

# WHAT IS DRIVING RFID TECHNOLOGY?



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**1 RFIDba**

**2 Introduction RFID**

**3 RFID Applications and Drivers**

**4 Conclusion**



# International RFID Business Association

- **Founded in 2004**
- **Not-for-Profit**
- **End-User Driven**
- **Vendor Neutral**
- **Representatives in 28 Countries and growing**



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# What is RFID?

**Radio Frequency Identification (RFID)**  
is a state-of-the-art technology  
for identifying any kind of object.



**The technology RFID will not replace  
the barcode completely -  
but should be used where the barcode  
comes to its limitations.**



## Barcode vs. RFID

<b>Visual identification</b>	↔	<b>No ligne of sight required</b>
<b>Low price</b>	↔	<b>Higher price</b>
<b>One identification at the time</b>	↔	<b>Bulk reading, Anti-collision</b>
<b>Reading distance between 5 cm and 12 meter</b>	↔	<b>Reading distance between 1 mm and 300 meter</b>
<b>Static information</b>	↔	<b>Dynamic read, write &amp; rewrite</b>
<b>Limited amount of data</b>	↔	<b>Data storage up to 16kb</b>
<b>Process must be adapted on the technologie</b>	↔	<b>Technology can be adapted to the process</b>
<b>Worldwide standards available</b>	↔	<b>Standards in progress</b>



# A passive RFID Transponder

## Chip

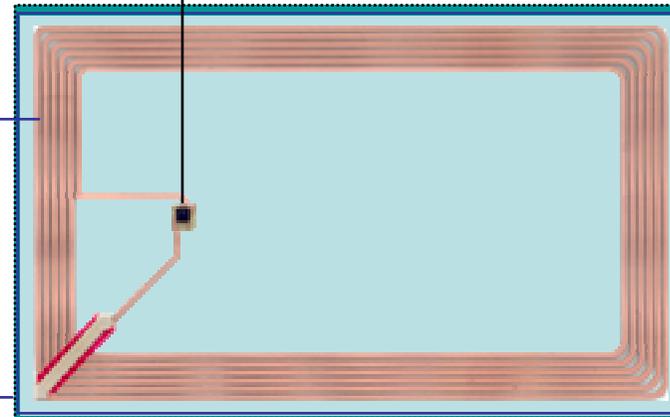
stores information and contains a unique identification number.

## Antenna

is connected to the chip and is powered by the reader to transmit back the requested, stored information.

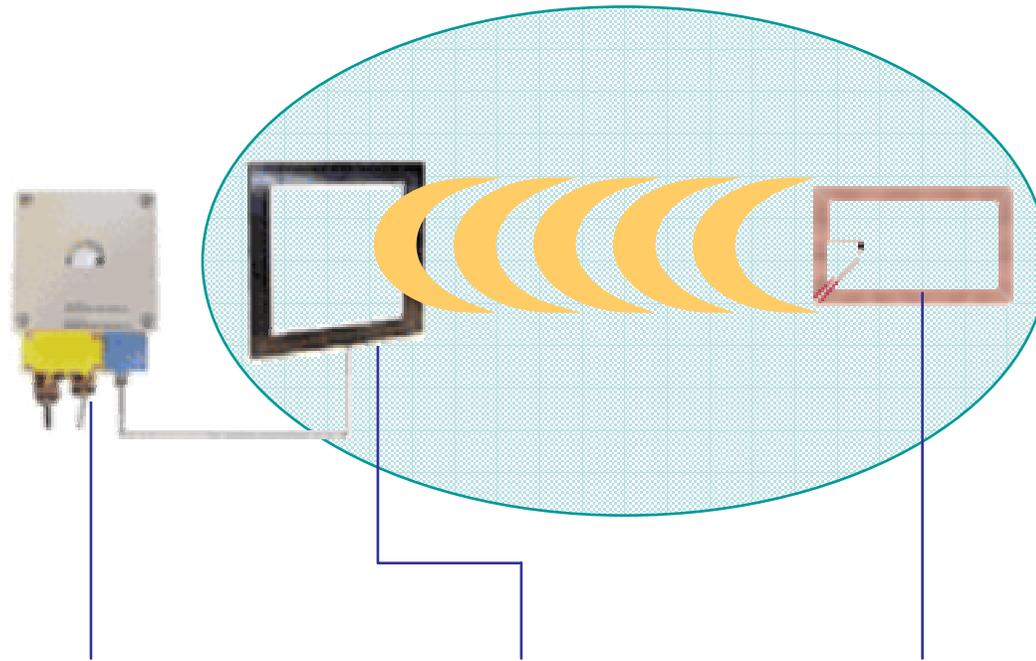
## Packaging

protects the electronics, enables the technology to be adapted to the process and renders it resistant to its environment.



The word transponder comes from transmitter and responder

## How does passive RFID works?



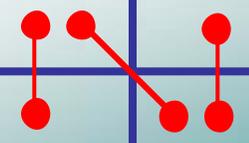
**Reader**  
can be stationary  
or mobile and  
executes the  
application.

**Antenna**  
is connected  
to the reader  
and generates  
a power field.

**Transponder**  
is powered up as soon as it enters  
the field (inductive). The chip  
starts the communication process.  
The standard communication  
completes in under a second.

# Active / Passive RFID

	Active	Passive
Energy	Battery	Field (inductive)
Communication	Sends constantly	Activated through the field



Transponder are existing as „passive“, „active“ and „semi-active“ (or semi-passive)



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# Applications

## Individuals

- Asset tracking
- Electronic purse
- Payphones

## Entertainment

- Gambling
- Membership cards
- Ski tickets
- Sports (marathon tracking)

## Access/Protection

- Access control (general)
- Anti-theft (any)
- Car immobilizer
- Counterfeit protection
- Electronic keys (hotel, etc.)
- Security areas
- Vehicle access control
- University cards

## Transportation/Travel

- Automatic Fare Collection (AFC)
- Automatic retail fuelling
- Automatic fleet fuelling
- Airline ticketing
- Automotive (any)
- Baggage tags
- Logistics
- Park and ride metering
- Road toll collection
- Traffic management
- Truck fleet tracking

## Retail

- Conveyor belt clothes hangers
- Laundry tracking
- Loyalty schemes
- Paint shop
- Retail store applications

## Medical

- Medical devices
- Healthcare

## Industrial/Shipping

- Assembly line ID
- Car manufacturing
- Configuration mgmt.
- Container
- Express parcel tracking
- Factory automation
- Fleet management
- Forklift positioning
- Gas cylinder
- Industrial ID
- Maintenance logs
- Mining
- Pallet tagging
- Process control

## Location/Tracking

- Animal ID
- Baggage tags
- People locating
- Pigeon races
- Time and attendance
- Vehicle movement



# Asset Management

## TARGET

- Improve management of assets
- Reduction of park size
- Increase transparency and efficiency

## TO CONSIDER

- Container should be used in a closed loop application.  
Such a system also allows a pay per usage.

## BENEFIT

- Up to 60% reduction of shrinkage
- Up to 20% reduction of the park size
- Significant increase of transparency and efficiency



# Picking and Loading

## TARGET

- Reduction of manual process and failures
- Efficient control of goods
- Reduce handling time

## TO CONSIDER

- Who is responsible to place the transponder on the unit? If it is used in an open environment – to which standards will it apply?

## BENEFIT

- Up to 70% reduction of administrative handling
- Up to 20% reduction of loading costs
- Significant reduction of failures



# Production Stearing

## TARGET

- Automisation
- Decentralised intelligence
- Increase quality and output

## TO CONSIDER

- Place the transponder on the handling unit or does the transponder stays on the product for further distribution and after sales application?

## BENEFIT

- Reduction of system charges by up to 20%
- Increased flexibility
- Increased transparency and efficiency



# Part Tracking

## TARGET

- Unique identification and authentication of parts
- Tracking of parts for security reasons
- Storing of relevant information

## TO CONSIDER

- Who will place the transponder on the parts? Is there any uniform transponder for all parts?

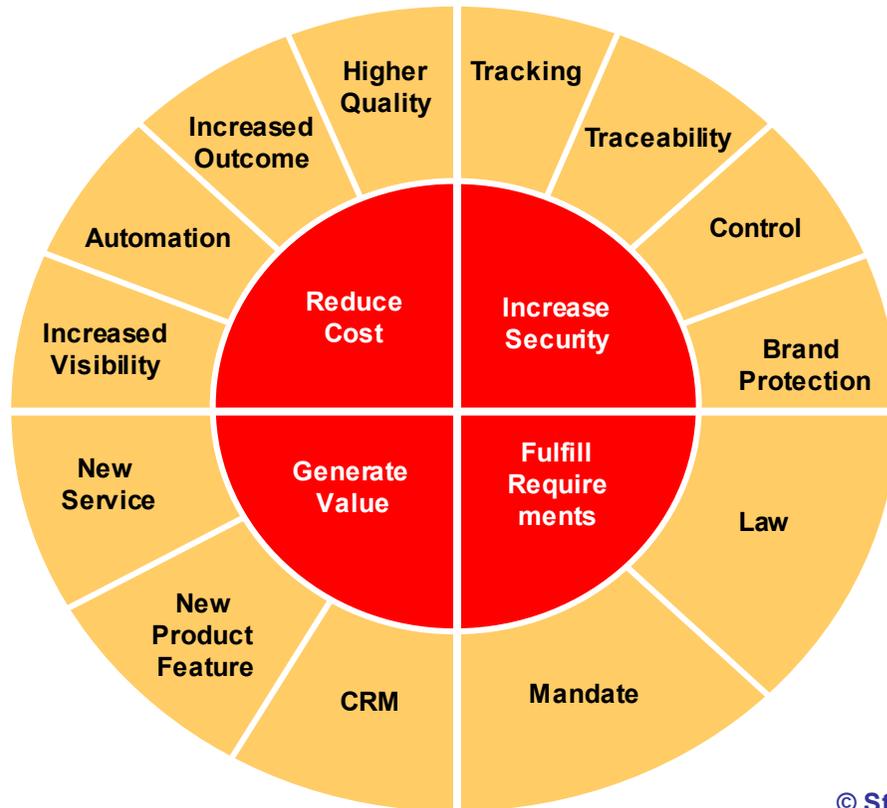
## BENEFIT

- Increased security and transparency
- Proof of relevant inspection process
- Significant reduction of failures





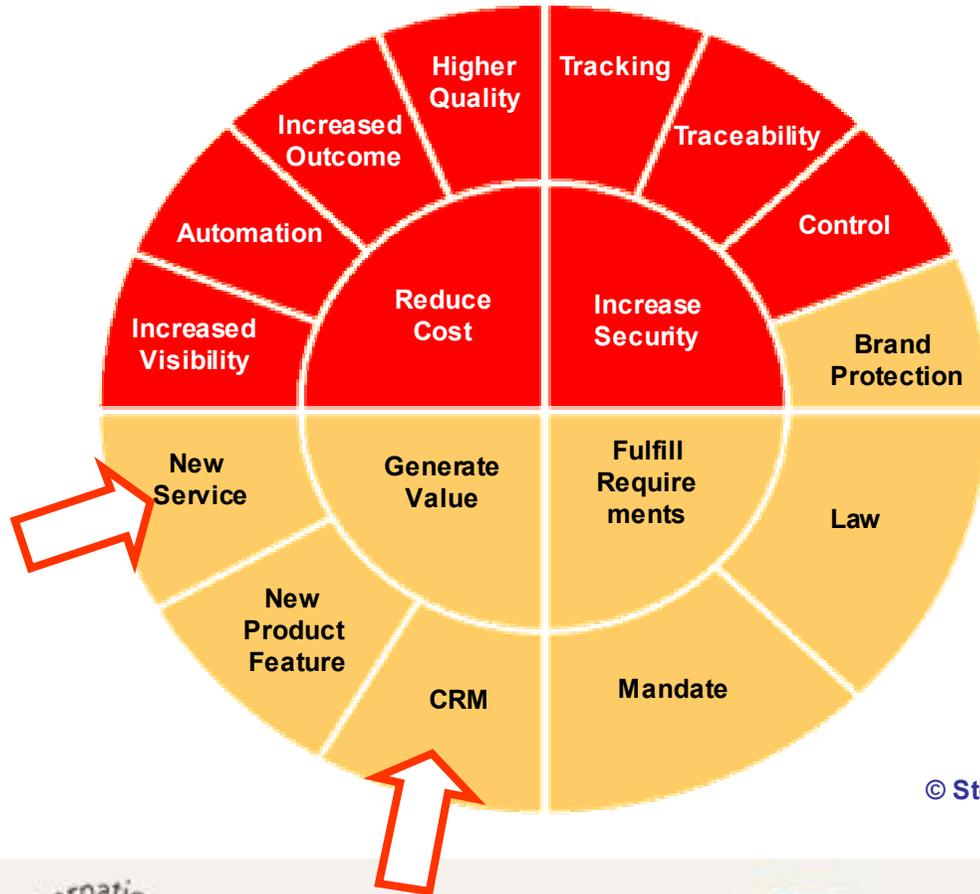
# Drivers



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# Motivation



WAL-MART  
METRO,  
TESCO,  
REWE  
etc.

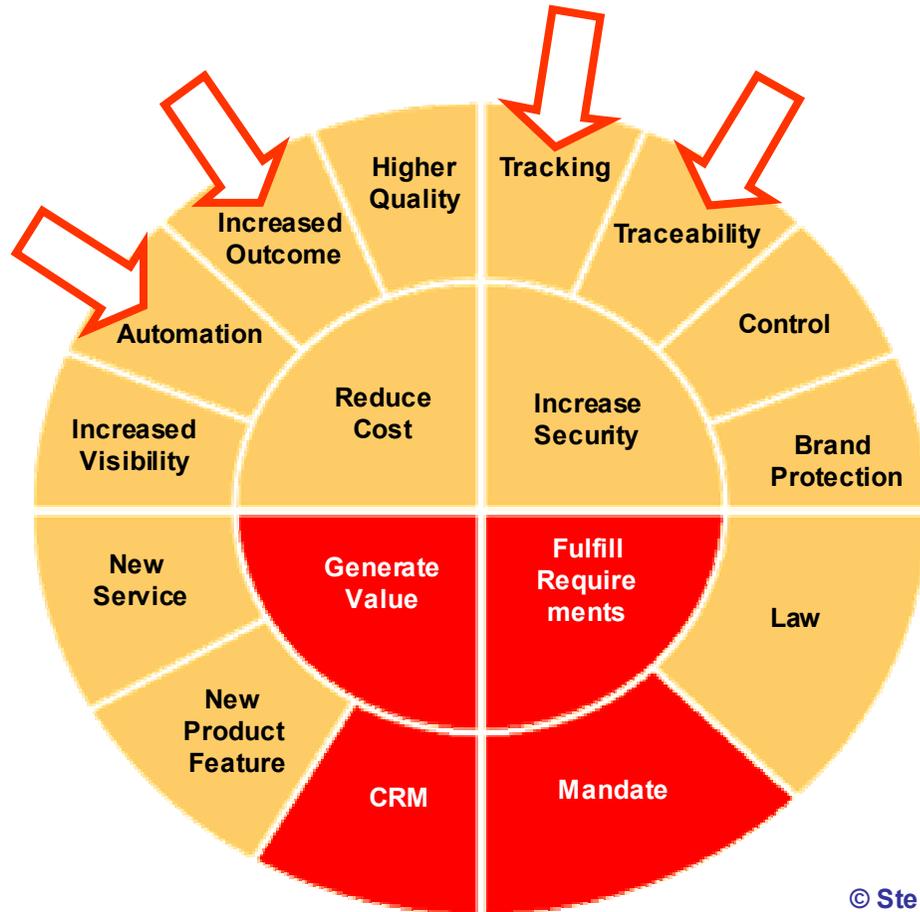


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# Motivation



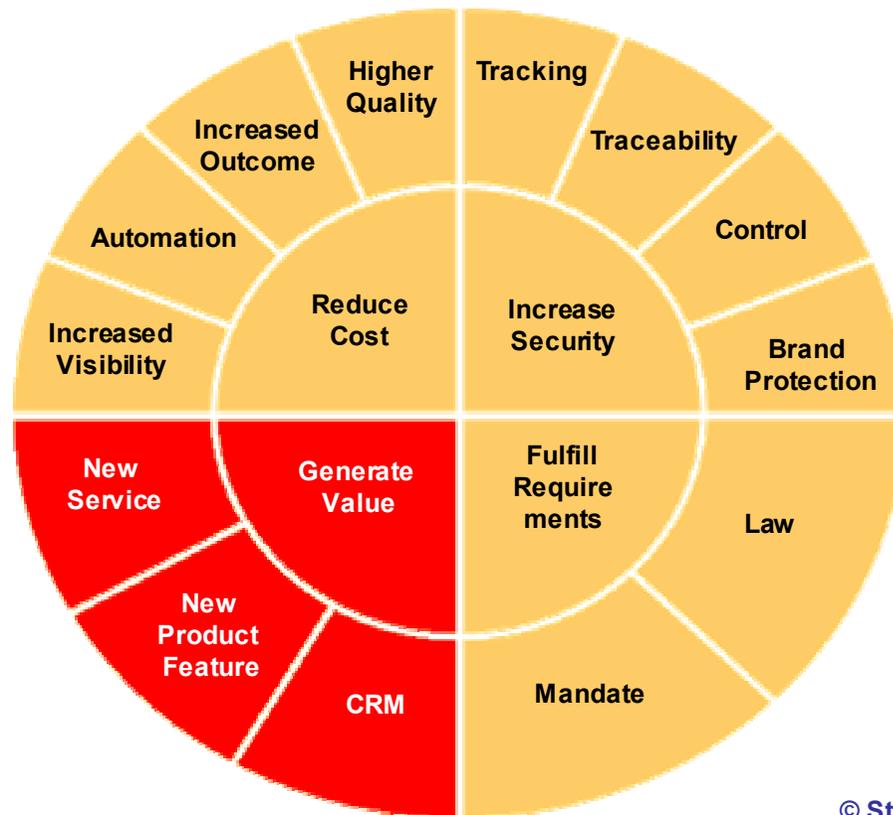
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L'ORÉAL  
PARIS

METRO  
Mandate

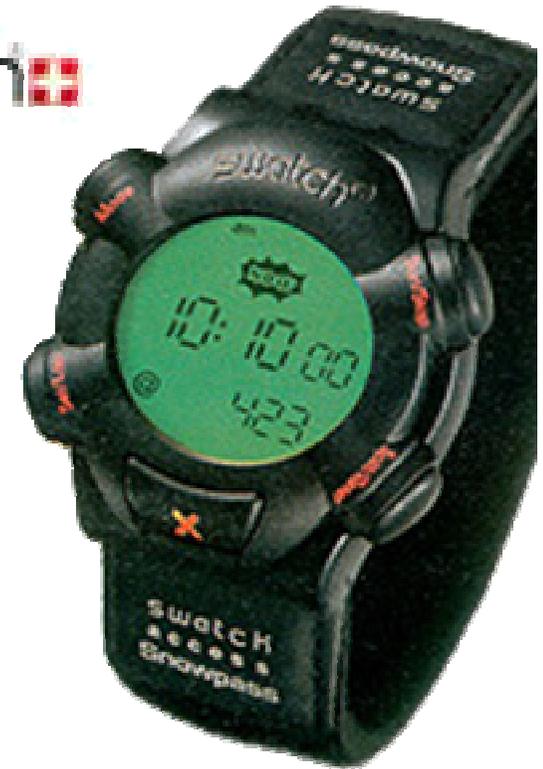


# Motivation



swatch 

Access & ticketing



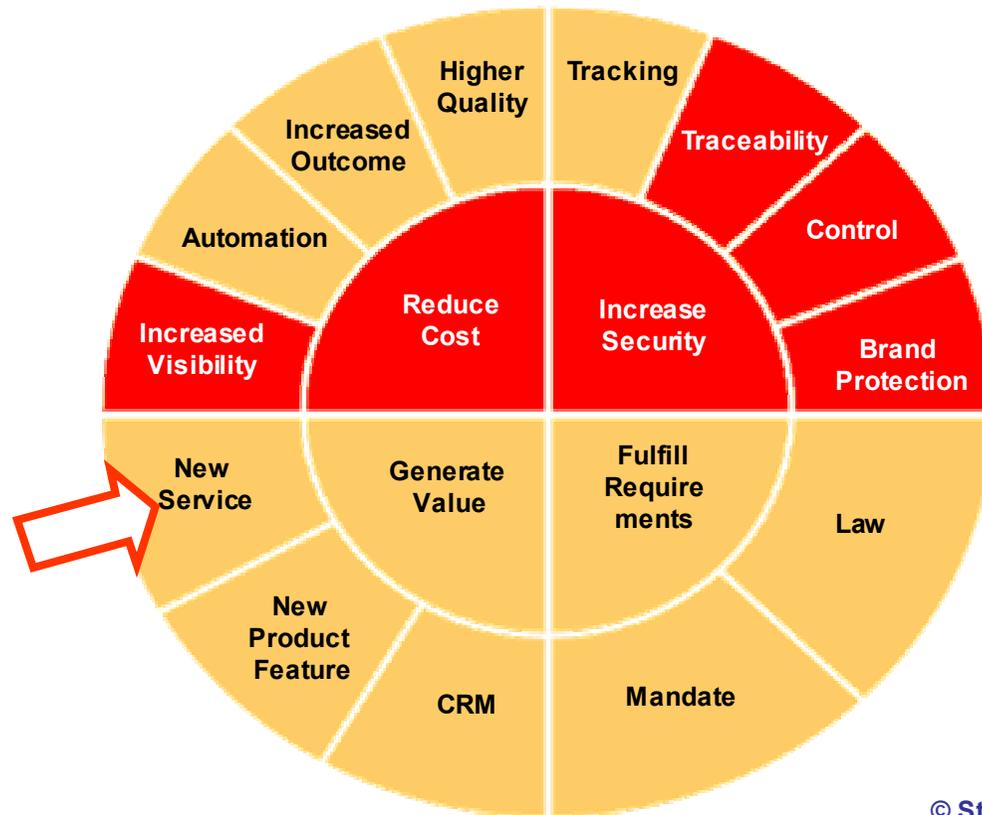
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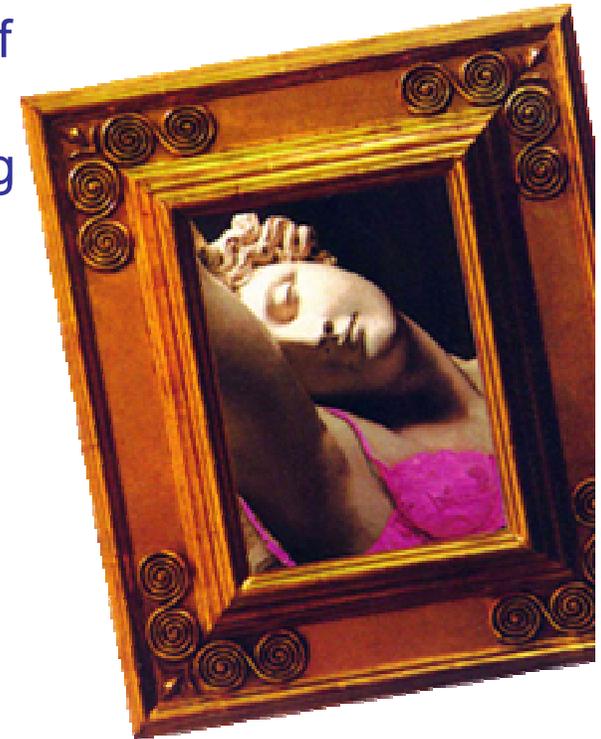
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# Motivation



Museum of  
Rotterdam  
Art tracking



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## Future

- Worldwide standards will allow to realise open systems
- High volume projects will go live within the next 5 years and will help to reduce costs of transponder
- New manufacturing process of transponder have potential to bring the price down below 5 cents (e.g. polymer)
- Integration is the topic of the future
- Increase in usage of transponders equipped with sensors
- Research drives the development of intelligent and network capable transponders
- Reader are becoming more intelligent and autonom thanks to embedded systems





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**Co-founder & President EMEA**



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