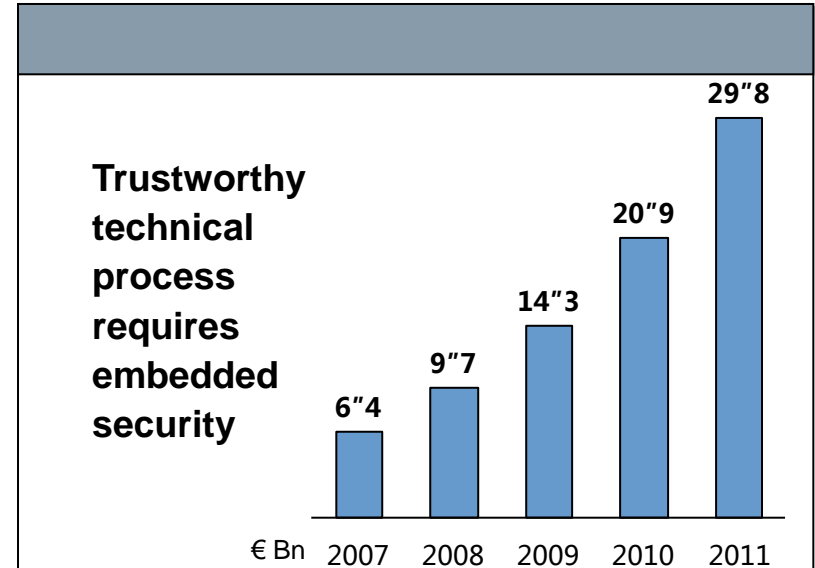
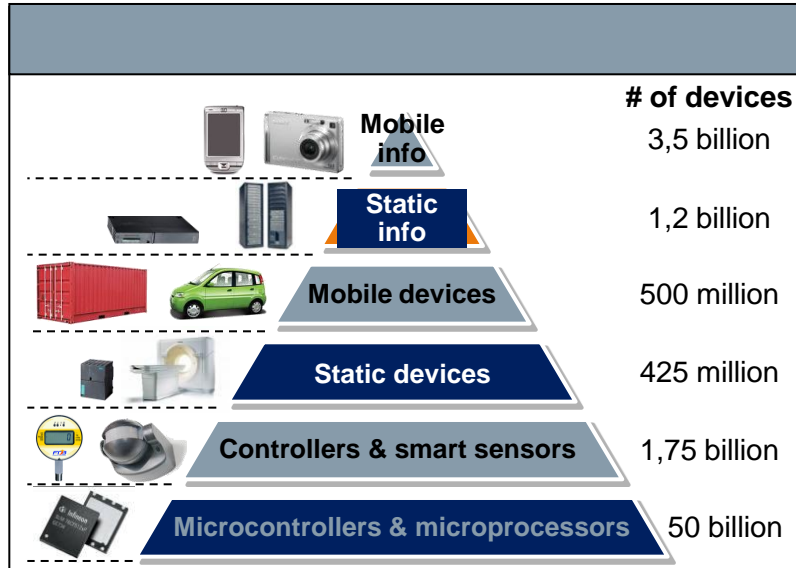


Machine-to-Machine Connectivity is Increasing Rapidly and Creates a High Demand for Embedded Security

Machine to Machine (M2M) connectivity



Passenger information	Traffic control	Metering	Energy

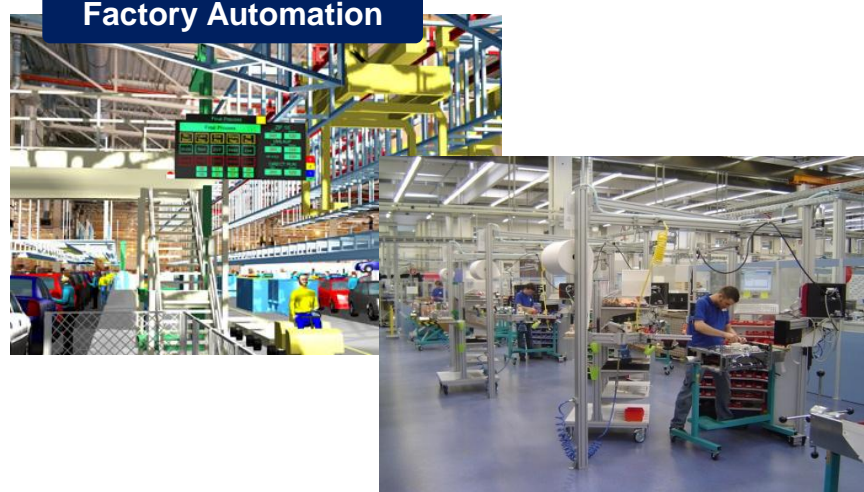
Source: Harbor Research 2009: "Pervasive Internet 2005–2011"

Increasing Intelligence and Open Communication in Industry Automation Environments

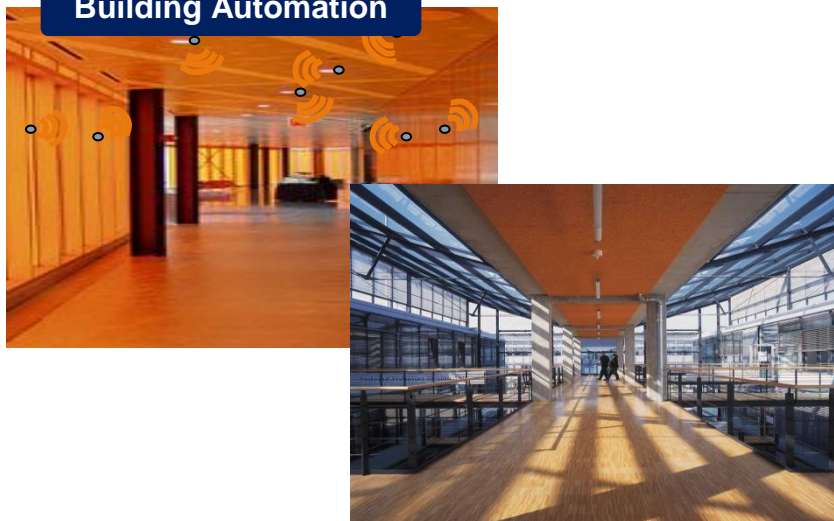
Process Automation



Factory Automation



Building Automation



Energy Automation



Security has to be Suitable for the Addressed Environment

SIEMENS



Panel AFIN/DEPEND/SECURWARE

Challenges Toward Secure Internet of Things and Web of Things

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SP Technical Research Institute of Sweden

Who I am - Dr. Rolf Johansson

- Ph.D in Computer Engineering from Chalmers University
- Ms.C in Engineering Physics from Lund University
- Accredited Safety Assessor for ISO26262 (automotive domain)
- Researcher at Sweden's largest research institute since 2010
- Previous more than 20 years of industrial experience
 - 10 years in aerospace
 - 10 years in automotive



A safety (not security) guy!

But a safety guy also needs to consider security

Twisting the subject:

“Challenges Toward Secure Internet of Things and Web of Things

First turn:

A Secure Internet of Things - a contradictio in adjecto.

Let us realize: We are aiming for a chimeric in the general case.

Challenge: Select the rare occasions when prepared to pay for:

global accessibility

‘absolute’ security

Confine your scope!

Don't ask for a
secure Internet in
general

Twisting the subject:

“Challenges Toward Secure Internet of Things and Web of Things”

Second turn:

Secure Internet of Things as a trade-off problem.

Finding the ‘right’ levels of integrity and confidentiality to pay for.

How much integrity is enough?

It's not either unsecure or absolute secure!

Twisting the subject:

“Challenges Toward Secure Internet of Things and Web of Things”

Third turn:

Unsecure Internet of Things as a cause of unsafe embedded systems.

How to calibrate the level of guaranteed security to meet the needs for safety assessment?

Address Security and Safety together

The domains of safety and security partially addresses the same problems



Challenges Towards Secure Internet of Things

Carlos Becker Westphall

**Networks and Management Laboratory
Federal University of Santa Catarina**

Some questions

- All of that data being harvested in an automated fashion but, who has access to the data?
- What type of information is actually being collected?
- How do you go about managing the username/passwords for your ever increasing number of connected devices and appliances?
- What about the privacy of your information?

OWASP Internet of Things Top 10

- I1 Insecure Web Interface
- I2 Insufficient Authentication/Authorization
- I3 Insecure Network Services
- I4 Lack of Transport Encryption
- I5 Privacy Concerns

OWASP Internet of Things Top 10

- I6 Insecure Cloud Interface
- I7 Insecure Mobile Interface
- I8 Insufficient Security Configurability
- I9 Insecure Software/Firmware
- I10 Poor Physical Security