Benefits for an SME from Transnational funding programs

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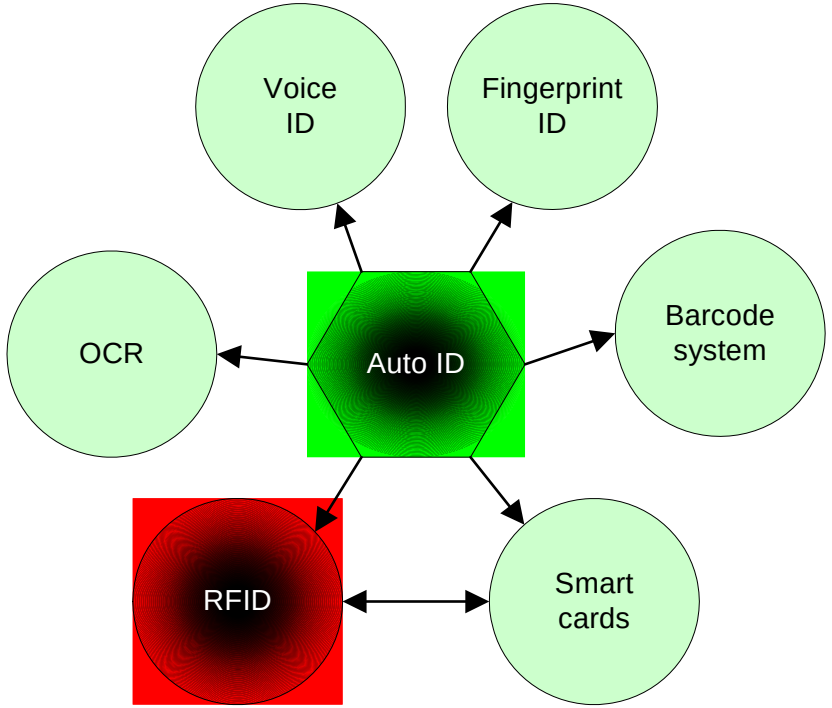
Summary

- UHF RFID as a tool for manufacturing
- CAEN group description
- CAEN and EU Funded projects

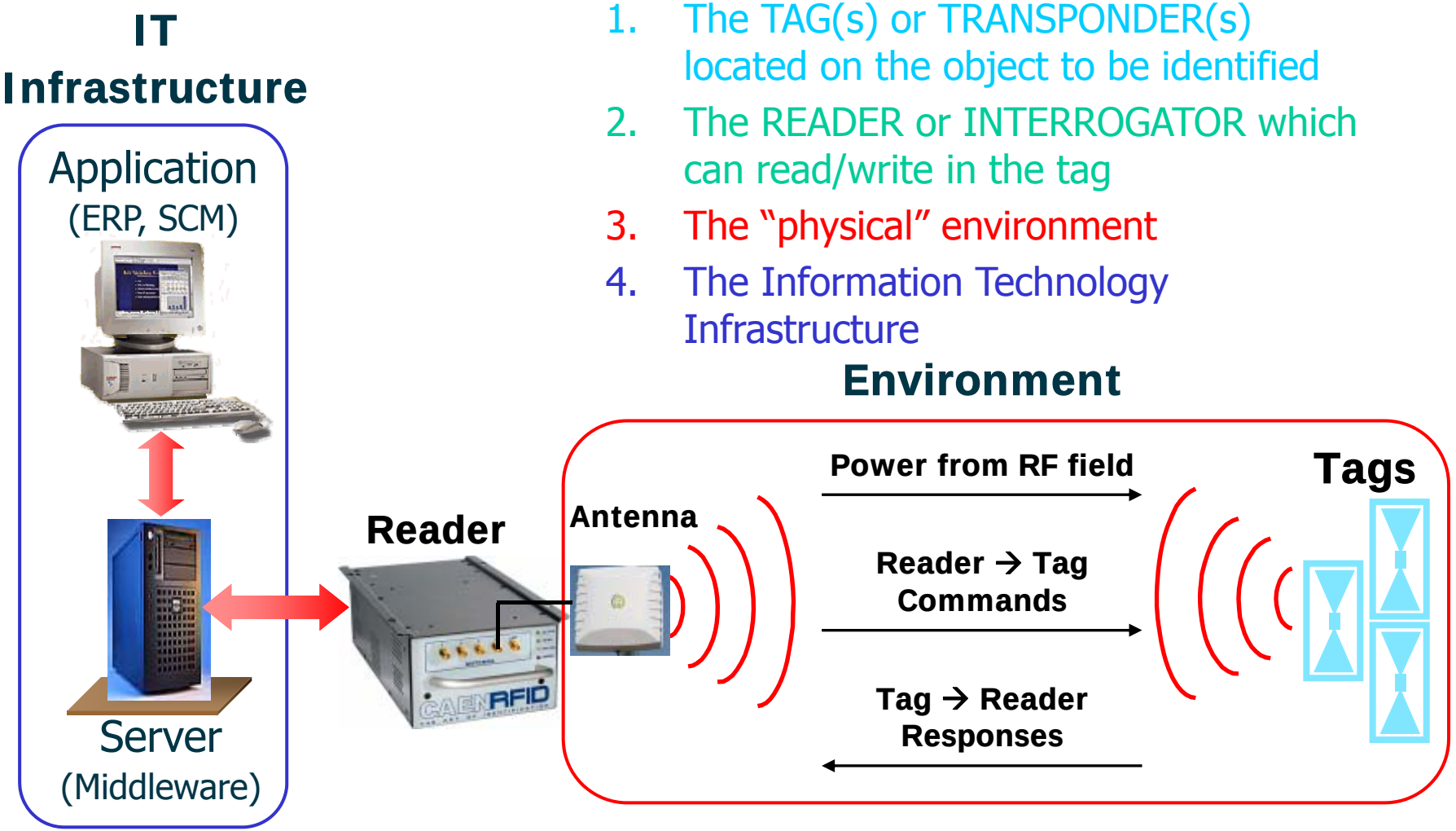
What is Automatic IDentification?

- Auto ID procedures
  - Barcode
  - Smart Card
  - RFID
  - Optical Character Recognition
  - Voice ID
  - Fingerprint ID
- Auto ID procedures have become very popular in
  - item management
  - supply chain management
  - logistics
  - security/access control
  - purchasing & distribution logistics



Elements of an UHF RFID system

1. The TAG(s) or TRANSPONDER(s) located on the object to be identified
2. The READER or INTERROGATOR which can read/write in the tag
3. The "physical" environment
4. The Information Technology Infrastructure



Examples of RFID usage in Manufacturing

- Supply Chain
  - Production chain
  - Quality management (expiring date & origin tracking)
  - Automatic warehousing
  - Recording of environmental variations (temperature, light, humidity)
- Automotive
  - Production chain management

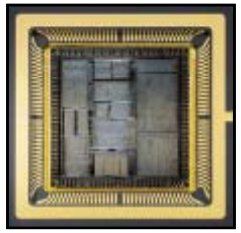



CAEN: from High Energy Physics to RFID

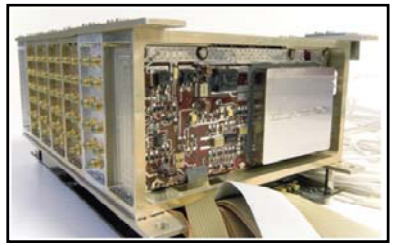
- ✓ CAEN's core business: Power supplies and Data Acquisition Electronics for physics detectors (world leader)
- ✓ Founded in 1980, Headquarters in Viareggio (Italy)
- ✓ R&D Division at the forefront of technology
- ✓ Flexible and capable of facing new markets and new products
- ✓ Spin-offs: Microelectronics-Aerospace (1995), RFID (2003)
- ✓ When facing growth strategies in new markets, CAEN decided to enter the AutoID sector, specifically with UHF RFID

Nuclear

μelectronics



Aerospace



RFID

CAEN RFID at a glance

- ✓ An SME based in Tuscany (Italy) providing UHF RFID products
- ✓ Founded in 2003, rapidly becoming a key player in the EU RFID scenario (EPCglobal, ETSI, EREG, TIA,…)
- ✓ 10 Employees, 1.2 M€ turnover
- ✓ Customers in manufacturing, logistics, …
- ✓ Outstanding annual business growth
- ✓ Totally in-house HW, SW & support skills
- ✓ An "**added value manufacturer**" for the AutoID community

- ✓ **Readers targeted for each application → cost effective**
- ✓ **Shared libraries → less SW development**
- ✓ **Integrated solutions for embedded RFID**

EPCglobal LPRA LOW POWER RADIO ASSOCIATION AIM Italia ASSOKNOWLEDGE TIA Tecnologie Identificazione Automatica ORACLE MOBILE SOLUTION PROVIDERS COMMUNITY

CAEN EASY2READ® Family

- ✓ **Readers targeted for each application → cost effective**
- ✓ **Shared libraries → less SW development**
- ✓ **Integrated solutions for embedded RFID**

- Small sized

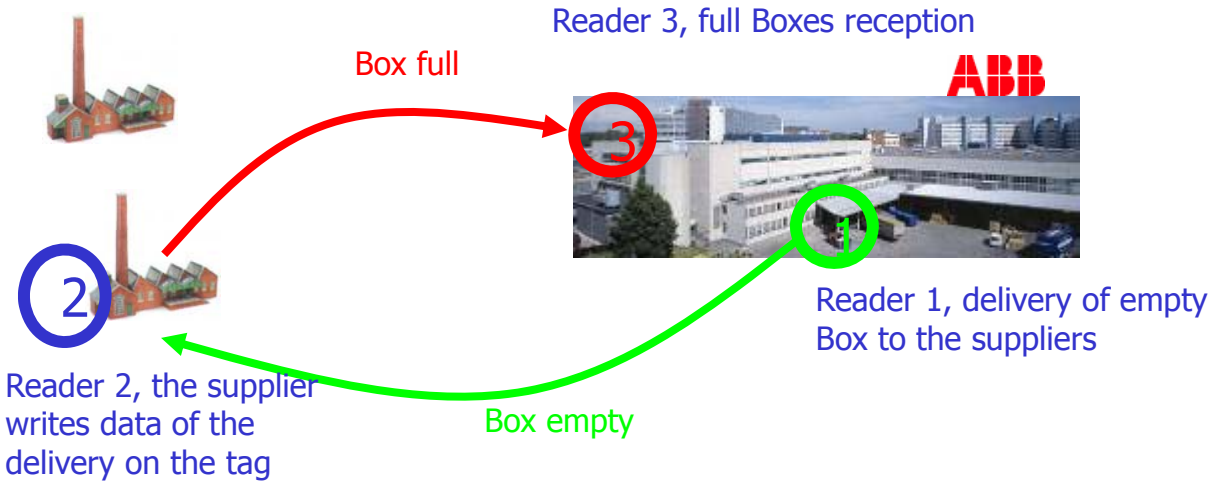
- Medium sized

- Large sized

- Metal-mount and Temperature Tags

Kanban process

- Customer: ABB Drives Oy (Finland)
- Request:
  - to manage their Kanban process
  - to increase the material management productivity and efficiency
- System integrator: Vilant Systems Oy
- Reader: CAEN A928
- Labels: RAFSEC
- Status: Roll-out



Vehicle access control in glass manufacturing

- Customer: Asahi Glass Company (f.k.a. Glaverbel), Moustier (Belgium)
- Request:
  - identify stillages at the receipt and exit of automatic glass packaging machine
  - Real-time monitoring of entrance-exit of fork lifts
  - Security management
- System integrator: IBM Belgium
- Reader: CAEN A928
- Tag: CAEN A918
- Status: Roll out

CAEN and EU funded projects

- MEPI and SUMIS (1993), ESPRIT II Special Action I-SMILE
- MagIC, 1996-1999 ESPRIT Project: MAGNETIC IC for Industrial Switch and Sensor Applications
- LAP, 1998-2000 ESPRIT Project: Low cost Large Area Panel Processing of MCM-D substrates and packages
- CARDIS, FP5 GROWTH: Cardiological real-time low-dose imaging system
- PLACEBO, FP5 IST: An innovative Computational PLAtform for solving differential Equation of modelling BiOmedical processes
- AMON, FP5 IST: Advanced care and alert portable telemedical MONitor
- LIFEBELT, FP5 IST: An intelligent wearable device for health monitoring during pregnancy
- DIAMINE, FP5 IST: Detection and Imaging of Antipersonnel Landmine by Neutron Backscattering
- INTREPID , FP6 IST: A Virtual Reality Intelligent Multisensor Wearable System for Phobias Treatment
- EURITRACK, FP6 IST: European illicit Trafficking countermeasures Kit
- BRIDGE, FP6 ICT: Building Radio Frequency Identification solutions for the global Environment
- EURIDICE, FP7 ICT: European inter-disciplinary research on intelligent cargo for efficient, safe and environment-friendly logistics

CAEN experience in EU research

CAEN was present in FP4, FP5 and FP6 with more than 10 projects

Help in **growing of branch activities** (i.e. biomedical applications for microelectronic division, RFID)

New Product Development and quick product redirection with short term tactics

R&D development working side by side with different partners in order to obtain the best approach to solve the application problems

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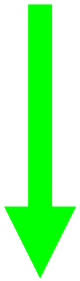

Continuous monitoring of competitors and technological opportunities, improving the skills of the R&D and marketing team to identify new products and market opportunities.

CAEN experience in EU research

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Risks if object of **research** is not exactly in company's **activities roadmap**

There has to be a **clear exploitation plan** (and partner) that knows the market and how to address it with new products

Funding for **R&D development only** may be **frustrating**: lot of time spent and no new products developed

Building Radio frequency IDentification solutions for the Global Environment

A 3 years Integrated Project
Started on July 1st 2006
15 work packages, 30 partners
Total budget: €13 millions
EU Funding:€ 7,5 millions

BRIDGE

BRIDGE Partners

GS1	Labs/ Universities	End users	Solution Providers
Global Office (Coordinator)	Cambridge	Bénédicta	AIDA Centre
China	ETH Zürich	Carrefour	AT4 wireless
France	Fudan	gardeur	BT
Germany	TUG Graz	Kaufhof	CAEN
Poland	UPC Barcelona	Nestlé UK	Confidex
Spain		Northland	Domino
UK		Sony	JJ Associates
			Melior
			SAP
			UPM Raflatac
			Verisign UK
7	5	7	11

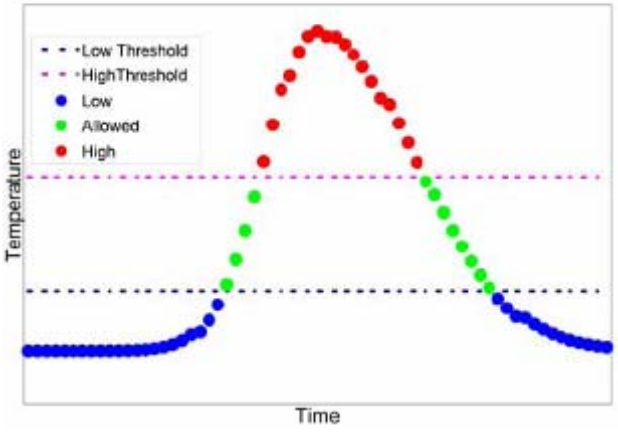
BRIDGE Hardware R&D (I)

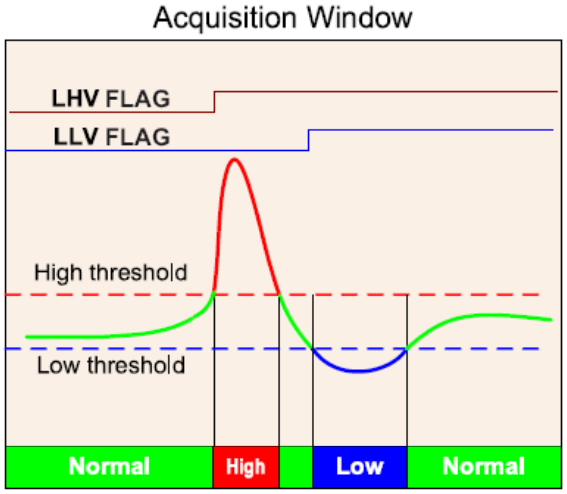
- ***low-cost reader***
- Saving in reader volume: 95%
- Saving in PCB area: 85%
- Saving in components: 65%

- *Total cost saving: about 75%*

BRIDGE Hardware R&D (II)

- **Sensor Enabled Tags**
- UHF RFID (EPC Class1 Gen2)
- Environmental monitoring
- Life prediction for perishable goods
- Low-cost wireless sensing solution
- Platform ready for multiple sensors (temperature, humidity, contact)





CAEN *Tools for discovery*

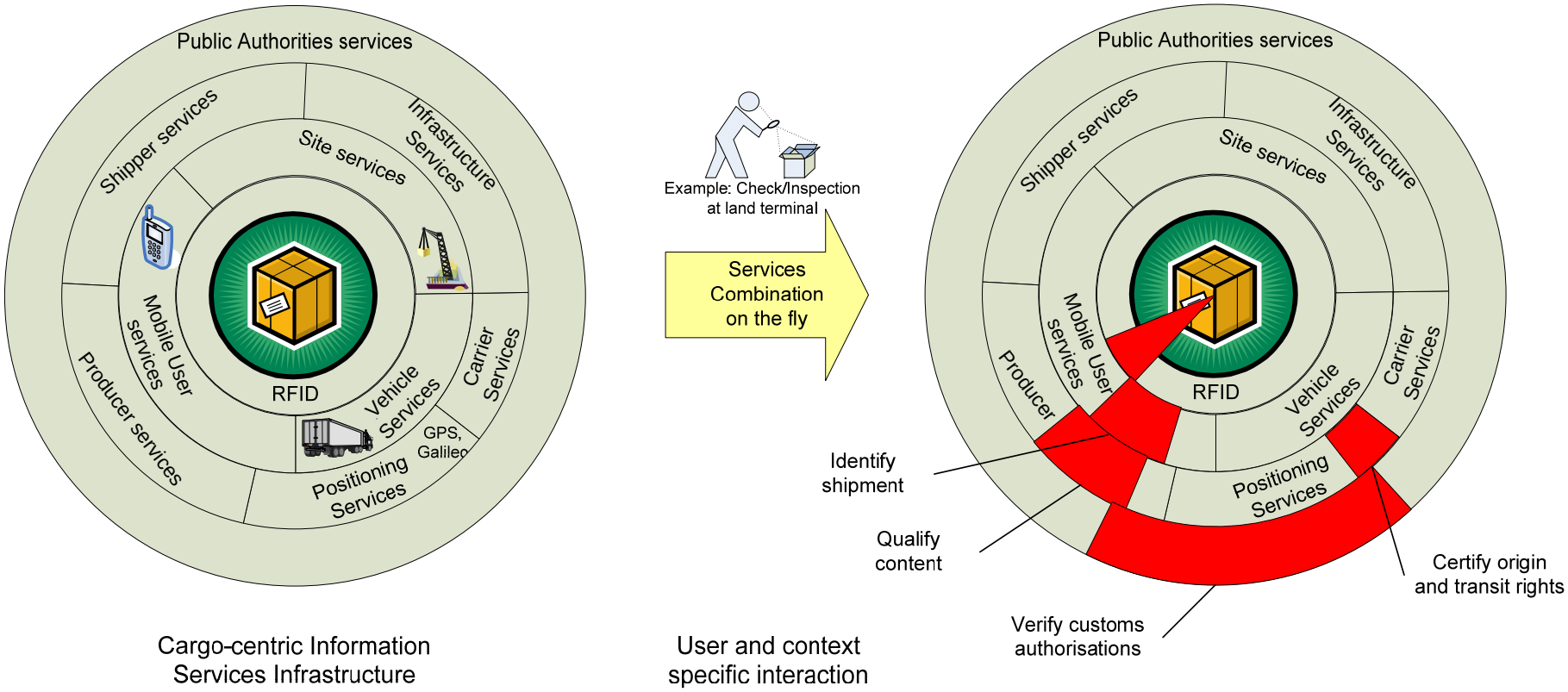
CAENRFID THE ART OF IDENTIFICATION

European **I**nter-**D**isciplinary Research on **I**ntelligent **C**argo for **E**fficient, Safe and Environment-friendly Logistics

Overall Budget - Funding	14.1 - 8.25 M€
Start - End Date	1/2/2008 – 31/1/2011
Coordinator	Insiel, Italy
22 Partners:	

The Intelligent Cargo vision

"In five years time, most of the goods flowing through European freight corridors will be 'intelligent', i.e.: self-aware, context-aware and connected through a global telecommunication network to support a wide range of information services for logistic operators, industrial users and public authorities."



Cargo-centric Information Services Infrastructure

User and context specific interaction

Euridice Enabling Devices

- The Euridice framework and the cargo intelligence concept are not device oriented but we need enabling technology devices for data-collecting, monitoring and communication

- Examples of enabling devices:
  - Intelligent, RFID enabled, Euridice gateway platform
  - Low-cost, short-range, bluetooth portable reader
  - EPC RFID reader for document tracking

Low-cost, short-range, bluetooth portable reader

- Battery powered short range UHF RFID reader
- EPC Class1 Gen2/ISO18000-6C protocol supported
- Low-power → long battery life
- Low-cost wireless RFID data-collector for low-demanding application
- Enabling RFID and wireless technology to low-tech company and processes (paper-based)
- Easy to integrate with an Euridice data gateway
- Real-time or batch data download via Bluetooth or USB connection

EPC RFID reader for document tracking

- Fully EPC Class1 Gen2 compatible reader
- Easy in office document handling
- Desktop form factor
- Multiple communication interfaces
- Near-field antenna permits to encompass the *label stacking problem*
- Ideal solution for the handling of customs and shipment documentation, invoices and so on.

Conclusions

- EU and Transnational Funded programs are excellent for SMEs if they are synergic with mission/roadmap
- Strengths:
  - Cover partially R&D expenses for product developments
  - Allow transnational networking and potentially increase visibility of company and its business
- Weaknesses:
  - If the exploitation is not well determined at beginning (who, what) it may never happen
  - R&D funding "as-is" without a true production or business plan is useless
- UHF RFID can be a great tool for manufacturing
- CAEN RFID can be an excellent partner to MANUNET projects thanks to RFID expertise

Thanks for your attention ...

... questions?

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