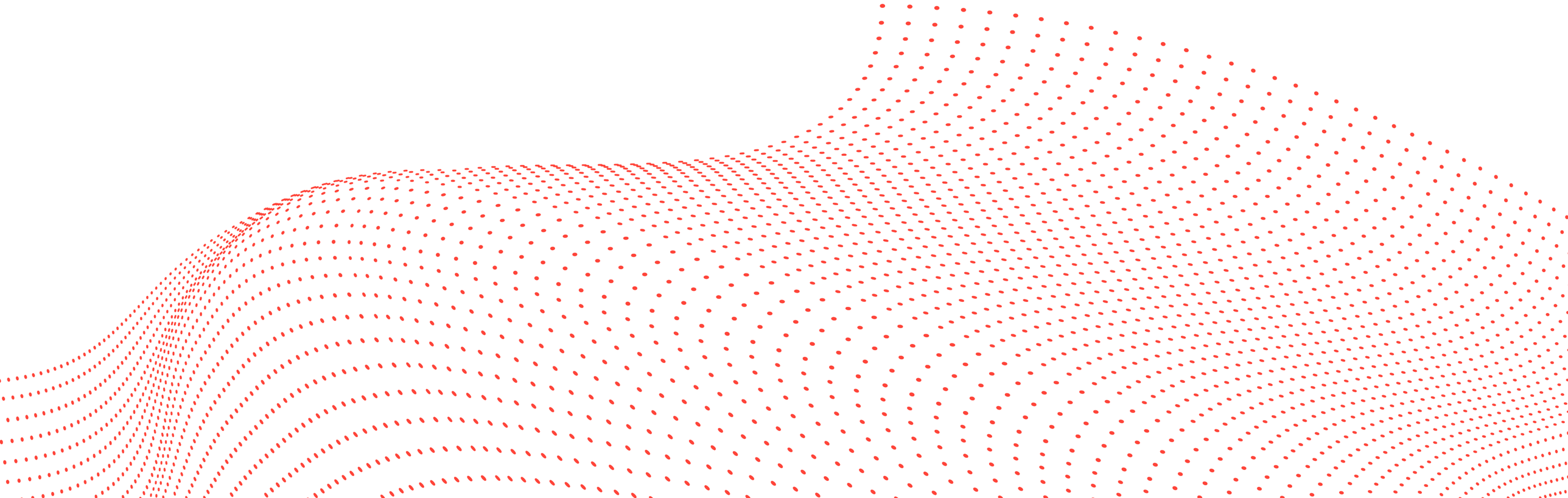
Welcome APICS!

smartrac
connect things

+

FACTORYSENSE.IO



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

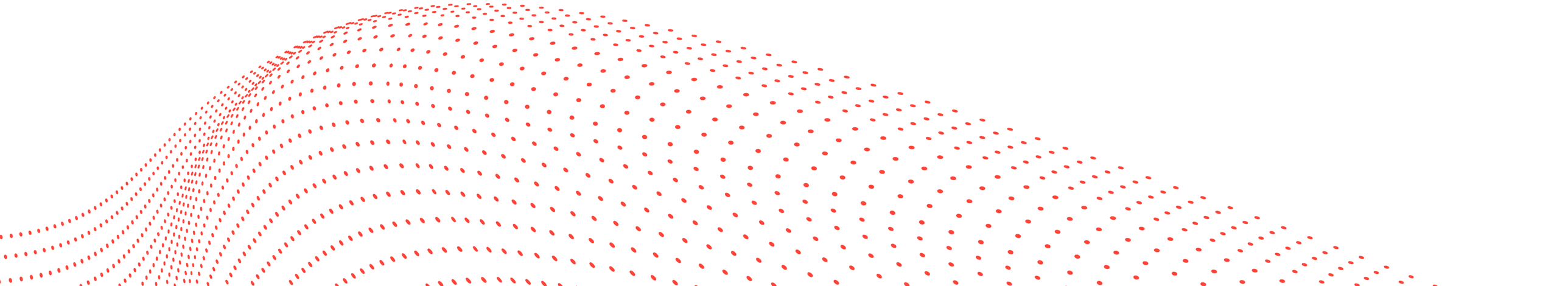
Christian Uhl, CEO
Amir Mobayen, CRO
Dinesh Dhamija, CTO
Dr. Kerstin Reden, CFO
Robert Harmzen

“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

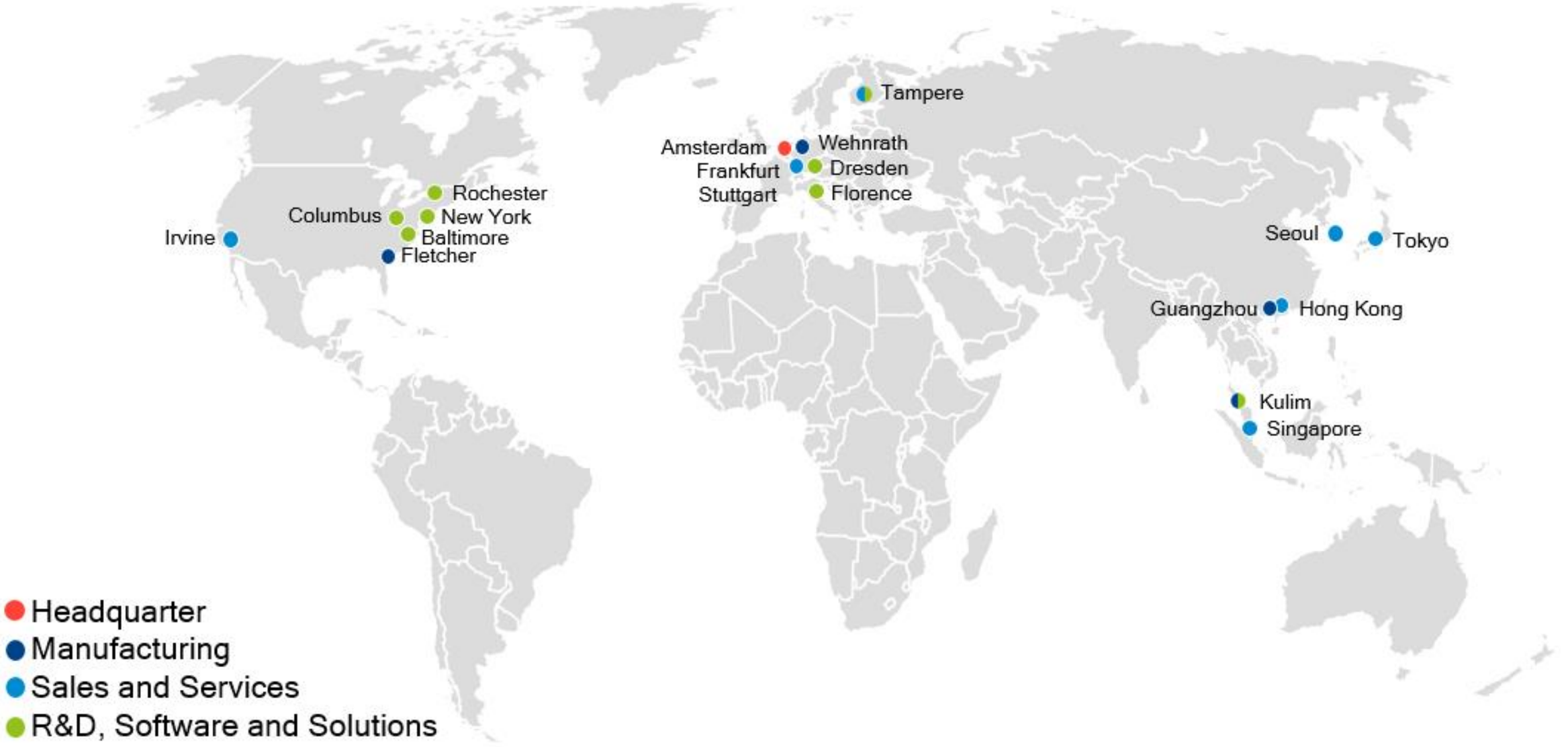
Global Sales & Customer Service

- 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…

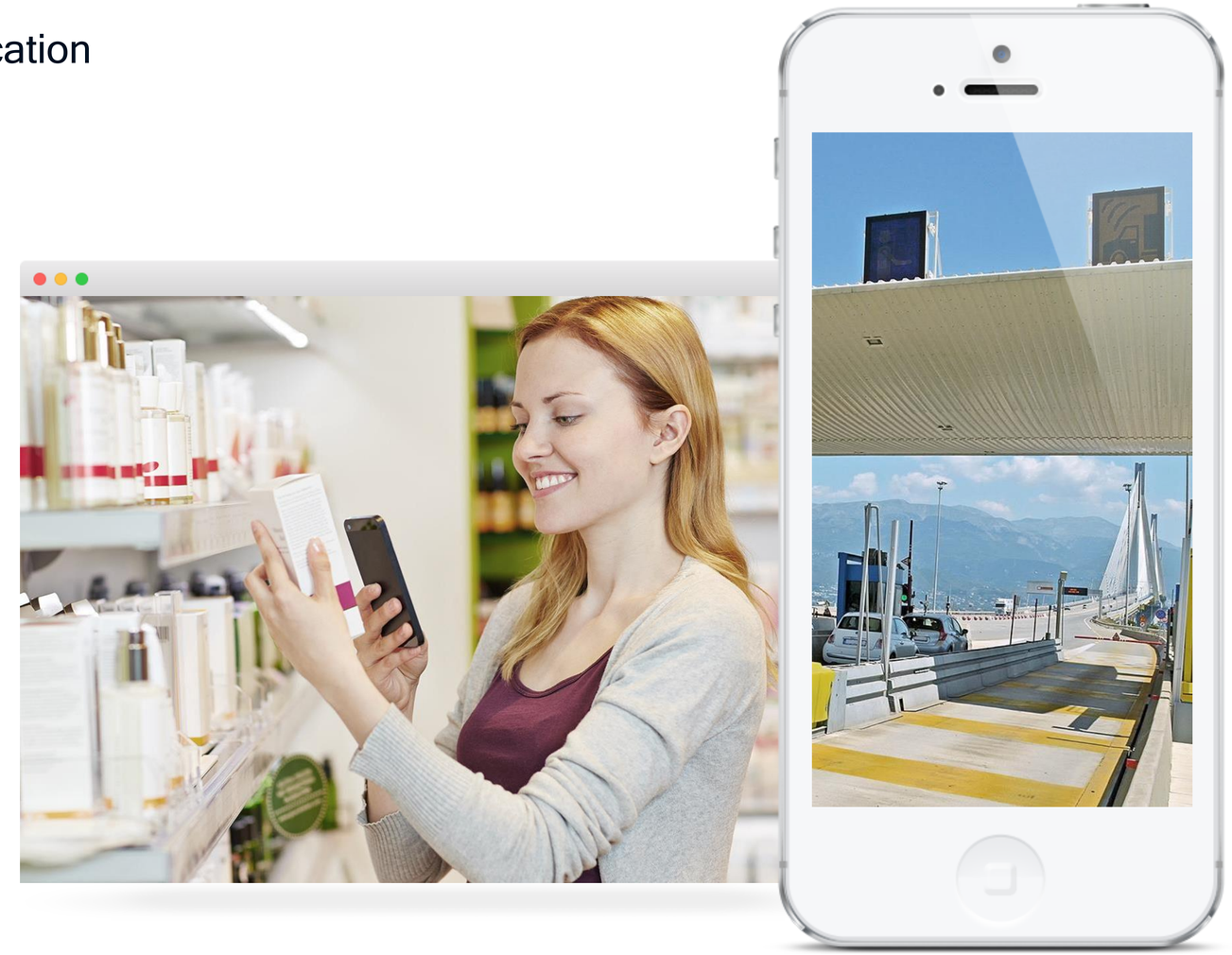
- Industrial Applications
- Automotive
- Healthcare
- Media & Document Management
- Supply Chain & Asset Management
- Retail, Merchandise Visibility

Covering Your Needs

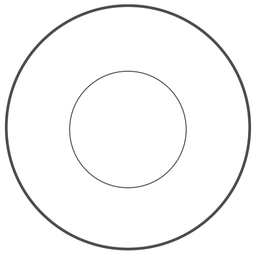
...and furthermore for electronic industry, animal identification and for tolling systems as well as border crossing.

- Product Authentication, Brand Protection
- Electronics & Gaming
- Car Access
- Animal Identification
- Automatic Vehicle Identification Systems*

... and many more.

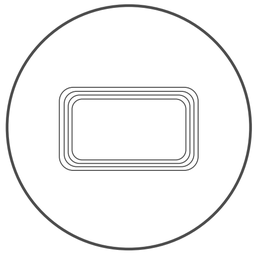


Applying Technology for You



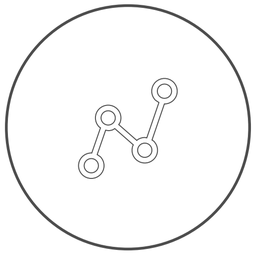
Wafer Back End Processing

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



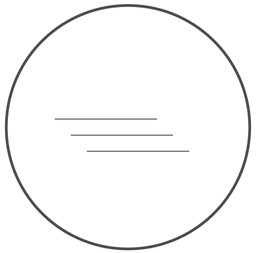
Antenna Technologies

Coil Winding, Etching, Printing, Cutting



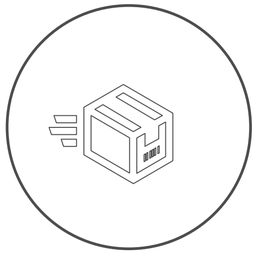
Bonding

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



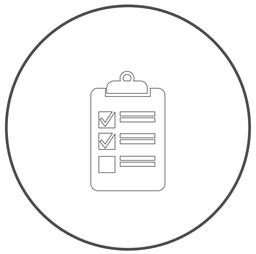
Lamination/ Converting

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



Special Packaging

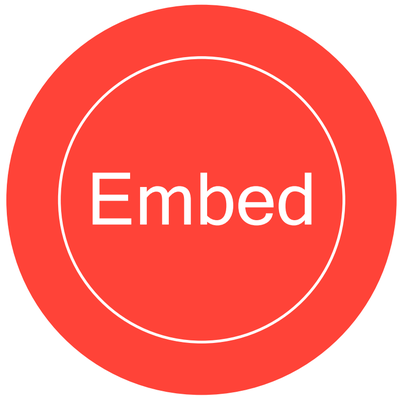
Injection Molding, Synthetic Resin Potting, Customized Embedding, PUR- Dispensing (Glob-Top), Additional Features & Services



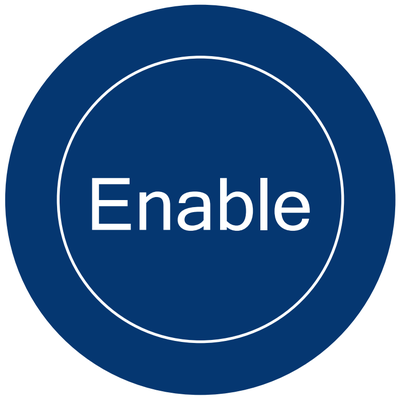
Test & Certification

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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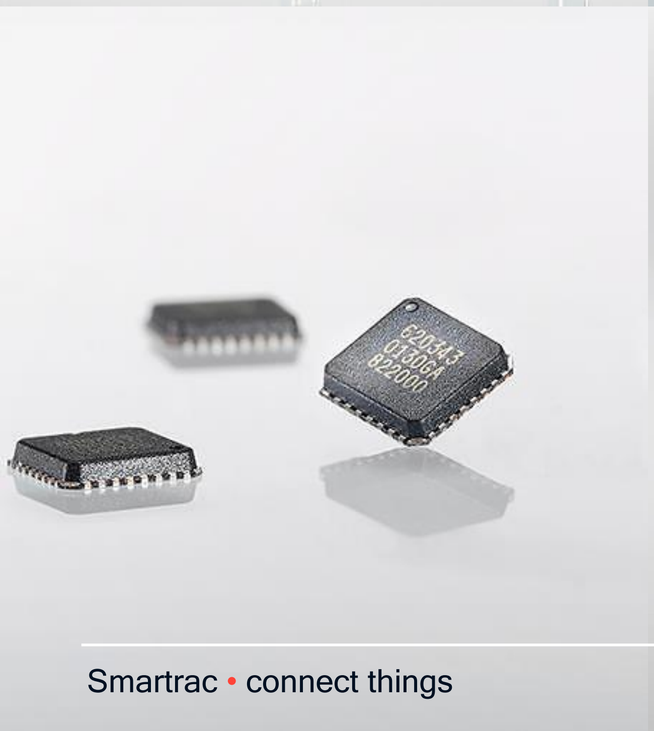
Digitize every single product.

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.

HEAVY DIELECTRIC LOAD | HEAVY TO MEDIUM DIELECTRIC LOAD | MEDIUM DIELECTRIC LOAD | NEAR FIELD

Spec F, U, I (ULTRA) | **Spec F , I** | **Spec G** | **Spec Q / TBD**

Short Dipole, Dog bone, Frog, Wings

Wood
Paper
Glass
Plastics
Cloth
Cardboard

BOOKS, CD/DVD, ELECTRONICS, FUNITURE

Belt

Wood
Paper
Glass
Plastics
Cloth
Cardboard

Web / Eagle

Weblite FCC

EAGLE U8

Advance Inductive Coupling

Future Developments

TOYS, BEDDING, HOMEGOODS, SPORT, ELECTRONICS, SUPPLY CHAIN

***Eagle is one of the smallest inlays approved for all FCC categories at ARC, Including spec I, F,G,M

Weblite M5

Clothing
Light Plastics
Paper

APPAREL / RETAIL

Trap, Bling, Midas

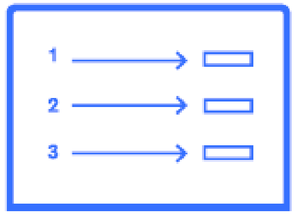
1 to 6 ft Read with load

Best practice needed

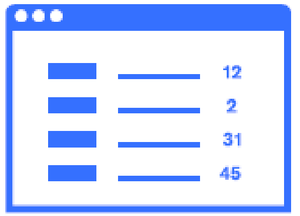
COSMETICS PHARMA

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.

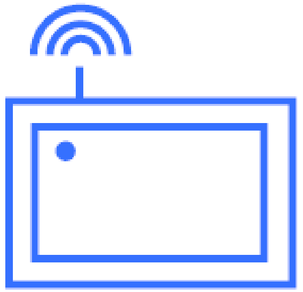
Enable:
Unify RFID and product data



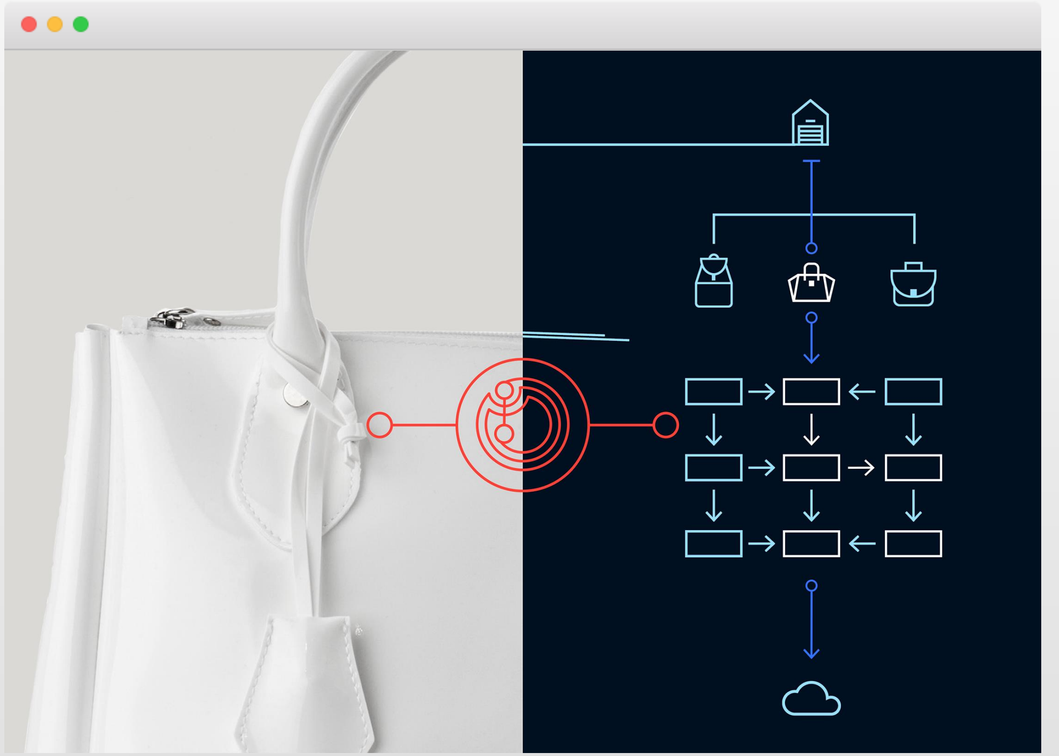
Define workflows



Define what items and authorized quantities



Kiosks for scanning & encoding

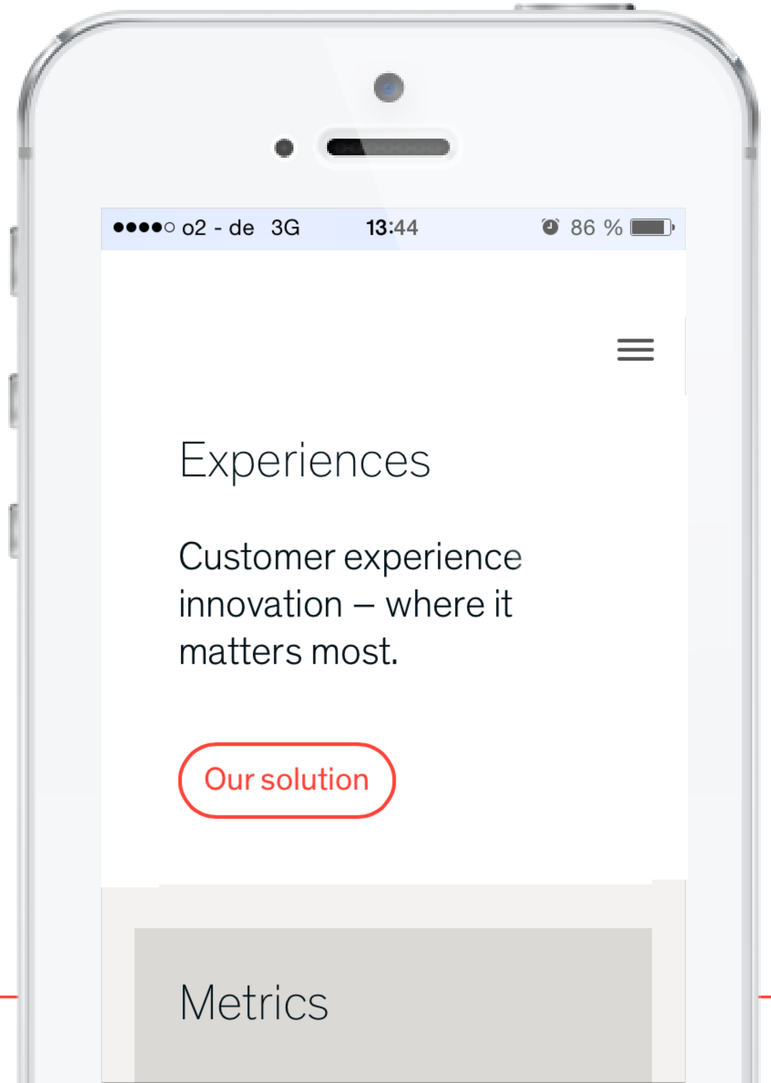


Utilize: Solutions for real business benefits

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

We've ~~lost~~ misplaced an item.
Where in the world is it?

Can I get an alert whenever parts enter or exit an area?

What jobs are stuck in production and where?

Why is there so much loss to attrition?

What inventory is expiring in the next few weeks and which assets need calibration?

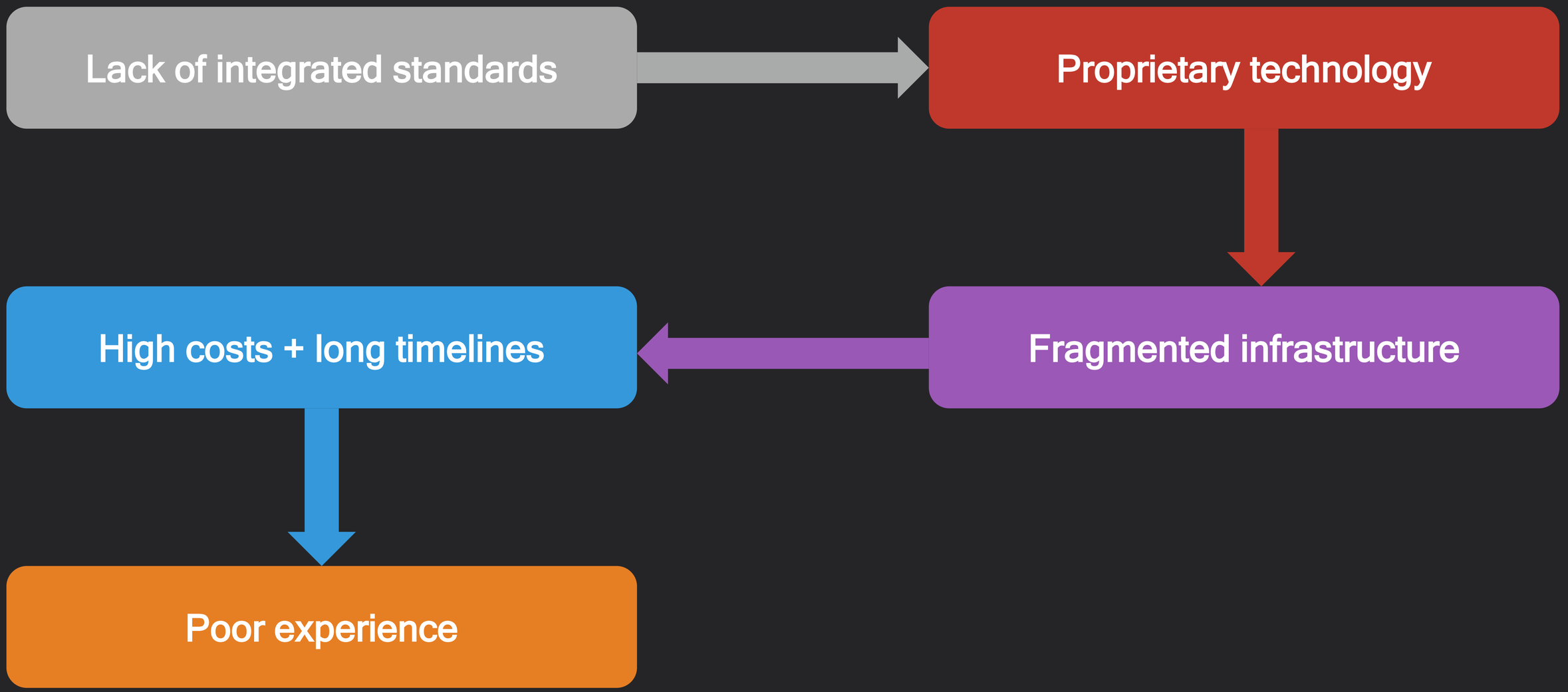
Where were the manufacturing bottlenecks that slowed production?

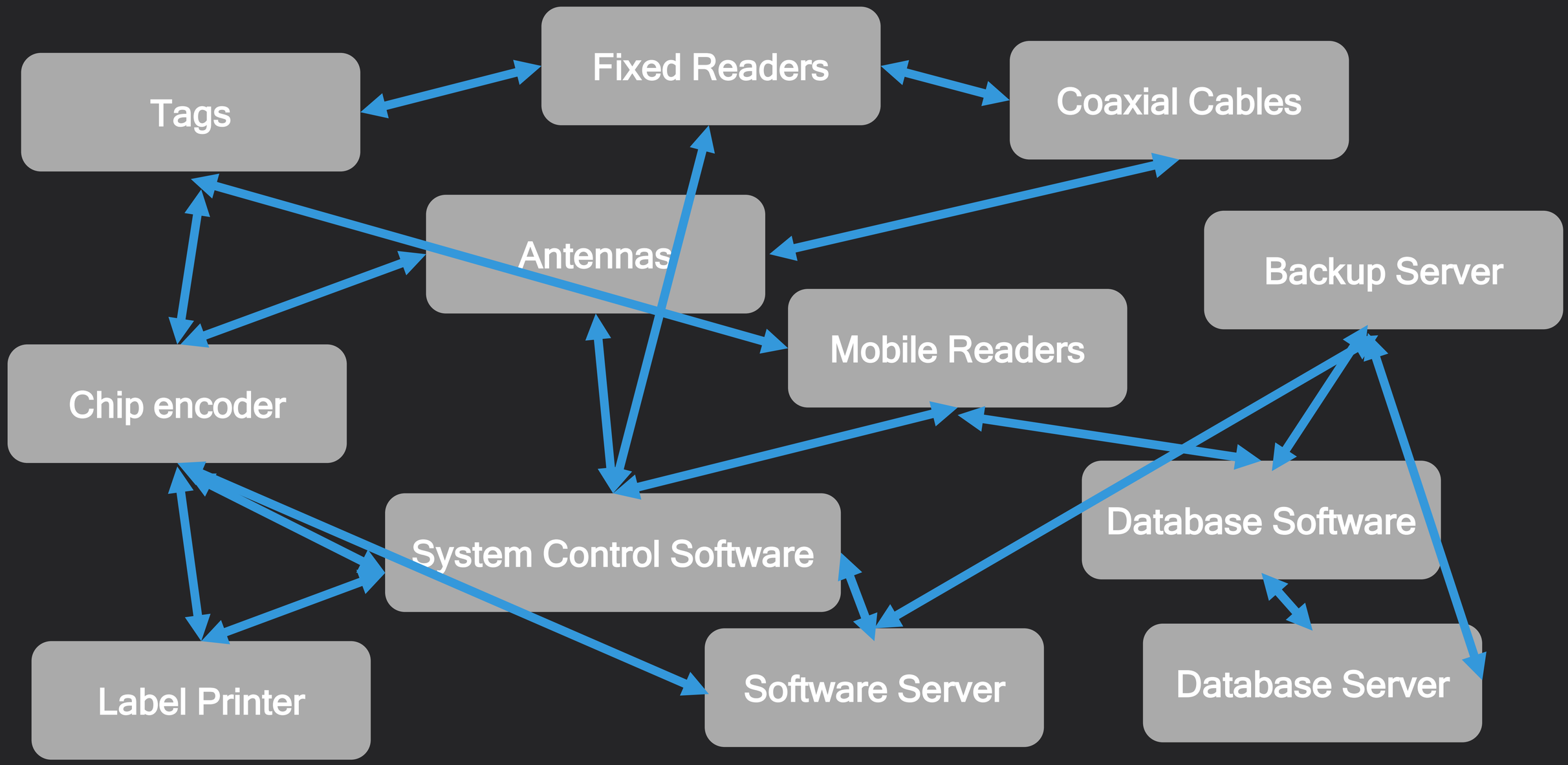
How much inventory do we have in the stockroom...for real?

Getting started with RFID is difficult and expensive.

Typical RFID System Components

- Tags (chip, antenna, size, materials…)
- RFID encoder
- Label printer (with or without integrated encoder)
- Antennas
- Cabling
- RFID Readers (fixed + mobile)
- Control Software + server
- Database management system + DB server
- Networking / IT system support (PoE devices, etc)


Lack of integrated standards
Proprietary technology
Fragmented infrastructure
High costs + long timelines
Poor experience



FACTORYSENSE.IO

Why can’t it be easy and affordable?

Less > More

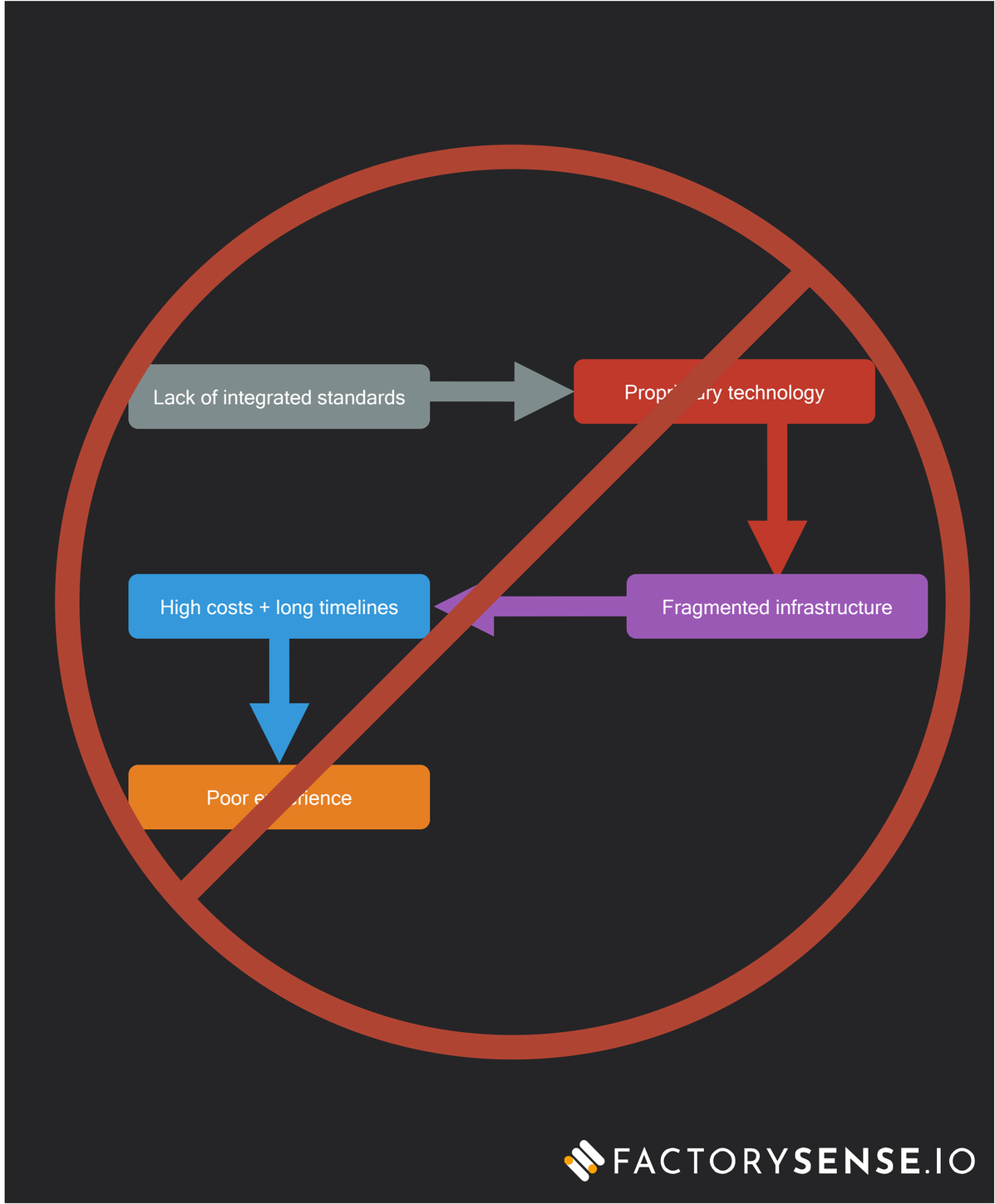
Standardized hardware

Cloud-based model (no software/servers)

1 source for hardware, platform, supplies

Fast to implement = faster ROI

Laser focused on inventory, assets, WIP



FACTORYSENSE.IO

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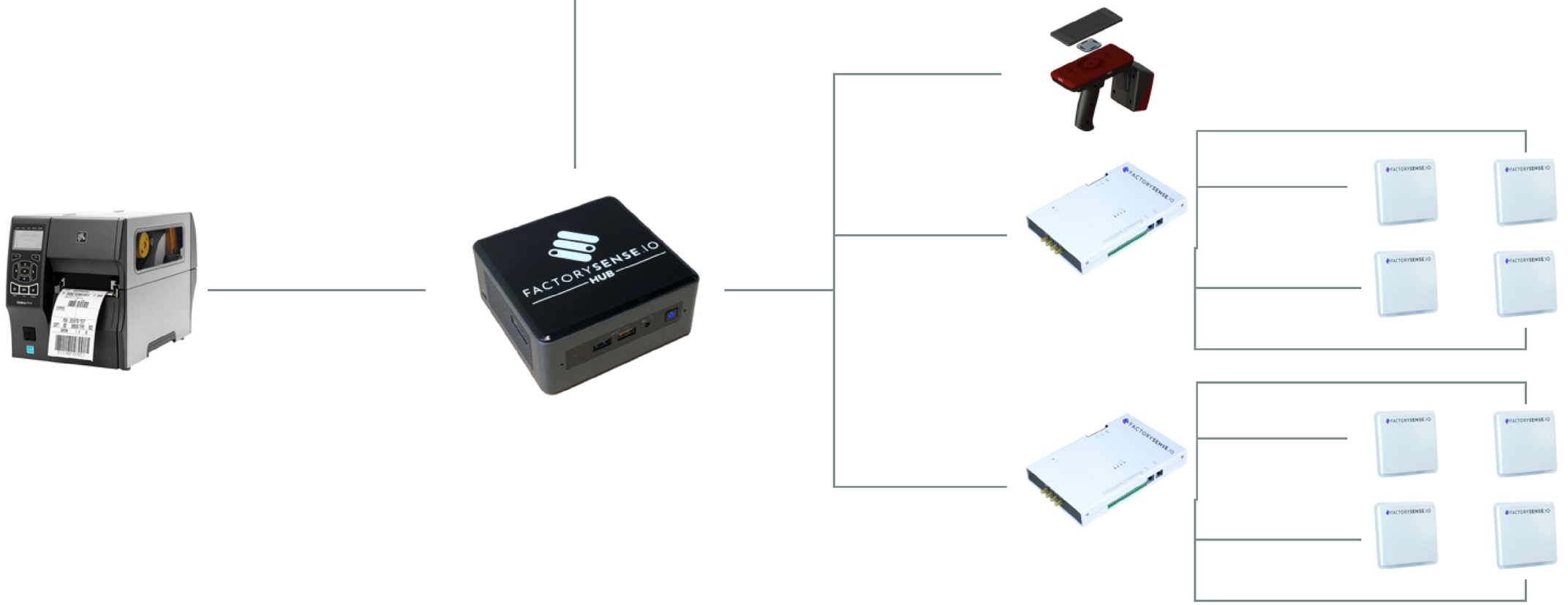

RFID Printers & Tags

FactorySense Smart Hub

RFID Readers

Antennas

FACTORYSENSE.IO

All FactorySense requires is internet access and power.

Plug and play...

- Eliminate lost material (pinpoint on a map)
- Stop cycle counting with fully automated stockrooms
- Create fences for location-based smart alerts
- Manage expiration and calibration dates like a pro
- Link with suppliers and end users
- Detailed audit trails
- WIP alerts for stuck jobs
- WIP alerts for slow-moving areas
- and much, much, much more...

smartrac
connect things

Amir.Khosh@smartrac-group.com

Brian.wood@Smartrac-group.com

+1 949 613 0422

Smartrac Technology Fletcher, Inc. – Irvine Branch

9008 Research Dr. Irvine, CA 92618, USA

FACTORYSENSE.IO

Neal Lober
Founder

nlober@factorysense.io

(972) 547-3813

www.factorysense.io