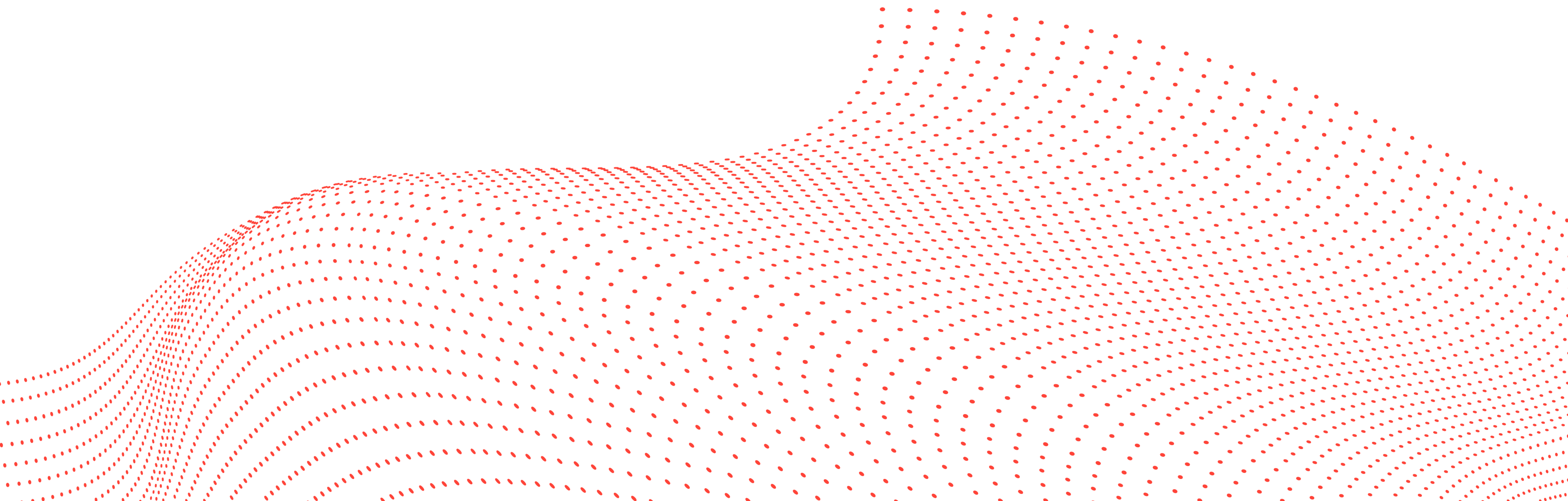


APICS - Orange County

May 15<sup>th</sup>, 2019





smartrac  
connect things

APICS





# Overview

-  Facts, Vision and Mission
-  Portfolio, Markets and Capabilities
-  The Internet of *Your* Things
-  Quality and Certifications

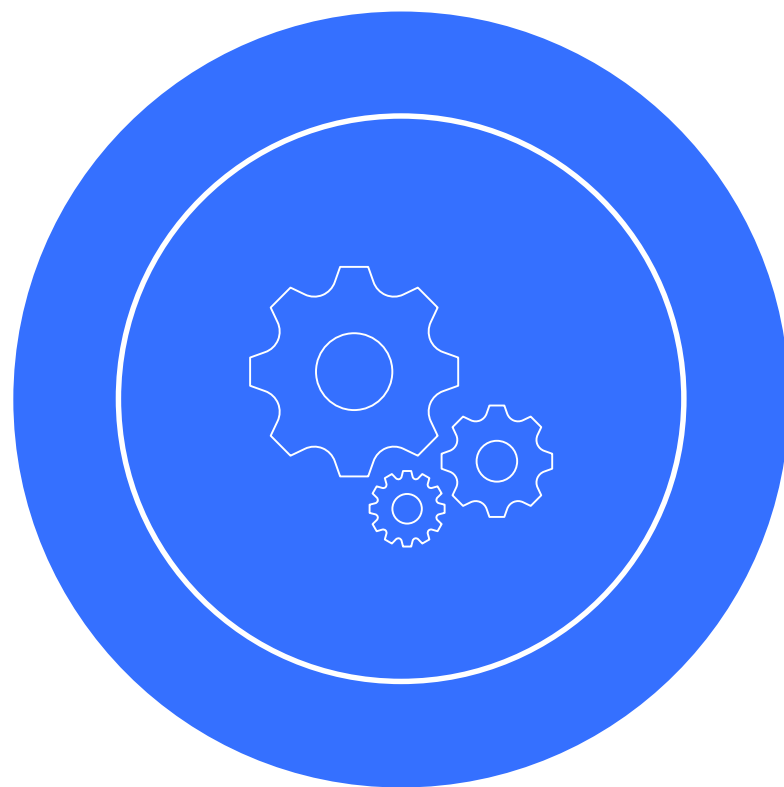




# Key Facts



Global RFID and IoT pacesetter, providing both ready-made and customized offerings, suitable for a broad range of applications



High capacity manufacturing network worldwide ensuring fast and on-time delivery, current 2.5 billion RFID transponder per year



Global R&D organization with strong transponder and solution development expertise



Industry-leading RFID technology backed by extensive intellectual property

HQ

Amsterdam, The Netherlands  
Founding year 2000  
Workforce: approx. 900

Management Board

Christian Uhl, CEO  
Amir Mobayen, CRO  
Dinesh Dhamija, CTO  
Dr. Kerstin Reden, CFO  
Robert Harmzen

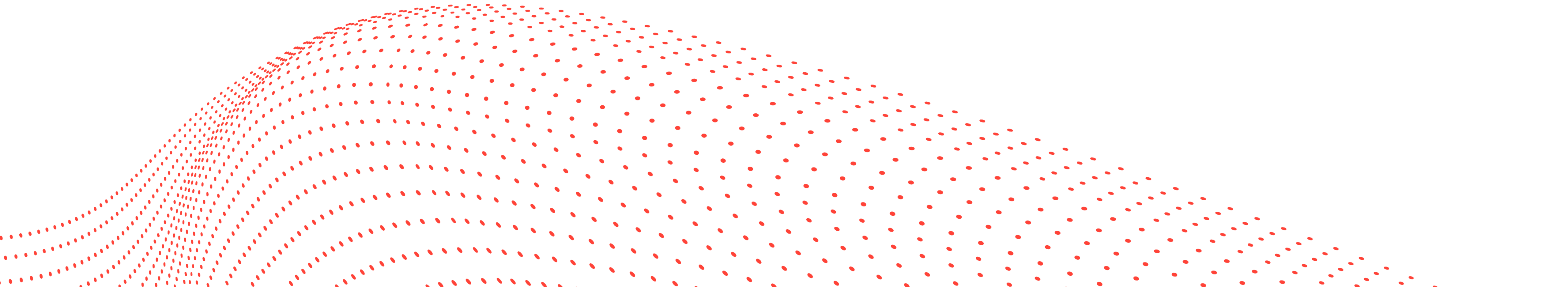
# “We digitize your products so you can digitize your business.”

---

The winners in every market will be the businesses that bridge the gap  
between the real world and the digital world.

We're here to digitize every physical product, with innovative solutions.

We're here to unleash the Internet of *Your* Things.



# A Comprehensive Network

SALES

CUSTOMER SERVICE

MANUFACTURING

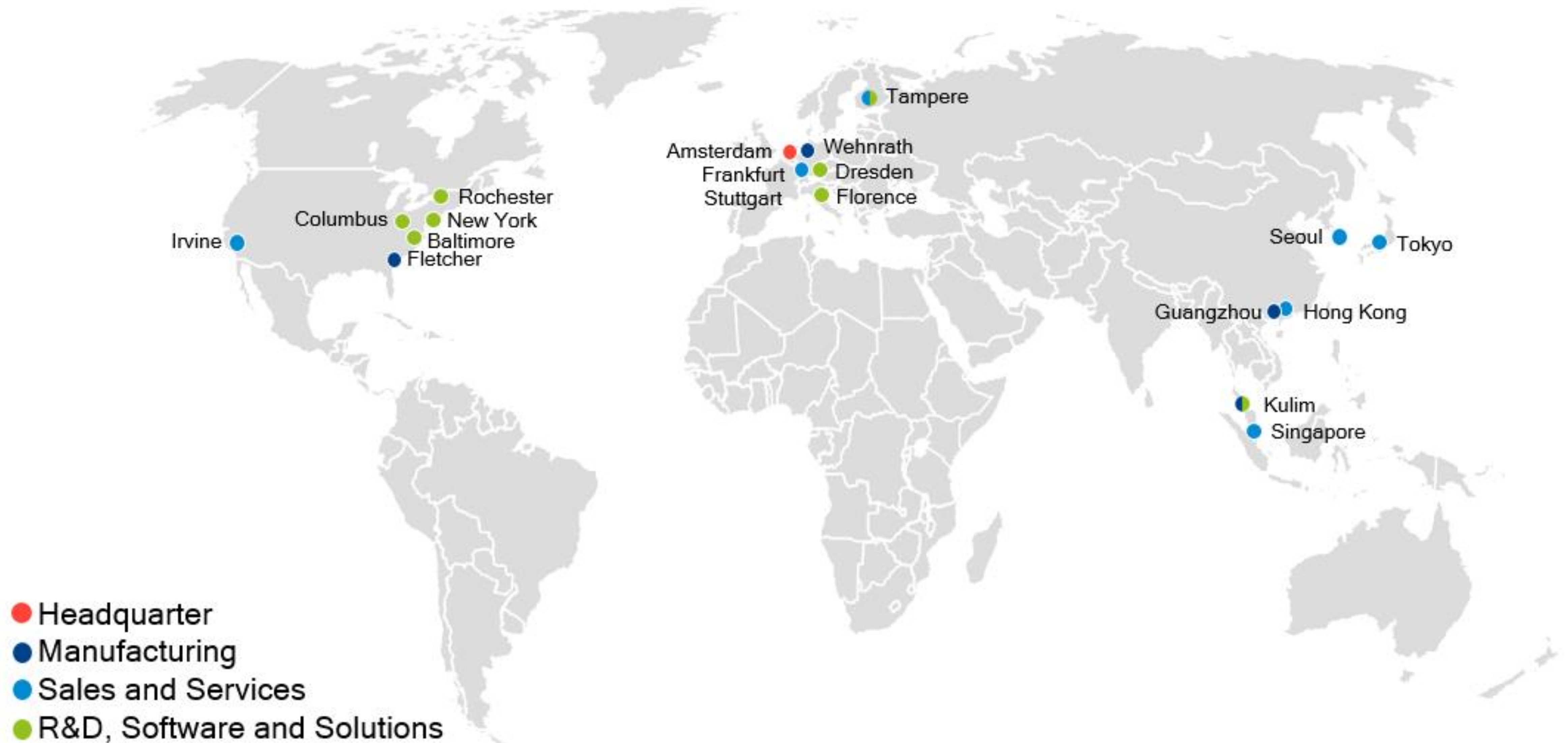
## Global Sales & Customer Service

- Local Sales, customer service and technical support in all major markets
- Highly skilled RFID and IoT experts
- Sharing innovation and best practices around the world

## Global Manufacturing Capabilities

- Industry's highest RFID production capacity with sites in the US, Germany, Malaysia & China
- End-to-end quality management from product design to supply chain
- Reliable on-time delivery

# We Are Global





# Covering Your Needs

Broad range of inlays, tags, hard tags and solutions for industrial, logistics applications as well as for brands and retail businesses...



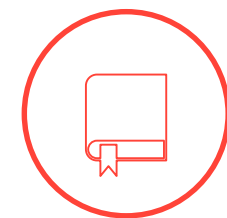
Industrial Applications



Automotive



Healthcare



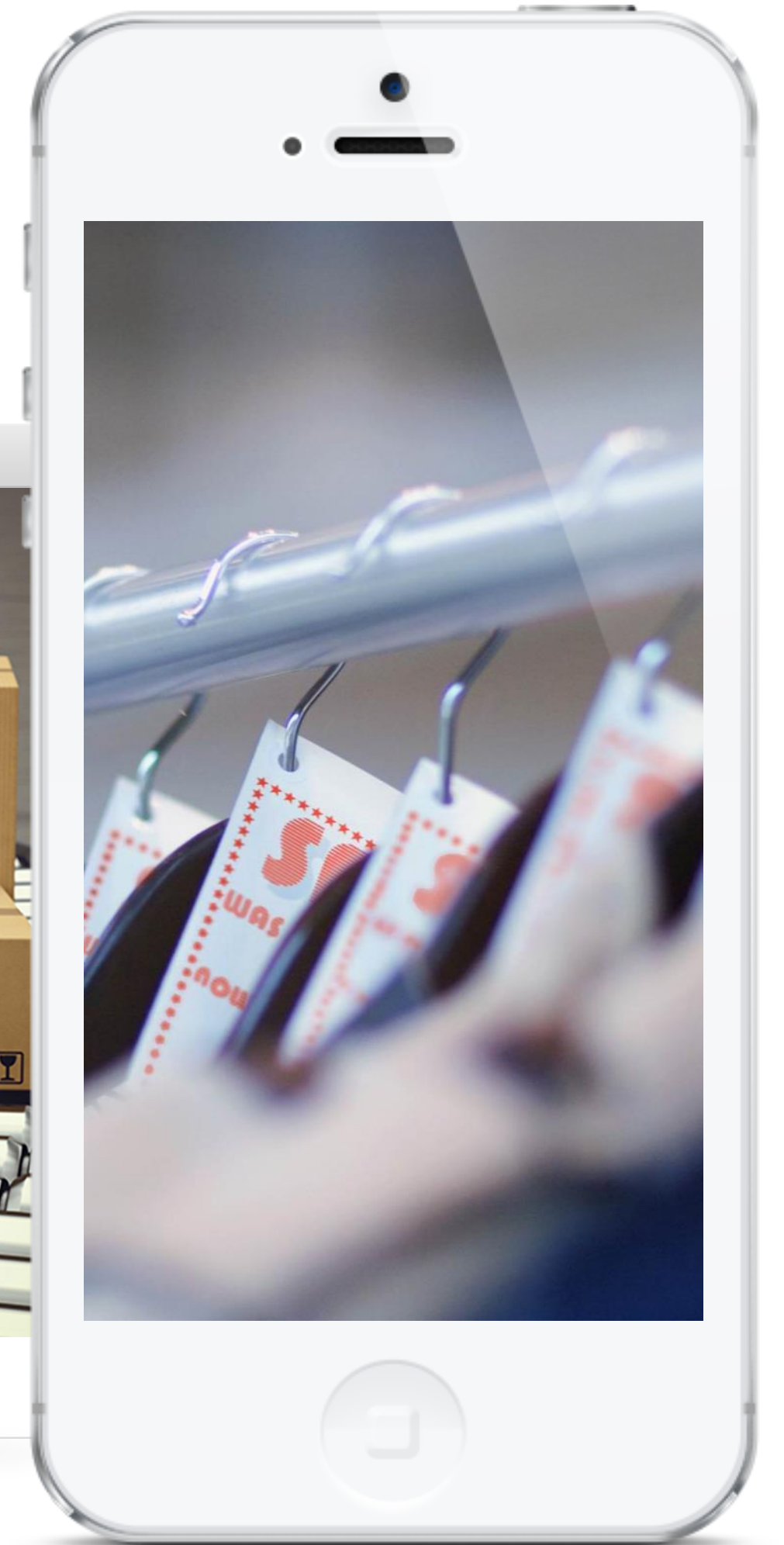
Media & Document Management



Supply Chain & Asset Management



Retail, Merchandise Visibility





# Covering Your Needs

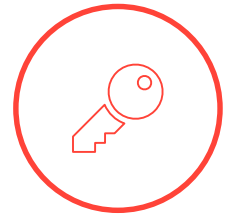
...and furthermore for electronic industry, animal identification and for tolling systems as well as border crossing.



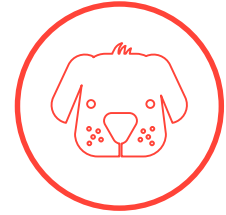
Product Authentication, Brand Protection



Electronics & Gaming



Car Access

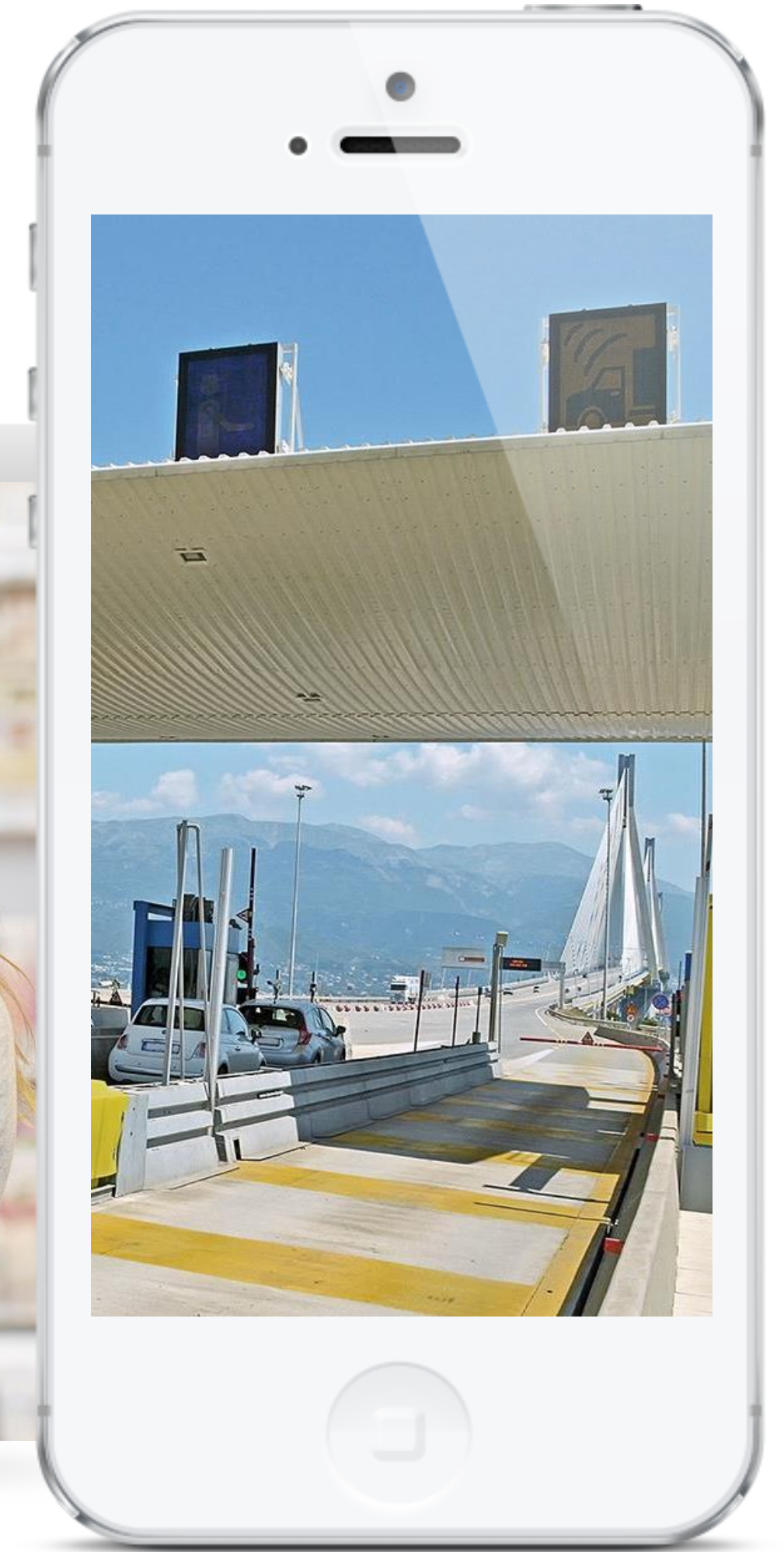


Animal Identification



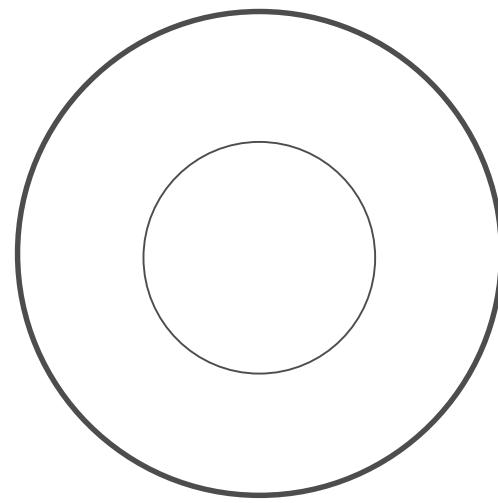
Automatic Vehicle Identification Systems\*

... and many more.



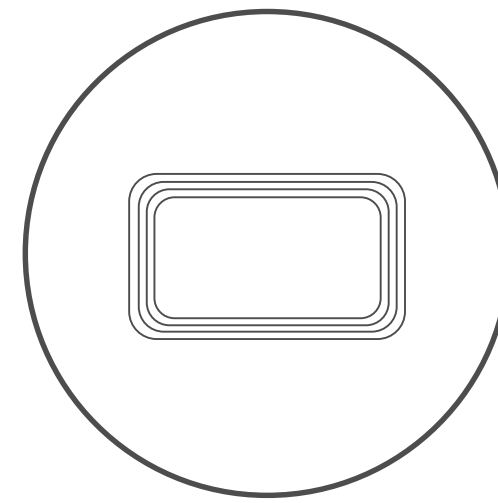


# Applying Technology for You



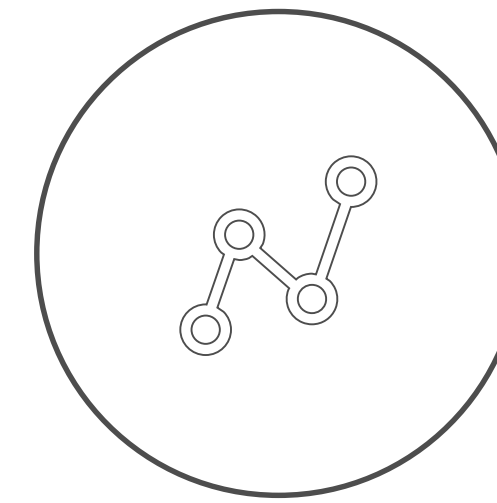
## Wafer Back End Processing

Electro-less Palladium Bumping, Grinding, Dicing (Blade, Laser), Chip Packaging



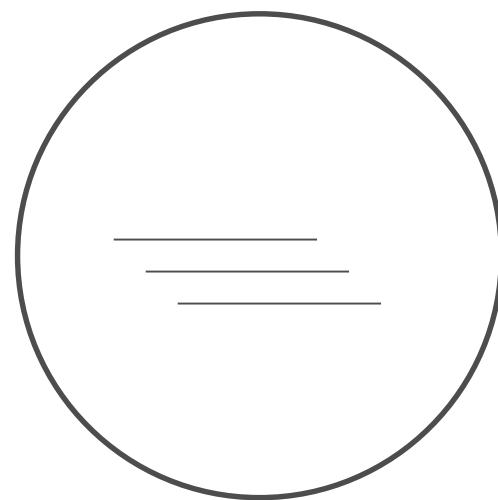
## Antenna Technologies

Coil Winding, Etching, Printing, Cutting



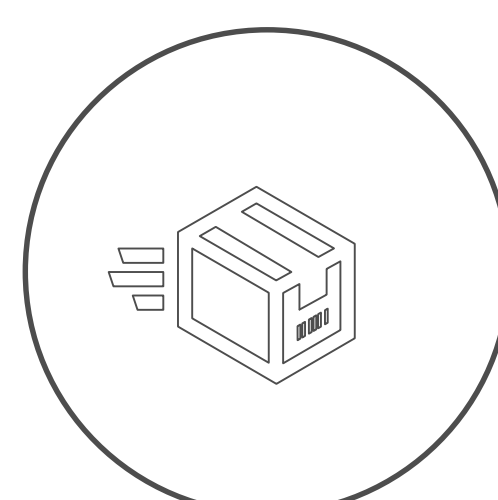
## Bonding

Flip-Chip-Bonding, Wire-Bonding, Thermo-Compression-Bonding



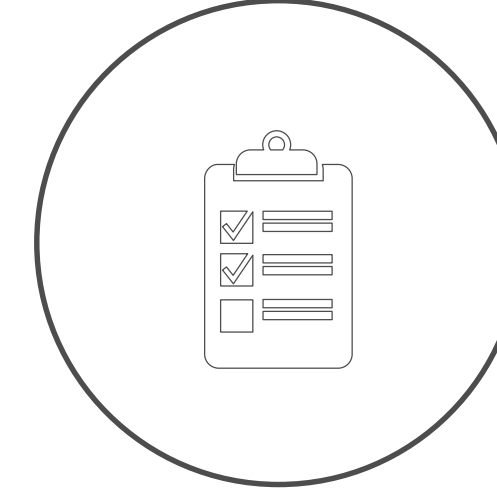
## Lamination/ Converting

High Speed R2R Hot-Melt Converting, Off-Pitch Label Converting, High Speed Encoding & Personalization



## Special Packaging

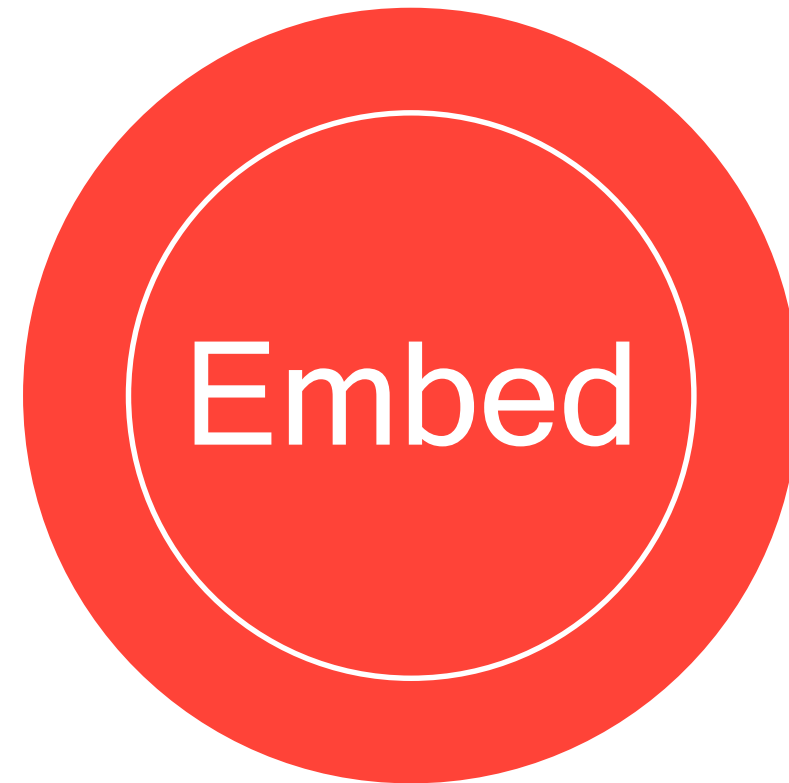
Injection Molding, Synthetic Resin Potting, Customized Embedding, PUR- Dispensing (Glob-Top), Additional Features & Services



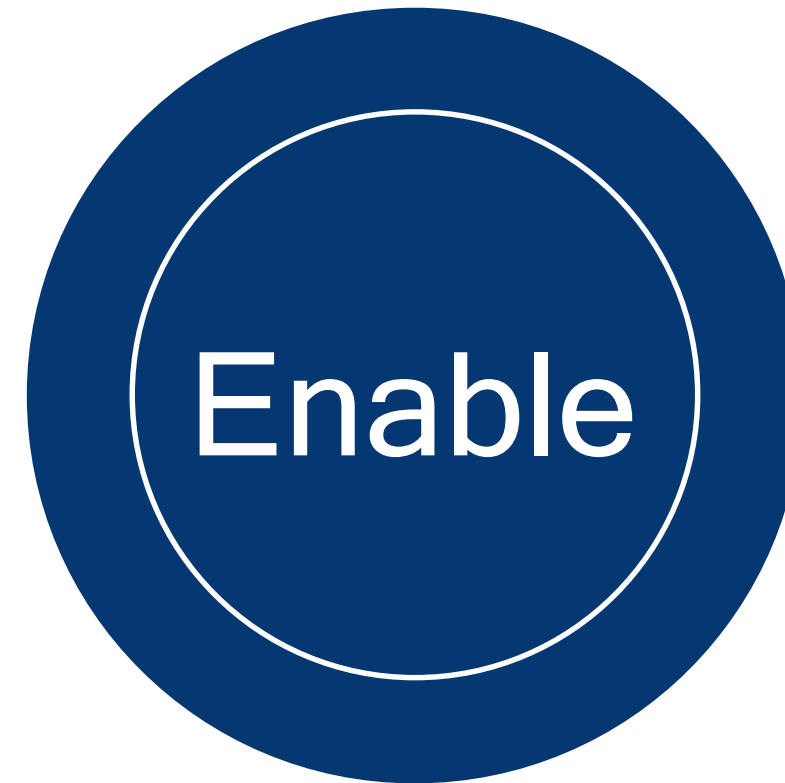
## Test & Certification

Temperature, Humidity, Temperature Cycling, Bending, RF-Performance

# The Internet of *Your* Things in Three Steps



**Embed** RFID intelligence into physical products or other items



**Enable** the products by attaching product data



**Utilize** the data for solutions that provide real business benefits

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Digitize every single product.



# Embed:

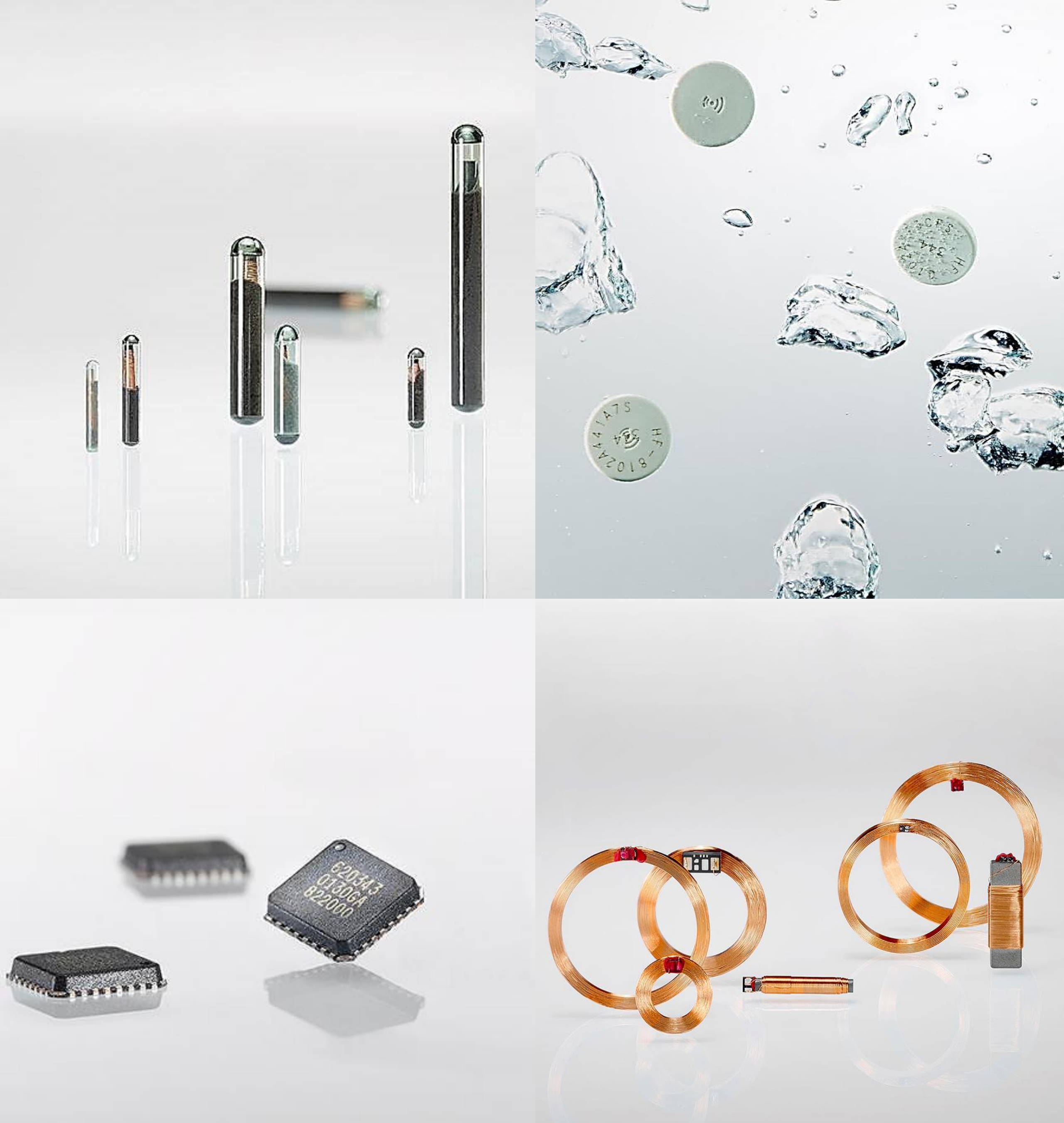
## Inlays & Tags • Industry & Retail

### Highlights

- All frequencies HF (NFC) & RAIN RFID (UHF)
- Best-in-class performance
- Industry's biggest choice of ICs and form factors
- Optimum time-to-market
- Extensive partner network







## Embed:

### Hard Tags • Animal ID, Automotive, Industry

#### Highlights

- Reliable tags for LF, HF and RAIN RFID (UHF) frequencies
- Robust casing for enhanced durability
- Thermal, mechanical and chemical resistance
- Excellent performance on challenging materials
- Easy integration into customer-specific package designs

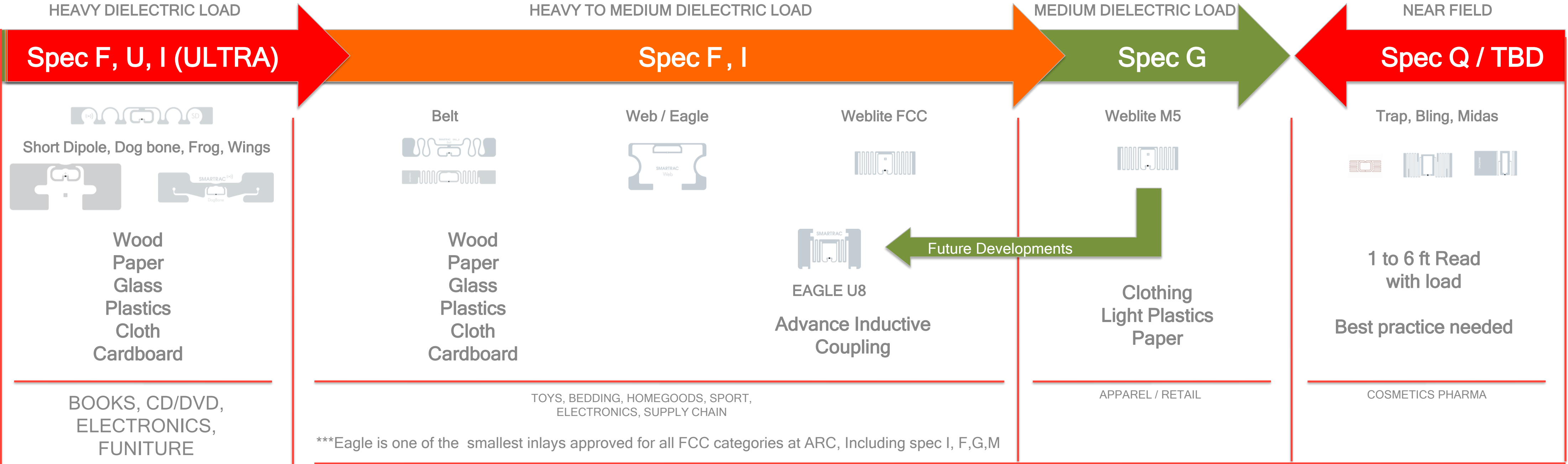


# Performance Consolidation

Smartrac offers various solutions to tag specific items with a understanding.

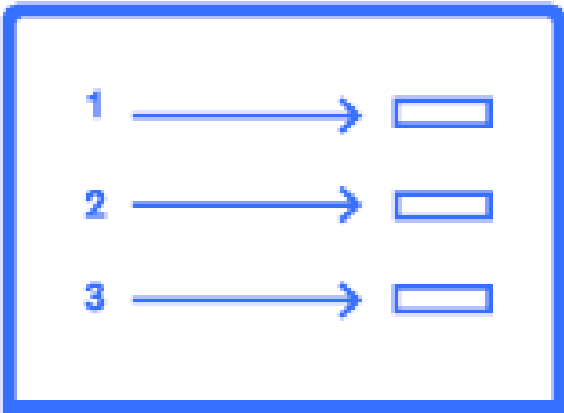
		FCC					
ARC category		A	B		C	D	E
Application		Stacked Denim / Jeans	Polybagged Apparel		Boxed electronics and shoes	Hanging apparel	Very large boxed items
	FCC					EU	
ARC category	M	G	F	N	Q	I	K
Applications	Original for Macys (Handheld scan)	General merchandise store items	Densely Pack High Dielectric	Stacked apparel on shelf	Jewelry and cosmetics	Denim and Polybagged item	Small apparel items

Spec A - Denim  
Spec B - Polybag - Socks/Tee shirts  
Spec C - boxed electronics  
Spec D - Hangtags - hanging apparel  
Spec E - very large box items  
Spec H - Car batteries  
Spec M Backscatter- old Hand Held with - older RF tech  
Spec G Backscatter - new Hand Held retail floor  
Spec F Backscatter - Hand Held Stock room densely - packed items - Bed Sheets on a high shelf  
Spec I Backscatter (A,B,D items)  
Spec K Backscatter (A,B,D items)  
Spec N. FIXED READERS high density tag population.

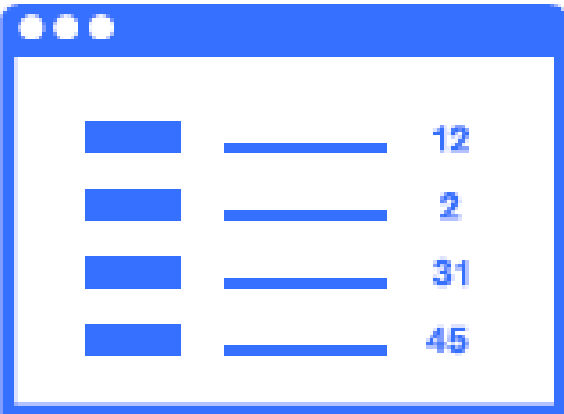


Metals can detune the inlay, Block RF or even enhance readability by reflecting RF, Liquids can absorb RF waves reducing read range. The best performance would be a liquid and metal free environment, inlay placement on product can help avoid these limitations to the technology.

# Enable: Unify RFID and product data



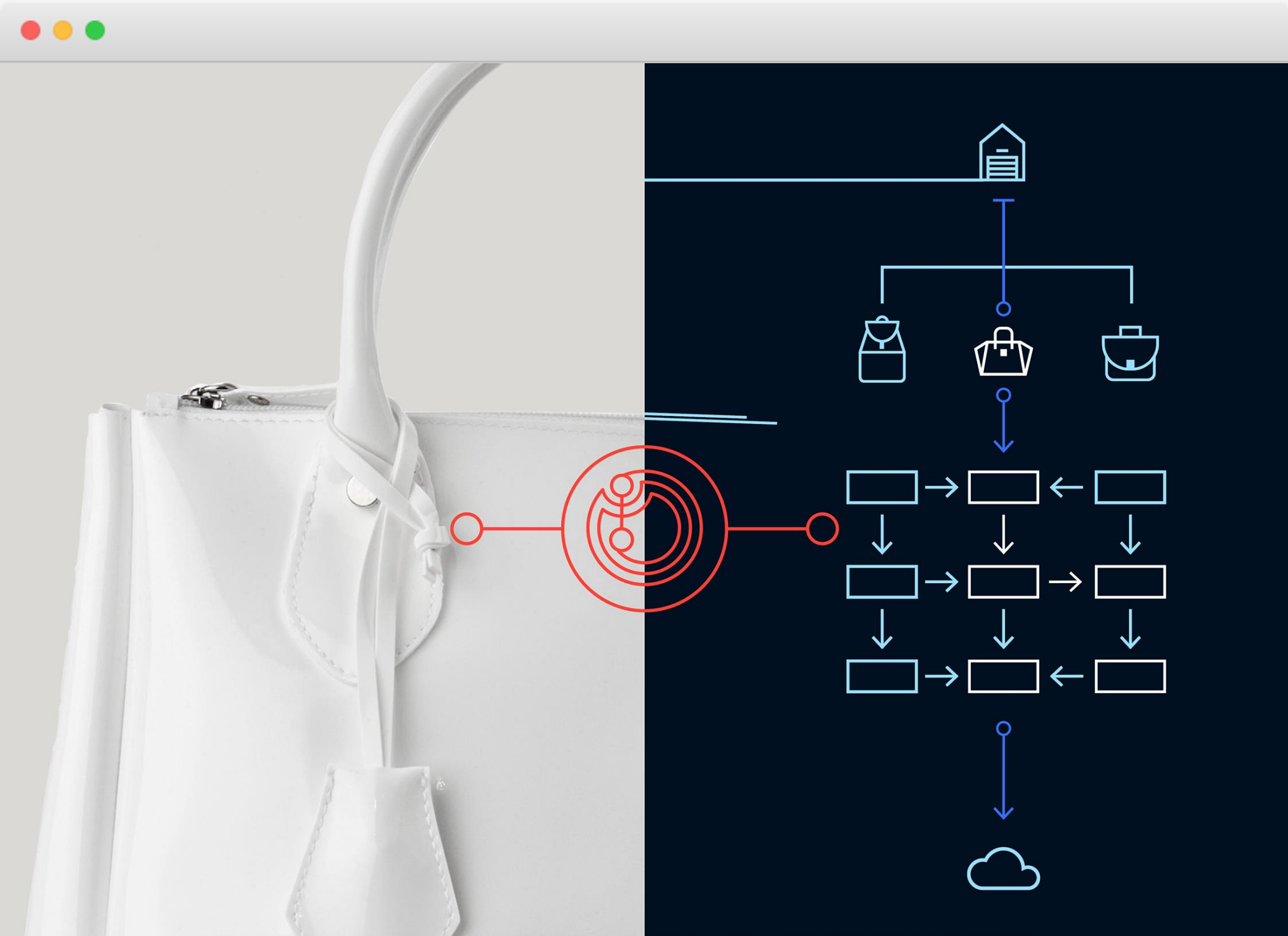
Define workflows



Define what items and  
authorized quantities



Kiosks for scanning  
& encoding





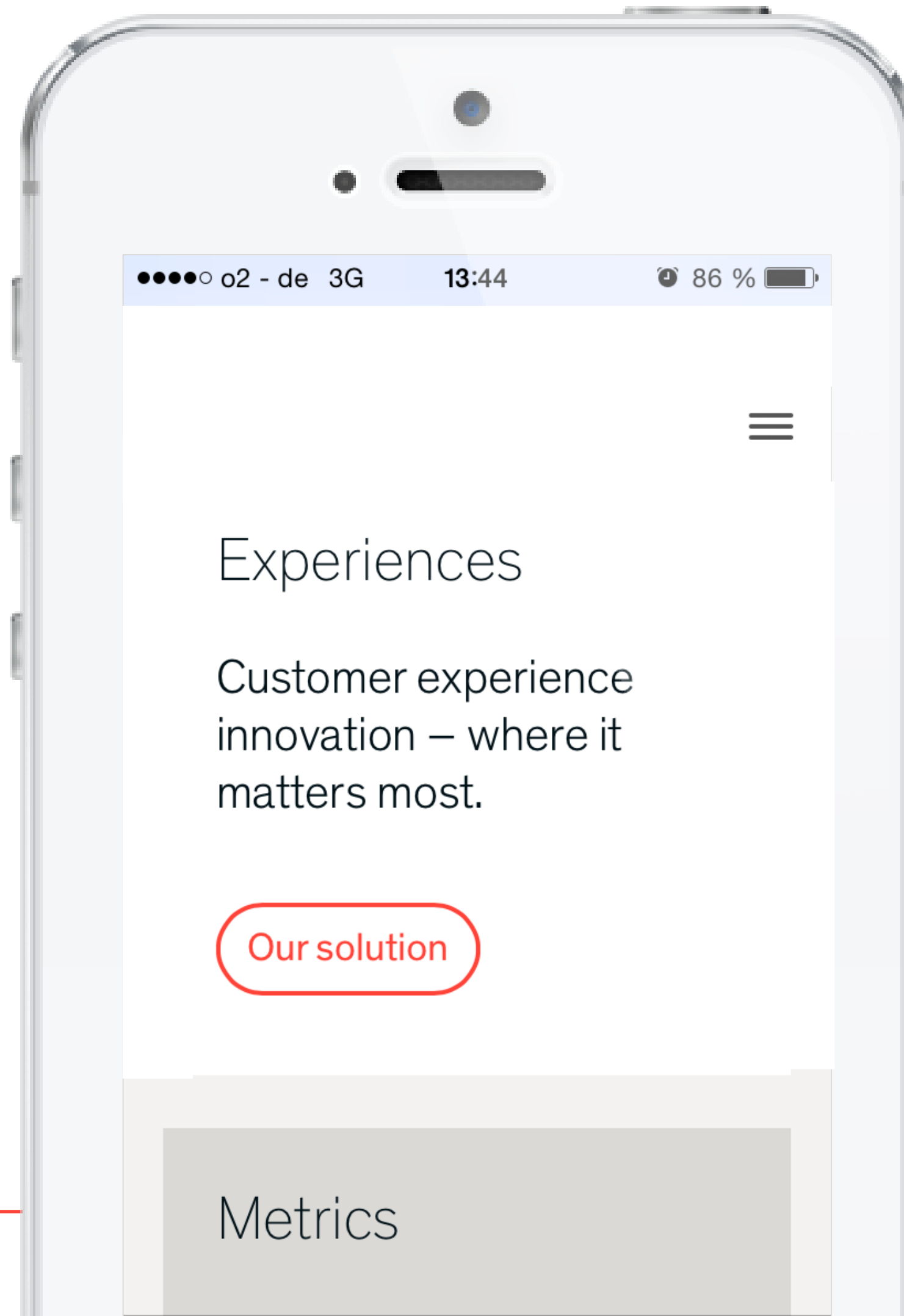
# Utilize: Solutions for real business benefits

Turn NFC enabled products into communications platforms to:

- Earn consumers' loyalty with personalized interactions & exclusive content
- Authenticate products at the tap of a phone
- Gain unique insights into consumer behavior

---

This is the Internet of smarter brand products.



Manage RAIN RFID tagged store inventory to:

- Reduce stock outs and markdowns
- Optimize inventory allocation
- Increase sales force effectiveness

---

This is the Internet of smarter inventory.

# Excellent Quality Management

1

## Quality starts with product development

Comprehensive product development process to ensure our products are designed for quality, performance & manufacturability

2

## Manufacturing quality assurance

Incoming raw material inspections  
In-process inspections  
Final product inspections

3

## Continuous improvement and documentation

Lean Manufacturing & Six Sigma variability reduction programs  
Process Information Management Systems collect real-time process information for problem analysis and productivity tracking  
SAP Quality Module: Production control and Quality inspection result recording





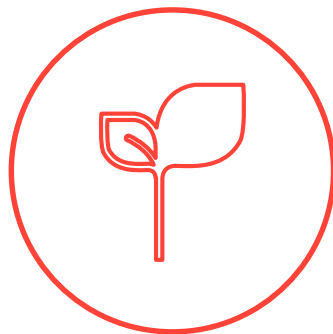
# Industry Certifications and Corporate Social Responsibility



ISO 9001:2015; ISO 14001:2015;  
ISO 1579 for laundry tags



Comprehensive RFID product portfolio  
comply with RoHS, WEEE, REACH



IEC 61249-2-21  
Halogen-free standards



UN Global Compact Initiative







# Why SMARTRAC

- Extensive RFID portfolio
- Premium customer service
- Excellent quality & reliability
- Innovative IoT solutions
- Strong R&D capabilities
- Comprehensive IP portfolio
- State-of-the-art manufacturing technologies
- Flexible high-capacity production network



# Contact

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connect things



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