
- Telematics offerings accessible outside the vehicle (e.g. home, office)
- Commitment to telematics by Software Companies
- Widespread adoption of Bluetooth
Different Priorities Creating a Disconnect

- **Catch 22** - Vehicle manufacturers and TSPs want lower cost hardware and software - suppliers want telematics embedded in new models.

- Vehicle manufacturers realize the importance of joint ventures and partnerships, but are unwilling to release their control over projects.

- Network carriers, fleet operators and suppliers understand the importance of educating the end customer - vehicle makers see this as less of an issue (sadly).

- Telematics Industry is STILL not connected.
## Three Year Business Outlook

<table>
<thead>
<tr>
<th></th>
<th>Create business with new customers</th>
<th>Increase market awareness of offerings</th>
<th>Create partnerships</th>
<th>Better understand needs of market</th>
<th>Lower Costs</th>
<th>Improve offering or develop new one</th>
<th>Grow business with existing customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile Manufacturers</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Automotive Suppliers</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Telematics Providers (TSP)</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware Vendors</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software Vendors</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Network Carriers</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Commercial/ Fleet Operators</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultancies and Research</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Compared to the telematics markets overall, how do you assess the prospects for your company in particular?

<table>
<thead>
<tr>
<th>Category</th>
<th>Optimism rating for 2004</th>
<th>Optimism rating for 2005-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Vendor</td>
<td>5.14</td>
<td>5.78</td>
</tr>
<tr>
<td>Hardware Vendor</td>
<td>5.08</td>
<td>5.79</td>
</tr>
<tr>
<td>Commercial/Fleet Operator</td>
<td>5.04</td>
<td>6.00</td>
</tr>
<tr>
<td>Consultants and Research</td>
<td>5.02</td>
<td>5.54</td>
</tr>
<tr>
<td>Telematics-related Service Provider</td>
<td>4.89</td>
<td>5.86</td>
</tr>
<tr>
<td>Automobile/Truck Manufacturer</td>
<td>4.85</td>
<td>5.64</td>
</tr>
<tr>
<td>Automobile Supplier</td>
<td>4.84</td>
<td>5.74</td>
</tr>
<tr>
<td>Network Carrier</td>
<td>4.76</td>
<td>5.52</td>
</tr>
</tbody>
</table>

Average level of optimism on a scale of 1 to 7.
Existing Telematics and Future Plans

% of fleets

<table>
<thead>
<tr>
<th>Feature</th>
<th>Largest Fleets (100+)</th>
<th>Smallest Fleets (&lt;10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satellite or cellular based terminal communication</td>
<td>65% Already Deployed 20% Expected to be deployed</td>
<td>35% Already Deployed 29% Expected to be deployed</td>
</tr>
<tr>
<td>Real-time vehicle position tracking</td>
<td>48% Already Deployed 23% Expected to be deployed</td>
<td>16% Already Deployed 35% Expected to be deployed</td>
</tr>
<tr>
<td>Stolen vehicle tracking</td>
<td>39% Already Deployed 16% Expected to be deployed</td>
<td>6% Already Deployed 16% Expected to be deployed</td>
</tr>
<tr>
<td>Remote diagnostics</td>
<td>23% Already Deployed</td>
<td>6% Already Deployed 16% Expected to be deployed</td>
</tr>
<tr>
<td>Hands-free voice-activated cellphone connection</td>
<td>19% Already Deployed 29% Expected to be deployed</td>
<td>19% Already Deployed 23% Expected to be deployed</td>
</tr>
<tr>
<td>In-vehicle Internet access</td>
<td>16% Already Deployed 6% Expected to be deployed</td>
<td>6% Already Deployed 29% Expected to be deployed</td>
</tr>
<tr>
<td>Automated Sat-Nav GPS route guidance</td>
<td>16% Already Deployed 10% Expected to be deployed</td>
<td>13% Already Deployed 26% Expected to be deployed</td>
</tr>
<tr>
<td>Electronic client/order information access</td>
<td>13% Already Deployed 16% Expected to be deployed</td>
<td>10% Already Deployed 26% Expected to be deployed</td>
</tr>
<tr>
<td>Radar-based collision avoidance system</td>
<td>13% Already Deployed</td>
<td>6% Already Deployed</td>
</tr>
</tbody>
</table>

Source: GartnerG2 and American Transportation Research Institute
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Telematics Planned For New Vehicles

In order of expectation

1. Remote diagnostic system
2. Automatic collision notification
3. Radar-based collision warning systems
4. Load stability sensors
5. Lane departure warning systems
6. Stolen vehicle tracking
7. In-vehicle Internet access
8. Electronic client/order info access

Source:
GartnerG2 and American Transportation Research Institute
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• Understand your target audience’s changing demand for commercial technologies and applications.
  – Fleet operators’ current interests lie in communication-centred tracking and routing applications.
  – In the future, fleet operators will expect basic communication technologies as standard features and look for advanced data transferability and safety features as optional technologies.

• Develop universal solutions that provide data exchange between all parties associated with delivering goods.
  – Most technology providers will focus on delivering telematics solutions that are limited to the driver and fleet operator. The ultimate success from commercial telematics lies in sharing relevant information in real time with fleet dispatchers, customers, merchants, suppliers and formal transportation agencies.
Europe: A Tale Of Two Targets

Private New Car Buyers

Average Age:

- Spain: 39
- Italy: 42
- Germany: 45
- France: 47
- UK: 48
- Sweden: 49

"Selling technology to the over 40s?"

Company Car Drivers and their employers

No. of company cars on the road (m)

- France: 3.3
- Germany: 4.7
- Italy: 2.0
- Sweden: 0.7
- Spain: 0.8
- UK: 0.3

"But who is the customer?"
Overview of Consumer Survey

• 3,000 adults (aged 16-70) were interviewed by panel survey across France, Germany and the United Kingdom.

• Questions on a wide range of issues including…
  – Telematics - interest in services, willingness to pay, etc
  – Preferred interactions with dealers and manufacturers.

• Due to poor customer awareness of Telematics, we did not use the word “telematics” in this survey, but talked about services available in the car.
Under-25s are most interested in all in-car services, except seat-back entertainment and remote immobilisation (35-44s), and automated toll-payment (45-54s).

Under 35s say they would pay twice as much for a device as over 45s.
Learn from the Past - 3 Success Criteria

1. Purchase Motivation
   - Customer Targeting
   - Customer Education
   - Customer Segmentation
   - Pricing Strategies

2. Churn Reduction
   - Overcoming Technophobia
   - Encouraging Usage
   - CRM implication of Churn
   - Supplementary Services
   - Pricing Strategies

3. Additional Revenue
   - Niche Services (Infotainment)
   - Web-based Preferred Partners

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Preferred Telematics Provider

France
- Device Itself: 75%
- Services + Billing: 45%

Germany
- Device Itself: 55%
- Services + Billing: 37%

United Kingdom
- Device Itself: 63%
- Services + Billing: 37%

Base: All Car Drivers
- Car Manufacturer
- Car Dealer
- Mobile Operator
- Motoring Club
- Other

Other includes general retailers, petrol stations chains, insurance companies, and others

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Interest in Telematics - Example France

“Which of these services would you be interested in having available in your car?”

<table>
<thead>
<tr>
<th>Service</th>
<th>% of car drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote immobilisation, stolen car tracking</td>
<td>51</td>
</tr>
<tr>
<td>Accident/breakdown emergency button</td>
<td>48</td>
</tr>
<tr>
<td>Personalised car and radio settings</td>
<td>29</td>
</tr>
<tr>
<td>Instant location-specific traffic news</td>
<td>22</td>
</tr>
<tr>
<td>Drive thru-instant toll/parking payment</td>
<td>32</td>
</tr>
<tr>
<td>Hands-free voice-activated mobile phone</td>
<td>26</td>
</tr>
<tr>
<td>Navigation read-out service</td>
<td>21</td>
</tr>
<tr>
<td>Pay-as-u-drive car insurance</td>
<td>23</td>
</tr>
<tr>
<td>Automated car service booking</td>
<td>21</td>
</tr>
<tr>
<td>Access to operator &quot;find-me&quot; services</td>
<td>4</td>
</tr>
<tr>
<td>Voice activated Email/SMS readout</td>
<td>9</td>
</tr>
<tr>
<td>Seat-back entertainment (games/video)</td>
<td>9</td>
</tr>
<tr>
<td>Share price alerts</td>
<td>2</td>
</tr>
<tr>
<td>Audible sports score alerts</td>
<td>5</td>
</tr>
</tbody>
</table>

Base: All Car Drivers in France

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The Car Purchase and Ownership Cycle

1. A. Browsing
   - Get facts
   - Compare models
   - Get advice
   - Compare prices
   - Test drive
   - Configure options
   - Arrange finance
   - Agree terms

2. B. Negotiating
   - Delivery
   - Trade-in

3. C. Ownership
   - Problem resolution
   - Enhance
   - Service
   - Warranty
   - Brand experience
   - Happy motoring

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Old Rules For Selling Cars

- Single-brand dealerships
- Exclusive sales territories
- Sales channel is service channel
- Dealer holds key to customer relationships

New Rules For Selling Cars

- Multi-brand possible
- Dealers compete for sales
- Sales channel loses service obligation
- Dealer NOT the key to customer relationships

Manufacturer’s priority: - Build good cars

Manufacturer’s priority: - Customer Experience
Willingness to Pay
For a Telematics Device

Device offers all the services they were interested, or very interested in

% of car drivers that would pay at least...

<table>
<thead>
<tr>
<th>Cost of Device - Euros</th>
<th>France</th>
<th>Germany</th>
<th>U.K.</th>
</tr>
</thead>
<tbody>
<tr>
<td>70% (€710)</td>
<td>72% (€1160)</td>
<td>66% (€740)</td>
<td></td>
</tr>
</tbody>
</table>

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Potential Revenue - Example Germany

Measured as the product of the number of customers willing to pay at a particular price by the price point.

Peak = €1270

80% potential €750-€1650

Device offers all the services they were interested, or very interested in.

Volume

CRM

Profit

Revenue

Cost of Device - Euros

Base: All Car Drivers in Germany

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“How would you prefer to pay for the on-going use of these services in your car?”

- Not willing to pay: 31% (France) 42% (Germany) 37% (United Kingdom)
- Included in cost of device: 22% (France) 23% (Germany) 19% (United Kingdom)
- Pay-per-use: 22% (France) 23% (Germany) 18% (United Kingdom)
- Monthly subscription: 12% (France) 13% (Germany) 9% (United Kingdom)
- Undecided: 3% (France) 4% (Germany) 8% (United Kingdom)

Base: All Car Drivers

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Telematics as Part of a Broad Offering

Content and service aggregator

Office

Vehicle/mobile

Home

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Recommendations - Consumer Sector

- Identify consumers’ telematics preferences first and leverage flexible technologies to satisfy their needs. Don’t do it the other way around.
  - In the short-term, develop flexible telematics solutions that require minimum resources but provide the ability to upgrade to more comprehensive services in the future.
  - Expand your target group by including the vehicle passengers, not just the driver.

- Make telematics services available beyond the vehicle and integrate them into a broader mobile service offering.
  - Develop collaboration between companies from various industries, such as automotive, media and telecommunications.

- Pure-breed telematics service and technology providers: Expand into new markets to ensure short-term survival and prosper from telematics offerings in the long-term.