

RAIN RFID Source Tagging in Industrial Manufacturing

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Development



Voyantic

Speaker



Juho Partanen

18 yrs in RFID

15 yrs in Voyantic Ltd

12 yrs BOD positions



city-lab

Priva●n

Drives industry collaboration



Voyantic in a Nutshell

- **De facto** industry **standard** for RFID quality and performance testers
- Established in **2004** in **Finland**
- More than **1000** test systems delivered
- Customers in **35** countries
- **Over 90%** of biggest RFID companies* use Voyantic systems
- Over **500** references in academic articles**



*IDTechEx market report: RFID Forecasts, Players and Opportunities 2018-2028

**https://scholar.google.com/scholar?hl=fi&as_sdt=0%2C5&q=Voyantic+Tagformance



Our mission is to help companies to excel in RFID.

Voyantic is the only company in the world specializing into 100% performance and quality of RAIN RFID and NFC tags from R&D to manufacturing and deployments.



Terminology

RFID

covers several technologies where radios are used to identify objects

UHF RFID

Refers to one of the frequency bands

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RAIN

Uses the ISO 18000-63 or GS1 EPC UHF Gen2 air interface protocol



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EPC

GS1 numbering system

UID

ISO Numbering system

Presentation outline

- Company in Brief & Terminology ✓
- Smart label manufacturing process
- Implementing source tagging
- What Voyantic can do for You



Steps to Create a Smart Label

Chip
attach

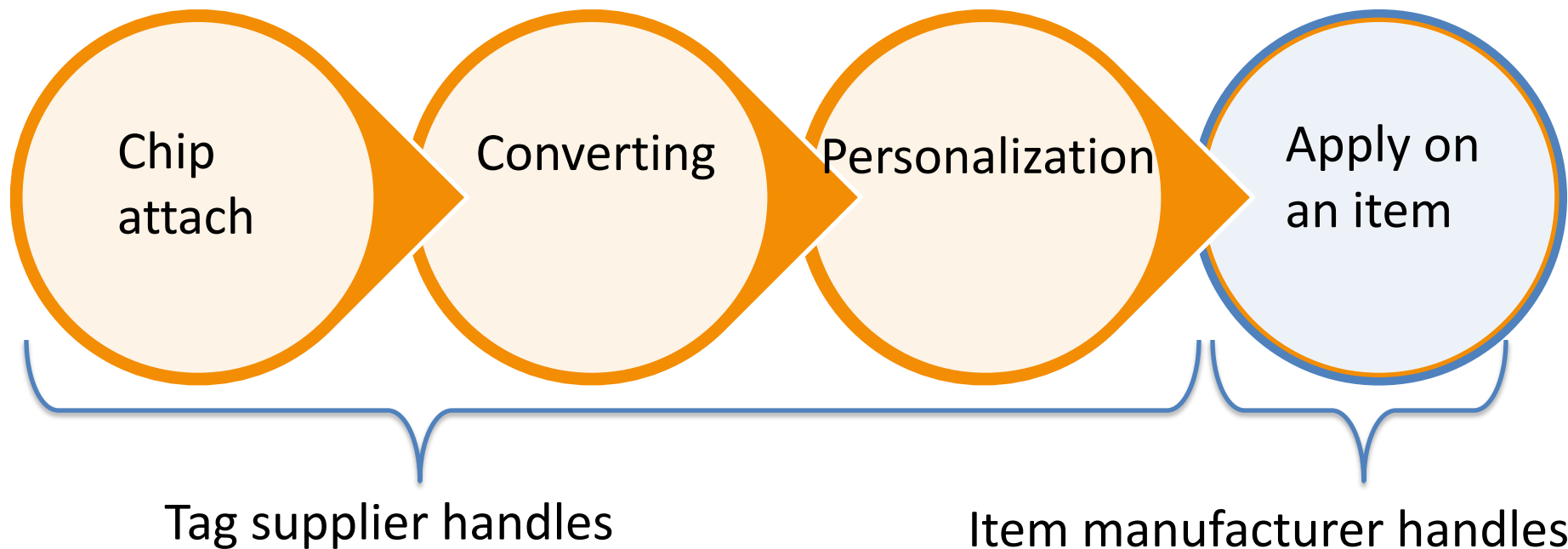
Converting

Personalization

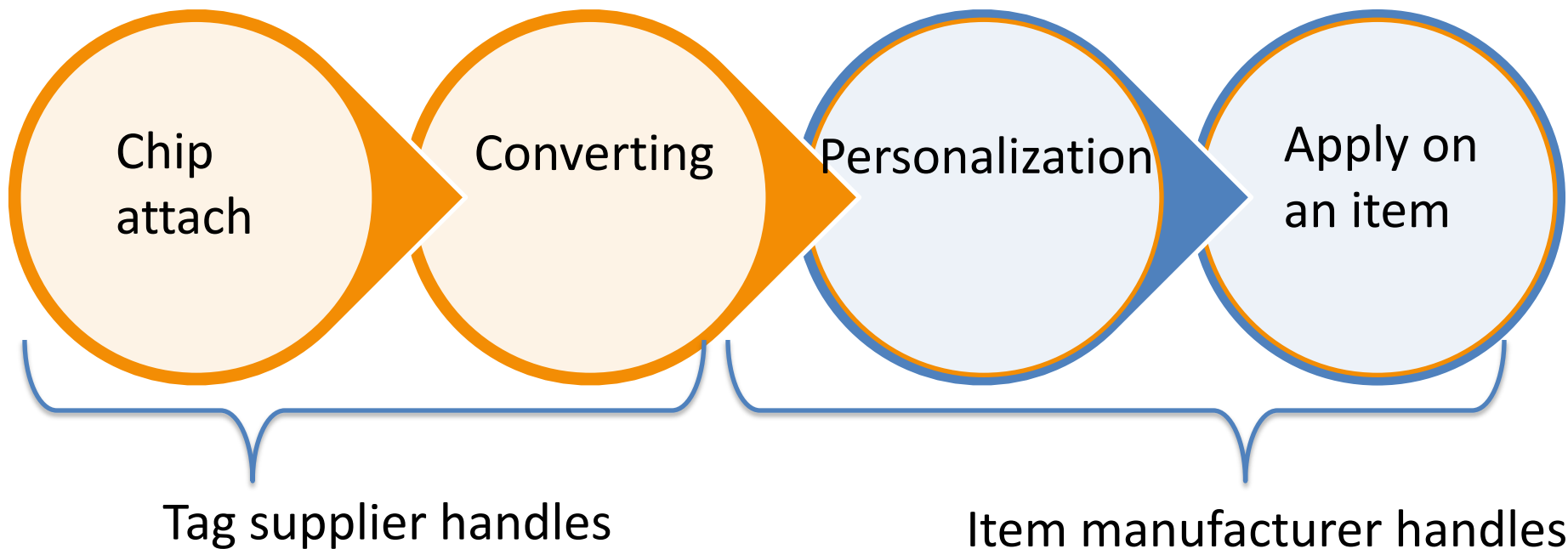
Apply on
an item



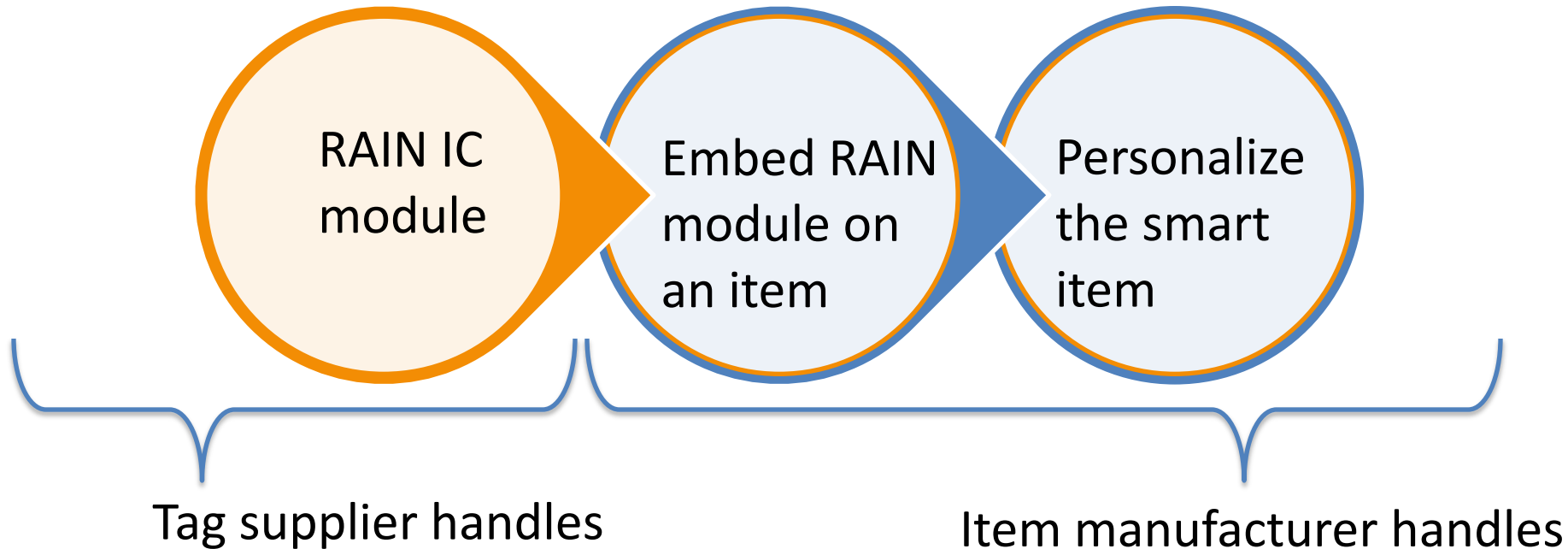
Traditional division of responsibilities



Going forward things change



Creating smart items



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Why Source Tagging ?

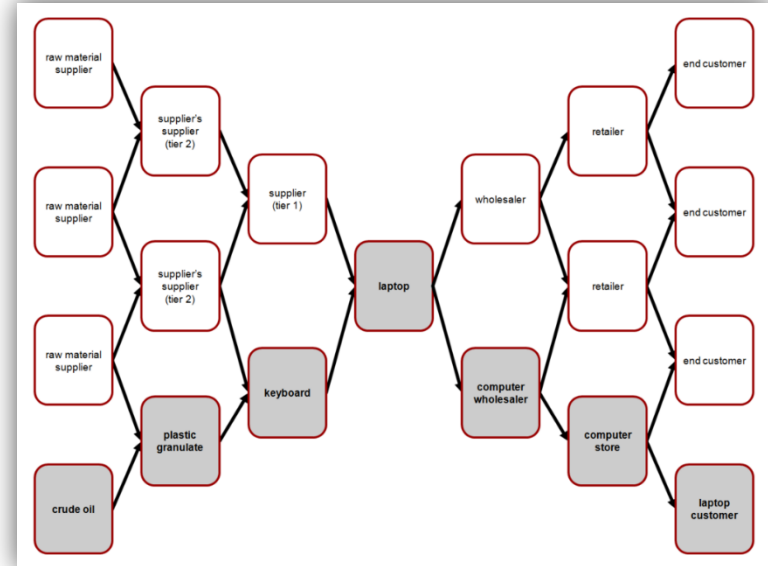
The infographic features the GS1 US logo at the top left and the Auburn University RFID Lab logo at the bottom left. It includes a photograph of a person in a yellow shirt packing a white garment into a cardboard box. A large black oval highlights a central text box with the following content:

Over 3x Order Accuracy Improvement With EPC/RFID

31% of orders accurate with U.P.C.

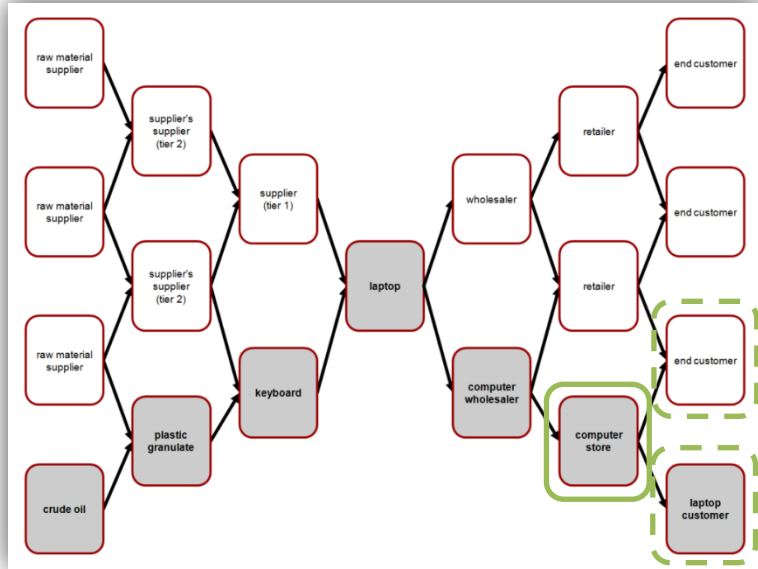
99.9% of orders accurate with EPC/RFID*

*99.9% accuracy occurs when vendors reconcile orders



Dynamic supply and demand network

Why Source Tagging ?



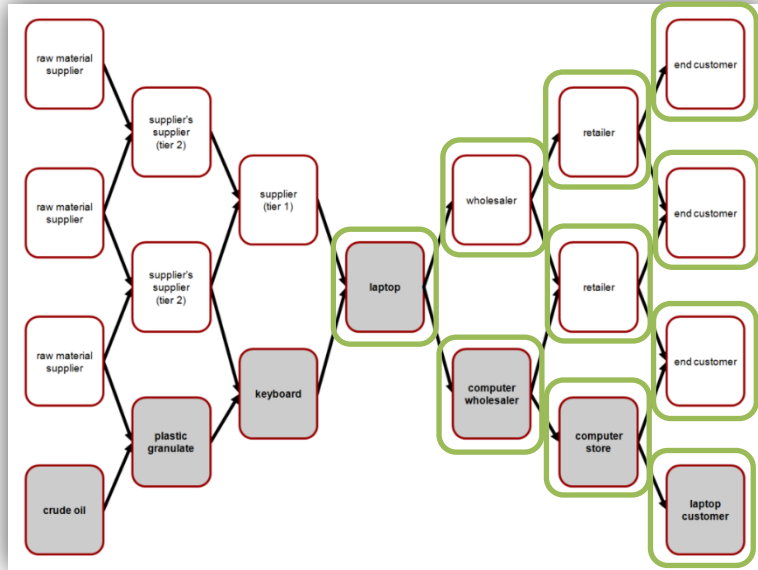
Dynamic supply and demand network

If the last node applies RAIN technology, earlier nodes cannot take benefit.

Cost of tagging and ROI falls on the last node.

As of today, the “laptop customers” have only limited possibility to take advantage of RAIN.

Why Source Tagging ?



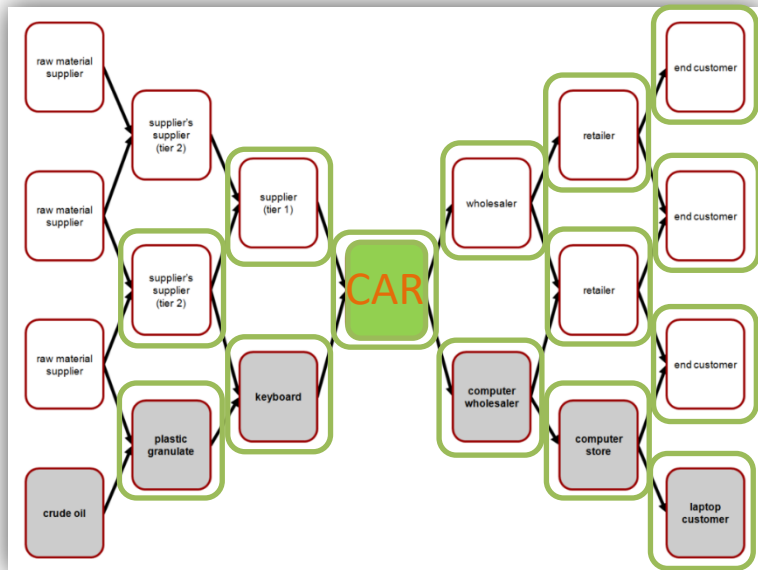
Dynamic supply and demand network

If the product is RAIN-enabled by the manufacturer, then all the nodes after manufacturing can take benefit of RAIN technology.

Cost of tagging is likely to go down due to larger tagging volumes and efficiencies in industrial manufacturing.

The whole distribution chain becomes more efficient. Everyone wins.

Source Tagging Must Be Managed



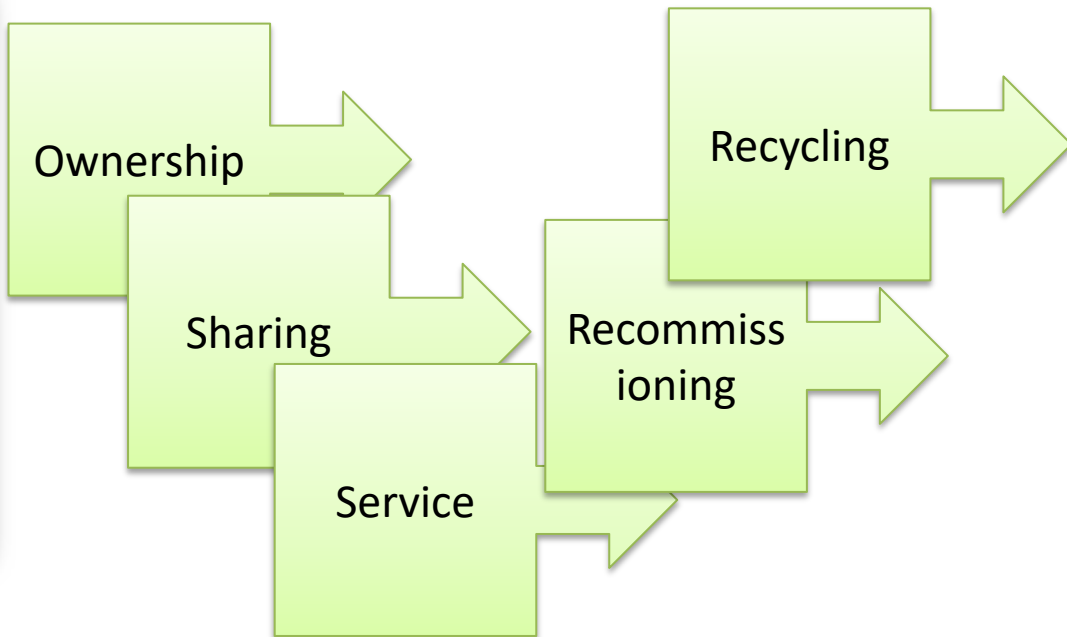
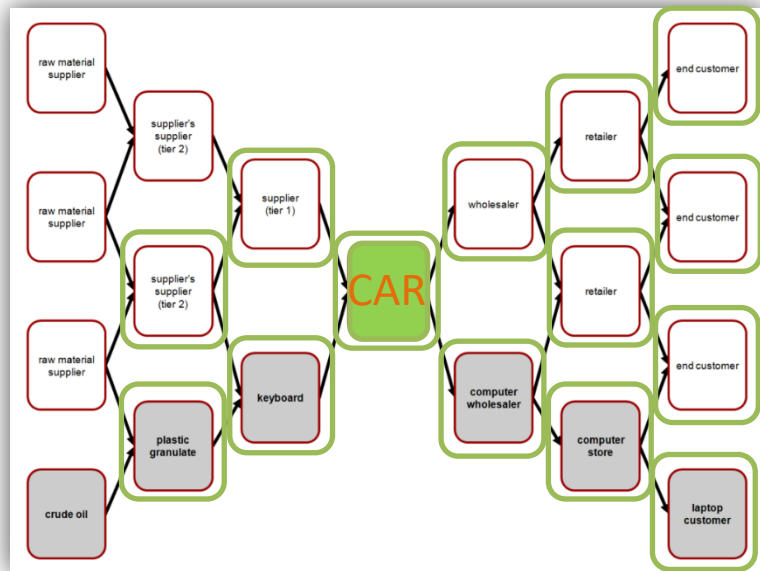
Dynamic supply and demand network

In the automotive industry, source tagging is already spreading among component suppliers.

One complex subassembly, such as a car bumper, may have multiple tags.

To avoid electronic duplicates, low read rates and tag flooding, RAIN implementations should follow standards and best practices.

The actual life of an smart item starts after it is sold and delivered



RAIN -enabled item should have

Your
specs:

Correct visual data

Correct electronic data

Correct security

Correct readability

Correct life-time



To get it right, utilize standards

Your
specs:

Correct visual data

Correct electronic data

Correct security

Correct readability

Correct life-time



UID ISO/IEC 29161



LOCK PERMALOCK Password management

GS1 TIPP AS5678 ISO/IEC 20909 ARC

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What Voyantic Can Do For You

Your
specs:

Correct visual data



Correct electronic data



Correct security



Correct readability



Correct life-time



UID ISO/IEC 29161



LOCK PERMALOCK Password management

Understand requirements,
create specification,
implement



And How Do We Do It?

Your
specs:

Correct visual data



Correct electronic data



Correct security



Correct readability



Correct life-time



Reelsurance Pro
Reel-to-reel label finalization machine

And How Do We Do It?

Your
specs:

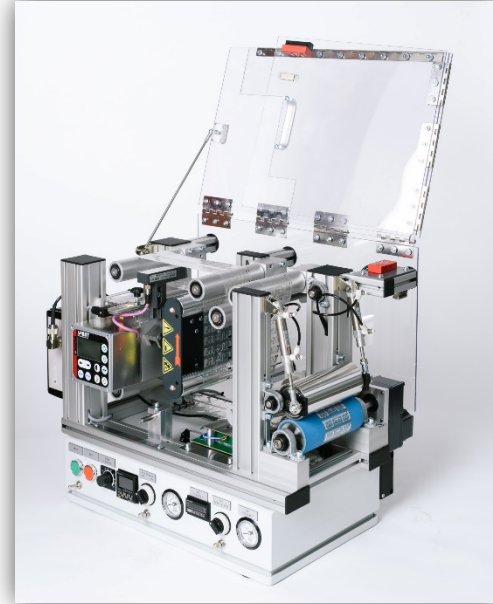
Correct visual data

Correct electronic data

Correct security

Correct readability

Correct life-time



Bendurance
Automatic label stress tester

We can also RAIN-enable Your Machine

Your
specs:

Correct visual data



Correct electronic data



Correct security



Correct readability



Correct life-time



Your Machine, with Voyantic Ensurance
Produces Your Products

Recap from 2019: 3 Ways to Scale Up the Production of RAIN-enabled Products

Merge several process steps in one machine

Increase machine throughput

RAIN-enable existing
manufacturing machines



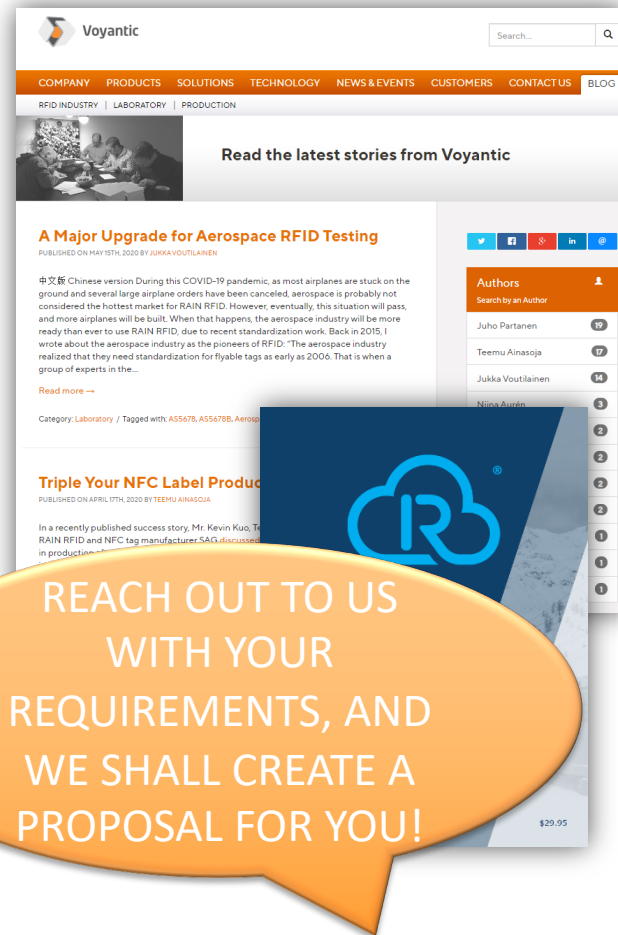
How to Scale RAIN RFID Tagging via Existing Equipment – Three Ways to Improve Productivity and Increase the Volume of Tagged Product

TAGS ▶ 2019 | [WEBINAR](#)

This year is likely to bring RAIN-RFID connectivity to more than 20 billion items. This represents impressive volume, but the penetration rate is still below 10 percent—even in the retail market segment. For the RAIN RFID industry, this presents...

A few pointers forward:

- Voyantic Blog
- Get a copy of “What is RAIN RFID” eBook
- Connections Summit in Helsinki June 2021



THANK YOU



Voyantic