

# Smarter Products for a **SMARTER PLANET**

**Domenico Ercolani**  
**Rational Sales Specialist**

**Rational.** software

**IBM**

# The world is smaller and flatter and is getting smarter



# Products Are Getting Smarter Every Time We Look *Sometimes in Ways We Can't Even See*



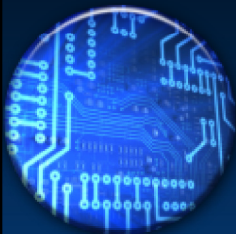


# What Makes a Product Smarter? How Will Your Company Deliver Value?



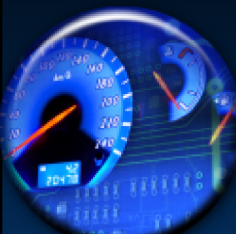


# Software is Driving Much of the Value in Products Today



## Electronics

- Apple's iPhone is completely instrumented, with GPS positioning software that helps the device know where you are



## Automotive

- 90% of innovation is based on electric / electronic systems
- 80% of this innovation is based on embedded software



## Aerospace & Defense

- F-22 Raptor (2003) contains 1.7 million lines of code
- F-35 Lightning II (scheduled for 2010) will have 5.7 million lines of code

*“Embedded software has evolved from a hidden component driving functionality to the **keystone of product differentiation** and end-user experience.”*

VDC Research,  
October, 2008

**"our civilization runs on  
software"**

*-- Bjarne Stroustrup*

Yet the art of creating it continues to be a dark mystery.  
Never in history have we depended so completely on a  
product that so few know how to make well.

# Product Development Inefficiency Impacts the Bottom Line

## Medical Devices

- Recall of 42,000 defibrillator devices due to poor software

## Aerospace & Defense

- \$1 billion prototype rocket self-destructs due to bug in on-board guidance software

## Automotive

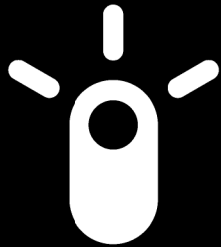
- ~50% of warranty costs are related to electronics and embedded software





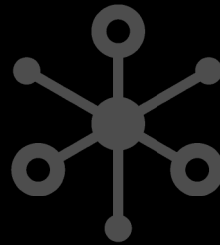
# How a Smarter Planet “happen” .....

*It requires Smarter Products which are Intelligent, Interconnected and Instrumented*



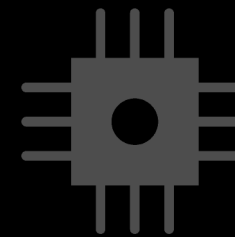
## INTELLIGENT

**We can respond to changes quickly and accurately, and get better results by predicting and optimizing for future events.**



## INSTRUMENTED

**We now have the ability to measure, sense and see the exact condition of everything.**



## INTERCONNECTED

**People, systems and objects can communicate and interact with each other in entirely new ways.**

# Smart Products need to be first CREATED

## Vehicle Services

- Vehicle Monitoring
- Roadside Assistance
- Advanced Diagnostics
- Software Fault Analytics
- Service & Warranty Data

## Traffic Services

- Police/Emergency
- Traffic Congestion
- Weather
- Concierge
- Insurance (“pay as you drive”)

## Personal Services

- News
- Entertainment
- Banking
- Government
- Utilities



Vehicle to Vehicle



Dealer



Tolling



Electric Vehicle/  
Hybrid Charging



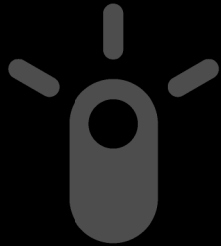
GPS



Vehicle to  
Roadside

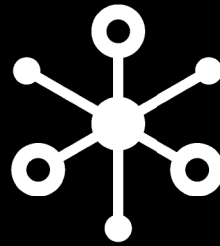
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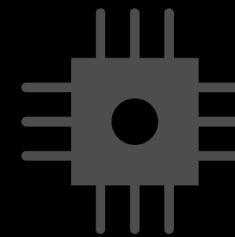
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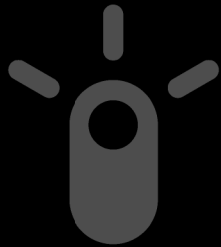
# Spimes

- We called these smart Internet devices “**spimes**” because they’re tractable in space and time.
- The primary advantage is that you no longer inventory your possessions inside your own head.
- That work is done far below your notice by a host of machines. You just ask where things are and where you bought them and what you paid, and so on.
- You no longer wonder where your shoes are, you just google them.



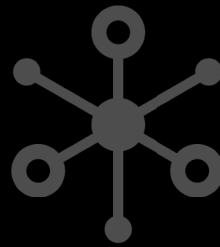
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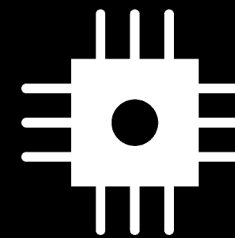
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# Integrated Systems Are Creating New Business Models *Delivering Competitive Advantage and Sustained Value*

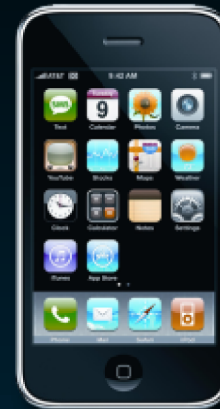
**mp3 devices** are at the center of a vast ecosystem of products & services

Music libraries

Streaming video

Applications

Messaging



Entertainment/  
edutainment

Location services

Games

**Automobiles** are rapidly becoming a network device

Roadside assistance

Vehicle-to-vehicle communication



GPS services

Internet connectivity

*Systems Engineering and Architecture are key to creating value in the marketplace*



# Car2Car



WiFi is coming to the fast lane as European automakers like DaimlerChrysler make progress on in-car networking systems designed to make driving safer.

Cars equipped with the system can relay information about temperature, road conditions, fog, or road obstructions to vehicles within 500m, warning other drivers about problems so that they can take corrective actions.

This project uses existing vehicle sensors such as the anti-lock braking system, electronic stability control, thermometer, or navigation system to detect black ice and road problems, and it can integrate with in-car radar and collision systems to report the location of road obstacles or disabled vehicles.

# Smarter Products for a Smarter Planet

## *In Summary...*

- Software is driving the **value and differentiation** in products and systems
- The development of smarter products requires: Innovation, Collaboration, Efficiency
- IBM Rational provides an integrated software platform dedicated to helping companies **develop and deliver smarter products** and to develop software that can benefit from smarter products
- IBM can offer the software, hardware, expertise and services to help you get ahead of the competition

