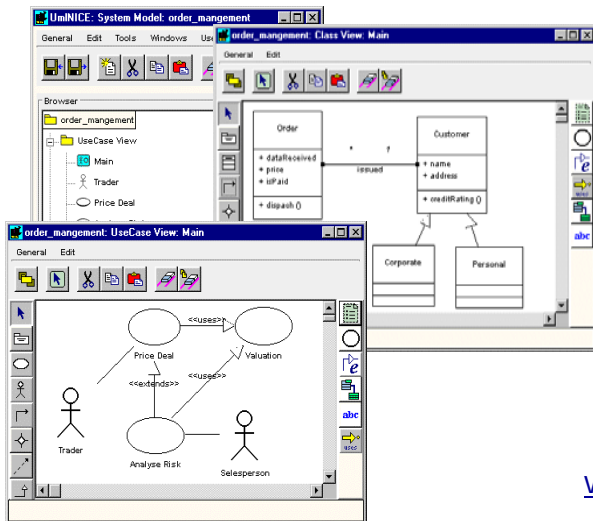


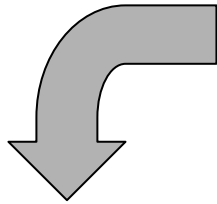
Automotive Software Process Improvement Network

2nd Workshop

Milan – 11th October 2007

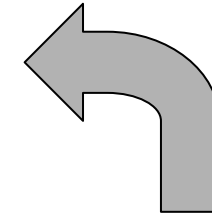


the current scenario

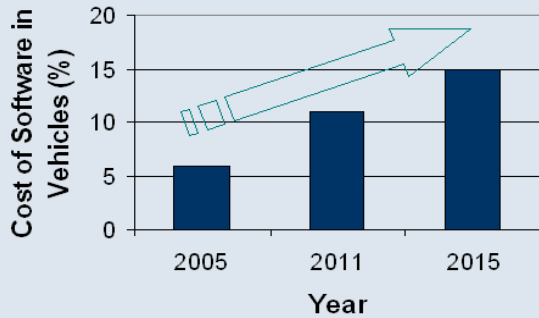


Quality & Features

Key product differentiators	SW-driven	HW-driven
Reliability ⁽¹⁾	71%	29%
Ease of integration ⁽²⁾	74%	26%
Usability/flexibility ⁽³⁾	71%	29%
Features and functionality ⁽⁴⁾	58%	42%
Cost ⁽⁵⁾	34%	66%
Design ⁽⁶⁾	7%	93%



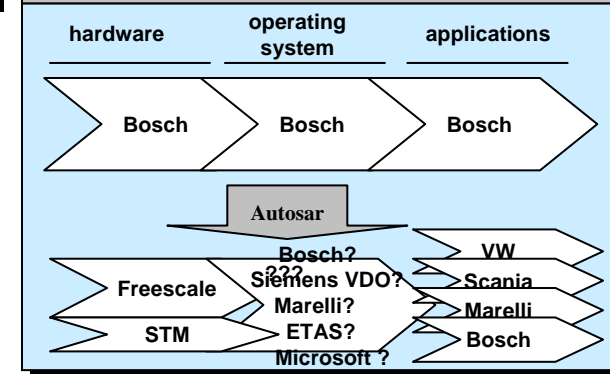
Software explosion



Frost & Sullivan, 2006

BCG, 2004

New dynamics

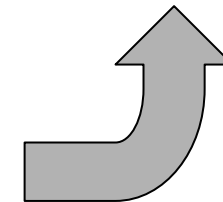
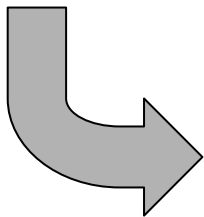


Structural innovation

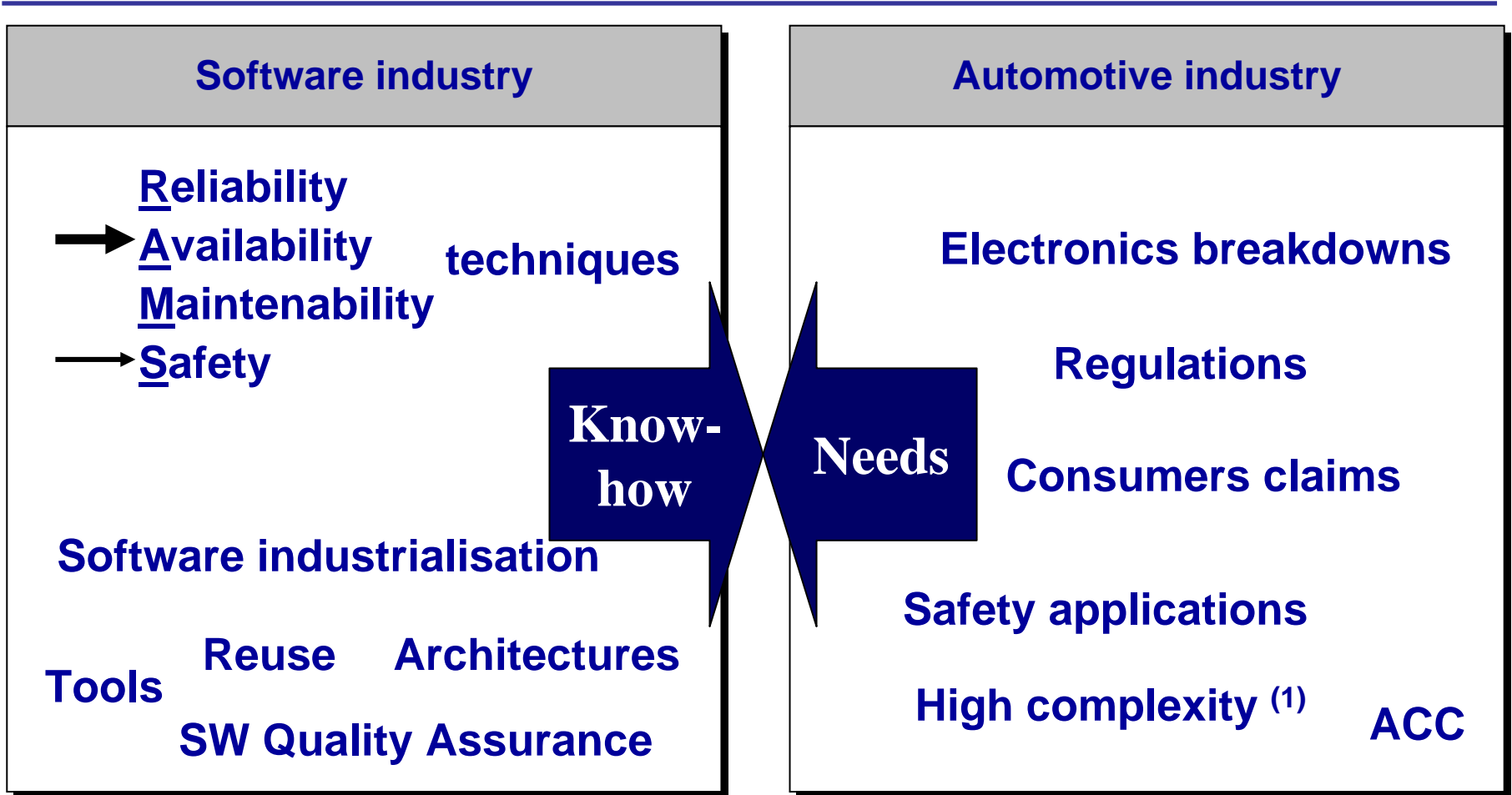
- ➔ Reliability
- ➔ Availability techniques
- ➔ Maintainability
- ➔ Safety

Software industrialisation

Tools Reuse Architectures



Two industries meet



Timing and prerequisites for a happy marriage

(1) La BMW serie 5 presenta 500 milioni di combinazioni nel solo sistema di "infotainment" (BCG, 2004)

Impact of software

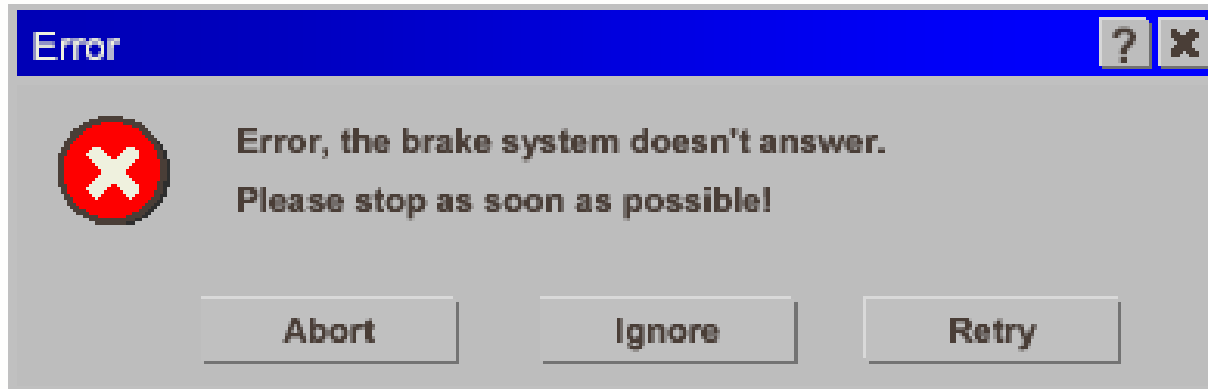



Photo courtesy of 

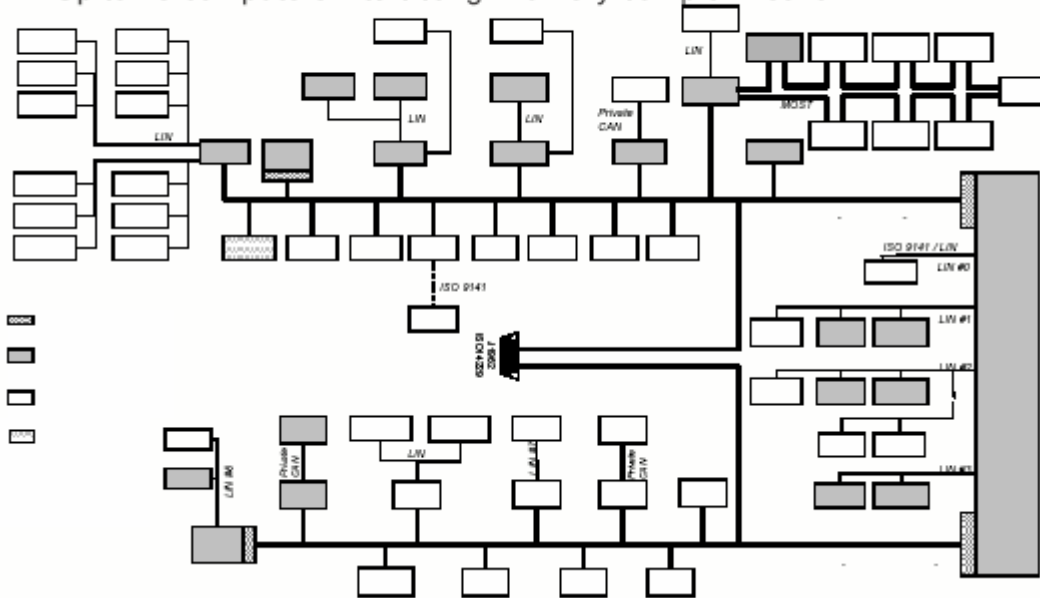
Intelligent Car

a computer on wheels !

huge amount of software on board

Software in our cars?

Up to 70 computers interacting in a very complex network



More than 300 KLOC lines of code !

(NASA Shuttle avionics is 450 KLOC)

Software advantages

- ✓ Allows unprecedented new functions
- ✓ It is flexible (variants, evolutions)
- ✓ Has no weight, does not consume
- ✓ Does not wear-out over time

Software issues

- ✓ software “bugs” are the greatest contributors to malfunctions
- ✓ may cause expensive “recall”
- ✓ software development is always late
- ✓ software is expensive

The answers

- ✓ Discipline and standards for the process:
 - ✓ **Automotive SPICE™**
 - ✓ **Safety WD 26262**
 - ✓ **MISRA Development Guidelines**
 - ✓ **MISRA C:2004**

- ✓ Discipline and standards for the product:
 - ✓ **AutoSAR**

Why a SPIN

Compare and share experiences:

- ✓ Effective and efficient adoption of Automotive SPICE
- ✓ Use of tools/libraries (COTS and Open Source)
- ✓ Consulting services, training and assessment
- ✓ Standards, Methods e Techniques
- ✓ Model-based vs. Code-based
- ✓ Software Safety & Security

How does the SPIN work ?

- ✓ An open Interest Group
- ✓ Lean organization (president, steering board)
- ✓ One web site
- ✓ **Workshop** (2-3 per year)
- ✓ Linked to SPIN Germany
- ✓ Collect recommendations from members to the standardisation bodies
- ✓ Identify research areas and encourage collaboration among members

Workshops are the main events