

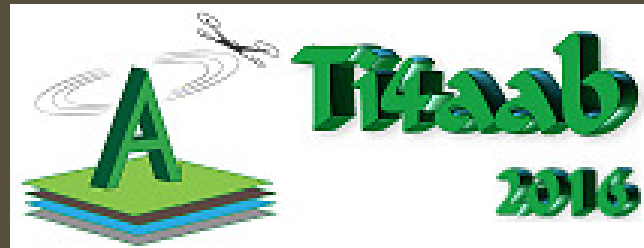
Introduzione alla tecnologia RFID



imagine your RFID application ...
... we provide the technology

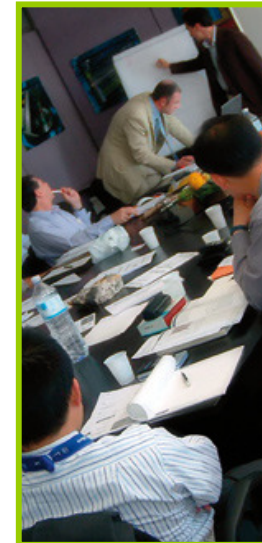


Stefano Coluccini
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CAEN: dalla fisica delle alte energie all'RFID

- Fondata nel 1980 con sede a Viareggio
- Azienda leader a livello mondiale nella produzione di alimentatori e sistemi di acquisizione dati per i detectors delle particelle (**fornitore CERN**)
- Reparto R&D all'avanguardia della tecnologia
- Spin-offs: Microelectronics-Aerospace (1995), RFID (2003)
- 100 Employees: 85 (Nuclear), 15 (RFID)

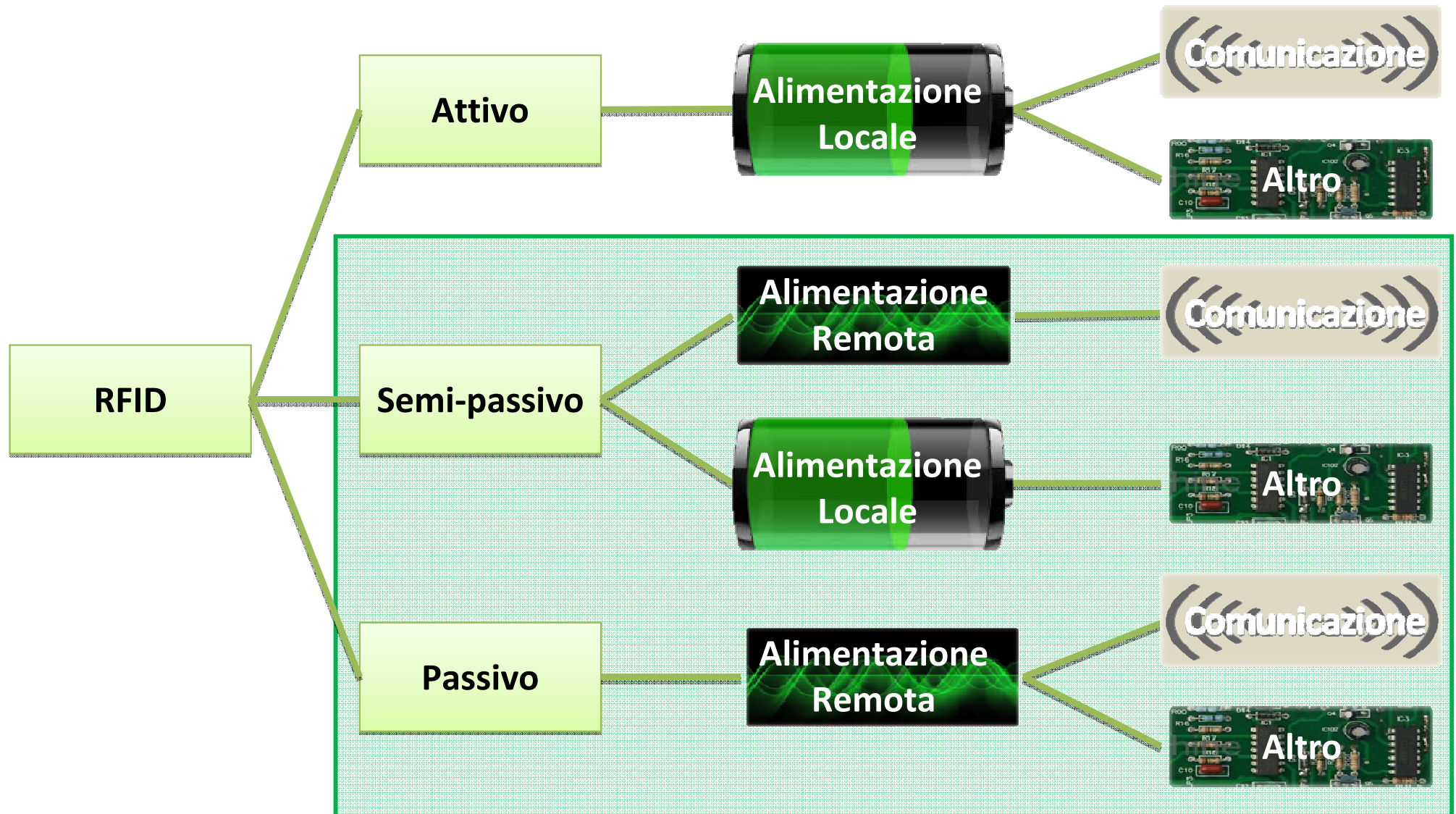


Cosa facciamo

- Lettori UHF RFID - **easy2read**[®]
- Logger UHF RFID - **easy2log**[®]
- Prodotti Custom UHF RFID
- Integrazione HW UHF RFID



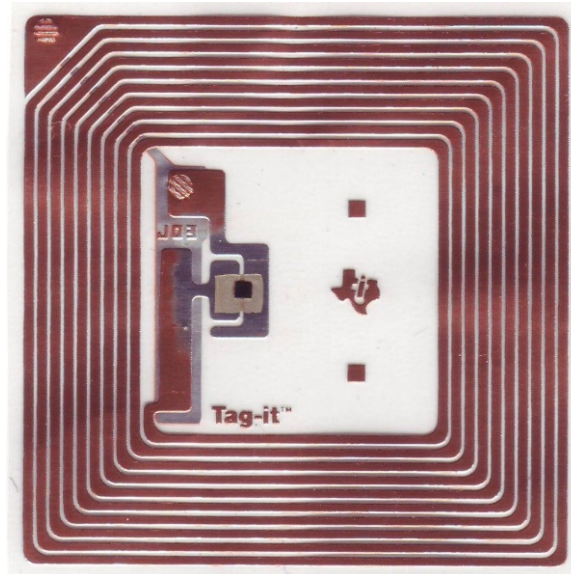
RFID: Attivo vs. Passivo



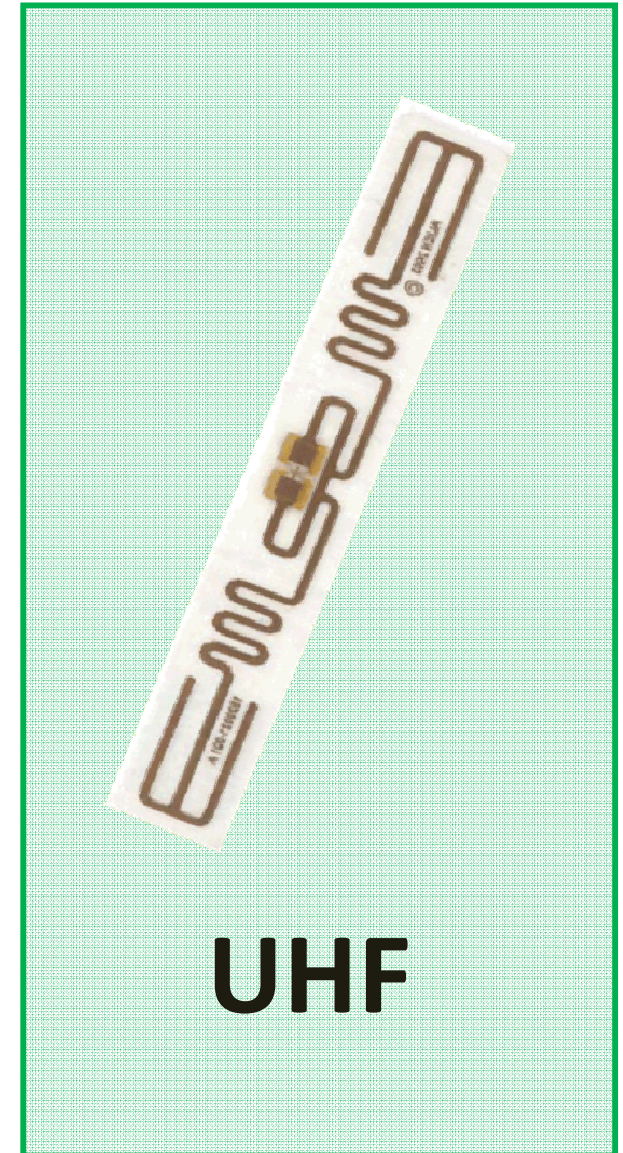
RFID passivo: LF ... HF ... UHF



LF



HF



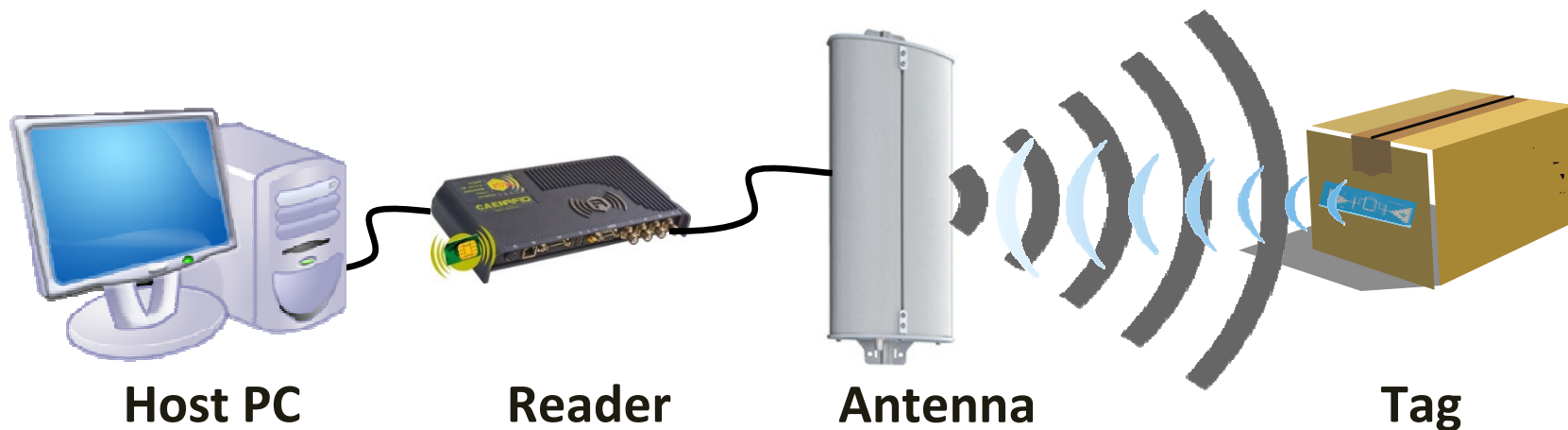
UHF

RFID UHF: che cosa è ?

Radio Frequency Identification (RFID) è una forma di comunicazione wireless che utilizza onde radio per identificare e tracciare gli oggetti.

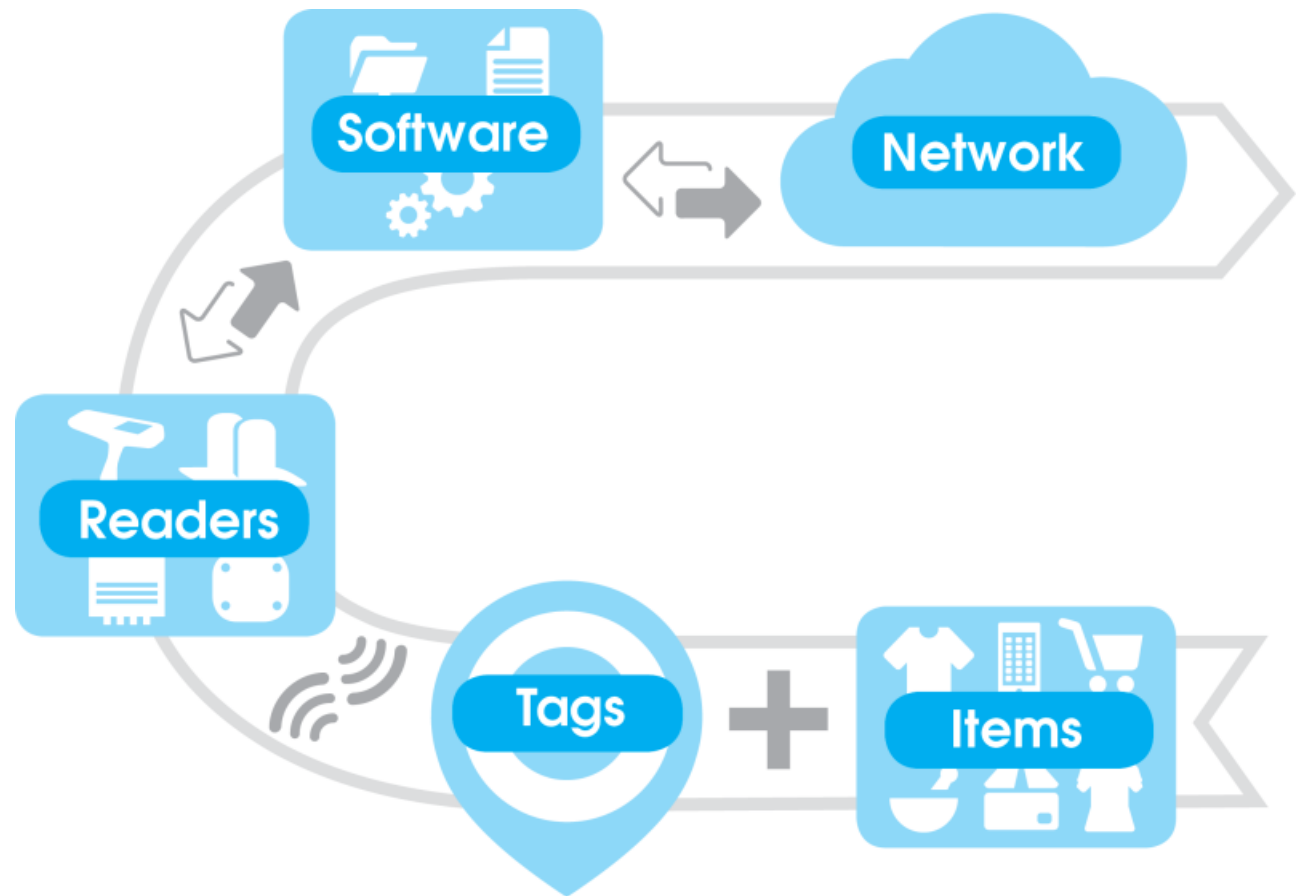
RFID estende ed actualizza il concetto del barcode fornendo la possibilità di:

- ✓ Identificare univocamente il singolo oggetto invece che indicare soltanto il tipo di prodotto
- ✓ Identificare gli oggetti anche in assenza di linea di visuale diretta
- ✓ Identificare molti oggetti contemporaneamente (anche centinaia)
- ✓ Identificare gli oggetti nelle vicinanze, da pochi centimetri a diversi metri



RFID UHF, una nuova definizione ... verso l'IoT

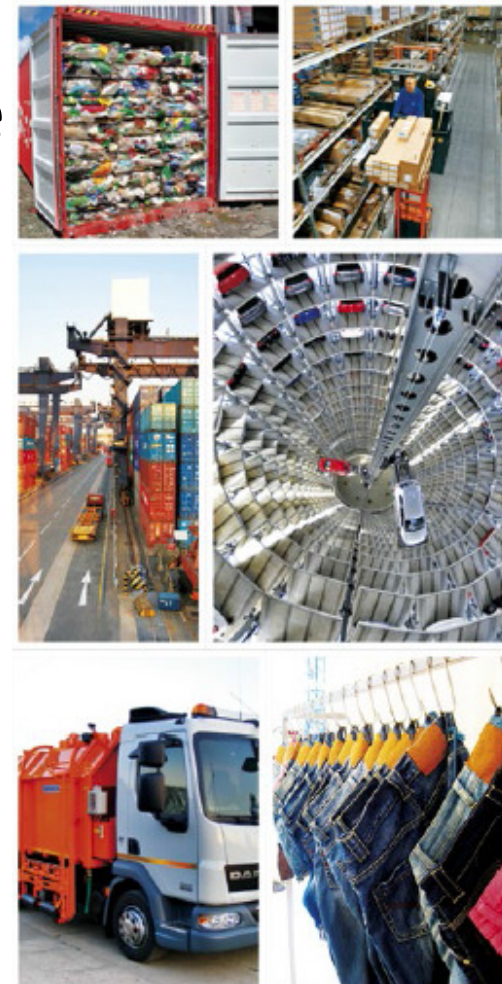
RAIN RFID è una tecnologia wireless che connette a internet miliardi di oggetti di uso quotidiano, permettendo alle aziende ed ai consumatori di **identificare, localizzare, autenticare e coinvolgere** ogni oggetto.



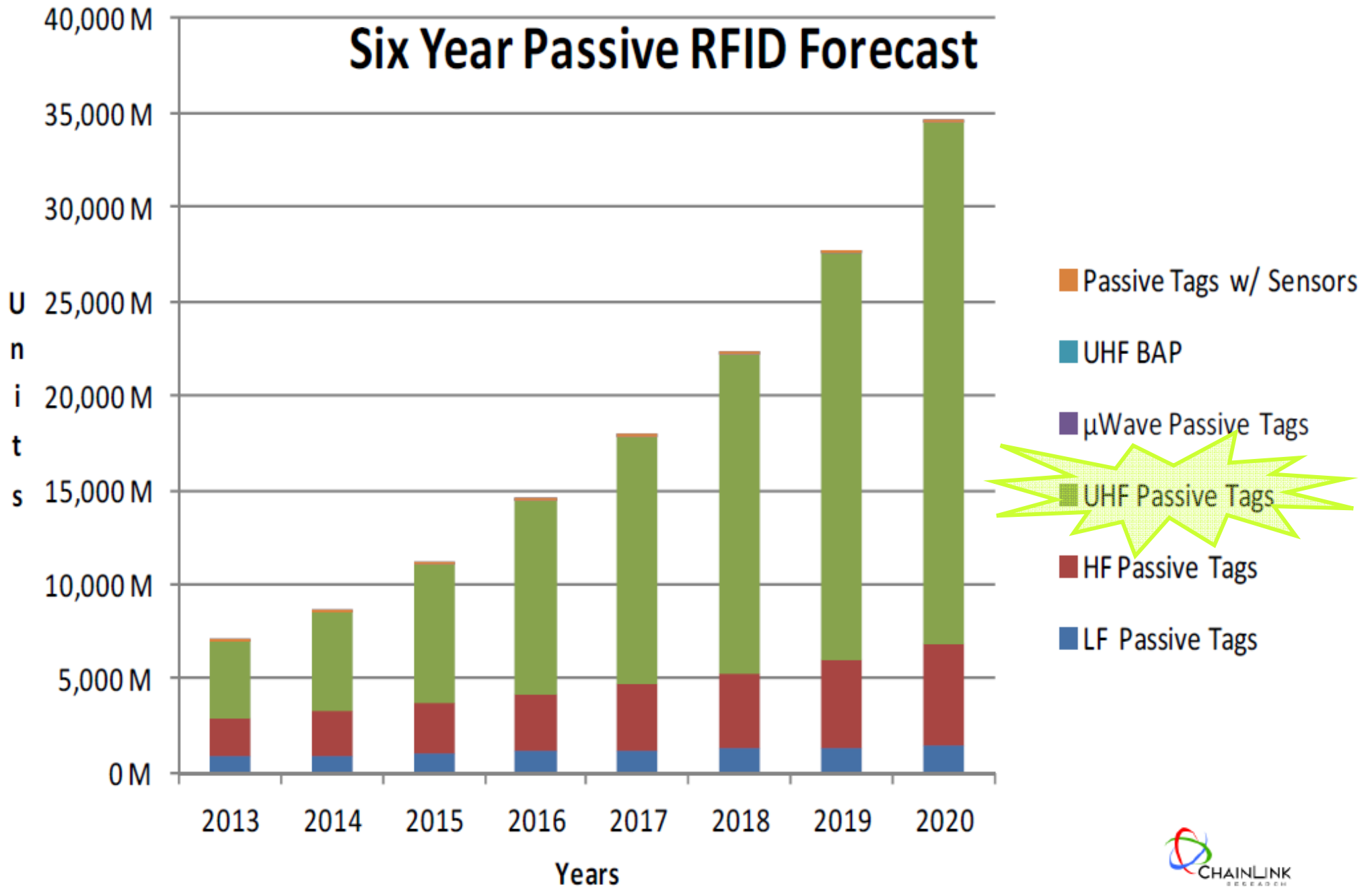
Video

RFID: Applicazioni

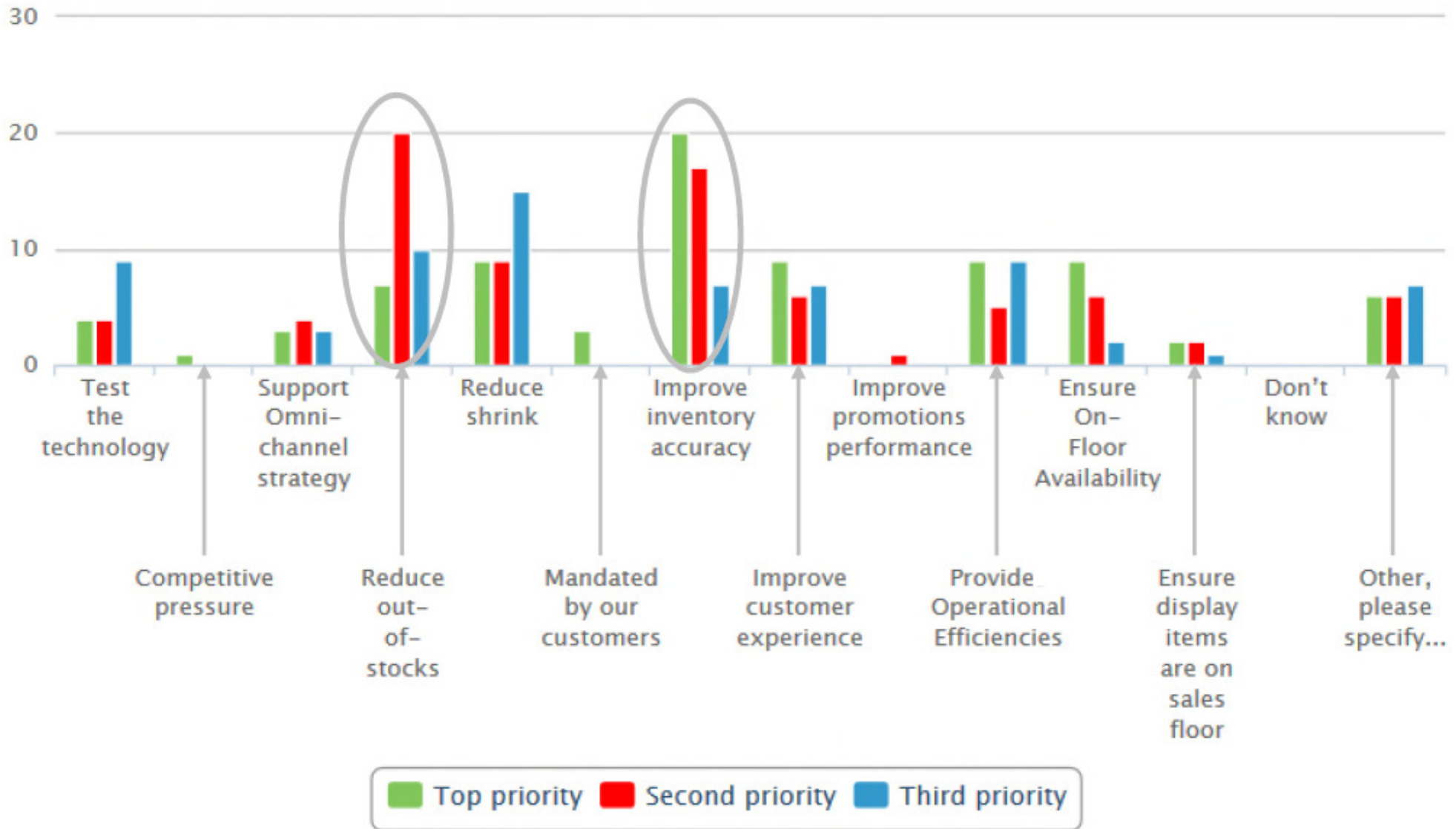
- Grande distribuzione
- Logistica della catena di distribuzione
- Trasporti
- Raccolta e logistica dei rifiuti
- Automazione industriale
- Catena del freddo
- Controllo accessi
- Tracciamento asset
-



Six Year Passive RFID Forecast



Quali sono state le tre ragioni principali per l'implementazione della tecnologia RFID ?



Asset tracking

Container Centralen

- Track and authenticate the trolleys
- Customers use the tags for tracking products
- About 4 M tagged trolleys



Raccolta rifiuti

**Monitoraggio raccolta rifiuti
(Aspropyrgos Municipality - Grecia)**



**Gestione raccolta differenziata
(COSMARI – Area di Macerata)**



Cold Chain

- Fresh Vegetable Monitoring

- ✓ Object: Fresh vegetable monitoring during storage and transportation (from producer to wholesaler)
- ✓ Temperature Range: 2 - 4 °C
- ✓ Video available on the web



Cold Chain

- High Quality Chocolate Monitoring by Lindt & Sprüngli
 - ✓ Temperatures monitoring during storage and transport in order to guarantee high quality standards
 - ✓ The process covers several weeks and the temperature is recorded every hours
 - ✓ Portal reader at the terminal too
 - ✓ At the end of the process the CAEN temperature loggers are returned to Lindt & Sprüngli. There, the recorded temperatures are read out and saved automatically into the system
 - ✓ Web-based system



Cold Chain

- Sensitive Medicines Monitoring by Medlog

- ✓ Medlog (subsidiary of Portuguese pharmaceutical distributor Cooprofar) ensures that drugs are stored at the proper temperature from the time they are received from suppliers until they are delivered to some customers
- ✓ As the containers are moved through the warehouse and are delivered to customers in Medlog's vehicles, temperature data is stored on the tag
- ✓ At destination, the driver downloads and transmits the data to a database (via GPRS)
- ✓ The computer system analyzes the information and sends an alarm to the driver's handheld device in case of temperature issue
- ✓ If the driver sees an alarm, he knows to not deliver the medication to the pharmacy without first consulting a manager



Cold Chain

- Real-Time Temperature Monitoring by DHL
 - ✓ DHL pharmaceutical customers asked for expanding the range of temperature-controlled logistics services it offered
 - ✓ RFID technology enables a real-time temperature monitoring using RFID smart sensor tags within shipping containers and readers located at critical stages of the shipment
 - ✓ The RFID system checks and reports the temperature of the shipment at every supply chain checkpoint and DHL knows in advance if there is a problem
 - ✓ This procedure enables the company to stop the shipment and initiate a new one with minimal impact on the customer



Logistics/Industrial Manufacturing

Kanban Process (ABB Drives)



Roll cages tracking (Finnish Post)



Vehicle Access Control in Glass Manufacturing (Asahi Glass, Moustier)



Production Flow Management (Novaglass)



Logistics/Industrial Manufacturing

Warehouse Automation (Acciai Vender)



Innovative tool for manufacturer



Shipping material and pallet management (Colcafé)



Production Flow Management (Malwee)



Transportation

Train Monitoring (Circumvesuviana)



• Vehicle Tracking System (Automotive Group)



Europcar

Car Manufacturing plant (Sada Group)



FIAT
GROUP

Bicycle parking area (Cernusco sul Naviglio)



Transportation

TraceTracker Asset (Grunnarbeid)



Truck Tracing at Motorway and Harbour gates (Samer Shipping)



Healthcare

ASSIST founded project



Pharmacy (Datelka)



OPERA founded project



FMCG/Leisure

Faster, safer and more efficient supply chain (Parmacotto, Auchan)



People access control
The Santa Claus Village



Security and Productivity



Smart Supermarket Shopping

Fashion-Retail

- Point and Sales (Groupe-Beaumanoir)



Fashion-Retail

- Point and Sales Inventory (Marks&Spencer)



Fashion-Retail

- Point and Sales (Disney Store)



Fashion-Retail

- Smart changing room, Inventory, EAS, Logistics (gef – Punto Blanco)



Fashion-Retail

- Smart changing room, Inventory, EAS and Logistics (Tennis)

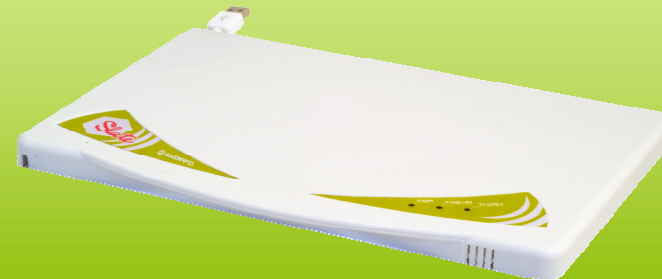


tennis | tns



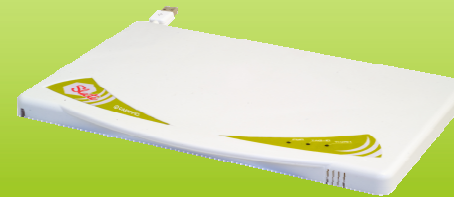
Fashion-Retail

- Point of Sales (Harmont & Blaine)



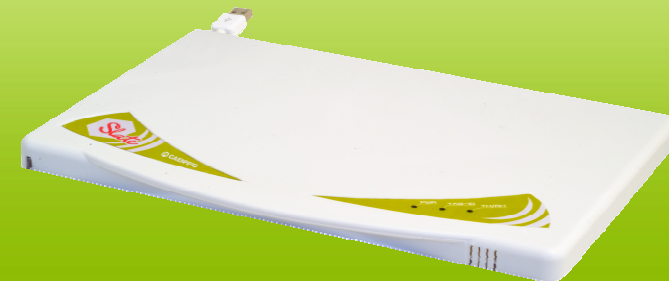
Fashion-Retail

- Point of Sales (Magnifico Po)



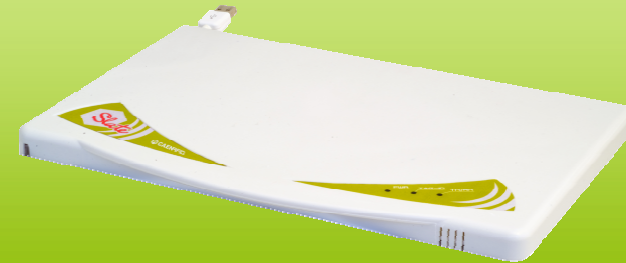
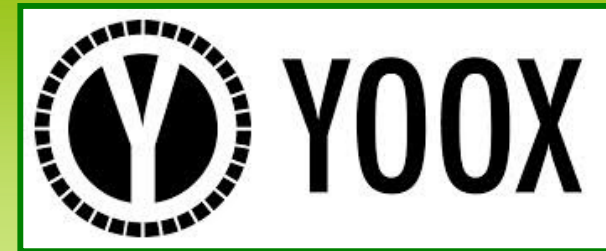
Fashion-Retail

- Point of Sales (Space 2000)



Fashion-Retail

- Identification and traceability (Yoox)



Fashion-Retail

- Identification, traceability, grey stop (Braccialini)



Fashion-Retail

- Shop experience (Piquadro)

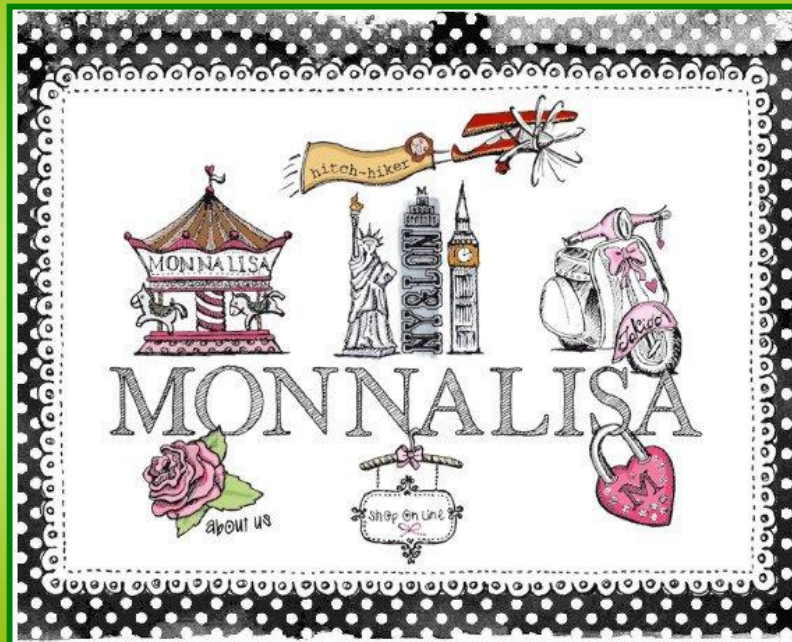


PIQUADRO
tech inside



Fashion-Retail

- Logistics, product originality, traceability (Monnalisa)



Fashion-Retail

- Books Tagging in a Bookstore (BGN Boekhandels)



- Point of sales (Larusmiani)



- Customer experience (SAPAF)



- EAS - Electronic Article Surveillance



Thanks for your attention... questions?

Stefano Coluccini

Chief Marketing Officer

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<http://www.youtube.com/user/CAENRFID>

