Practical applications of IoT and how it can impact your supply chain

March 2022

pwc

Agenda

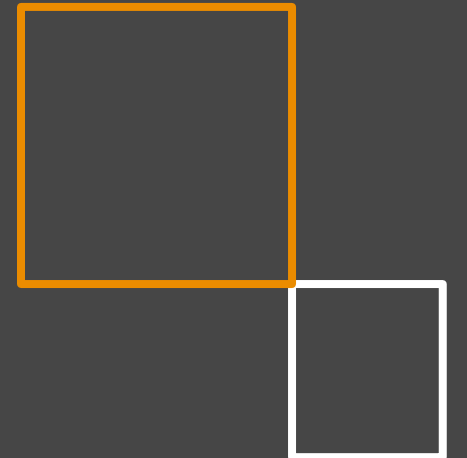| Part I	Challenges of digital transformations and IoT

Part II	Getting to know our solution providers of today

Part III	Panel discussion

Part IV	Q&A

Speakers

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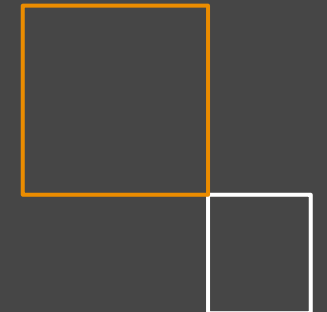
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General introduction on digital transformations and IoT

Today's industry is facing enormous challenges

How can digital tools lighten the challenges ahead

| 1 | How can we keep and attract talent? |

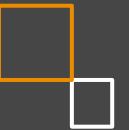| 2 | How should we deal with Supply chain disruptions? |

| 3 | How do we continue our productivity journey? |

| 4 | How should we address our ESG agenda? |

Many companies struggle to match between the digital solutions and the day-to-day issues

Digital operations Transformation

Paperless factories

AGVs

Augmented reality

IoT

Digital Twins

Predictive Maintenance

Flexible production

Manufacturing Execution Systems

Drones

Smart Warehousing

Digital solutions

Day-to-day challenges

Cost pressure

Process stability

Failure management

Rework & quality

Complexity management

Your struggles...

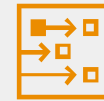**Projects stay stuck in proof-of-concept**

Limited visibility on potential impact

Insufficient inspiration

Unclear future vision and roadmap

… not uncommon in industry

Industrial Internet of Things (IIoT)

A technology often used throughout the digital transformation process

Main characteristic: **PLUG & PLAY –** to collect data from

- Anywhere
- Any time

Next to that the technology has a low entry threshold:

- No requirements wrt Infrastructure
- Low level of knowledge within the company
- Small CAPEX/ OPEX investments

Obtain the first insights or even value within a short period of time (days/weeks)

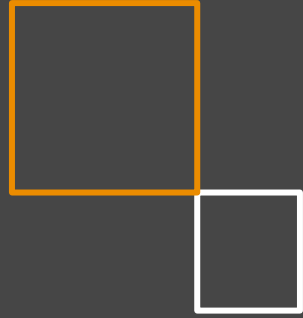# Today, we'll dive into three specific applications of IoT

Low power GPS tracking

Your production data, anywhere, in real time

Cold Chain as a Service

2

Sensolus

IoT is changing
the rules of the game

Confidential

Customer case: Airbus

Use of Returnable Transport Packaging (RTP) in international supply chain (>50k units)

Challenge

- 10-15% misplacements
- Capacity issues (inventory)
- Late notifications on deviations
- Unexpected freight charges
- Ad hoc interventions
- Complexity of 3rd party logistics

No visibility and lack of data to drive processes & contracts

Customer case: Airbus

What Sensolus delivered

>15.000 Packaging are today connected to the Sensolus platform

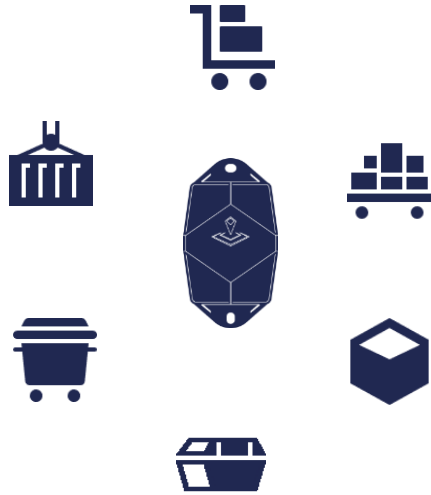**What Airbus received**

✔ Easy retrieval & automated stock
✔ Improved rotation & retention
✔ Compliance reporting
✔ Payload condition monitoring
✔ Preventive alerting

They have visibility & data to optimize the processes

How it works: truly plug & play

STICK & SENSE

CONNECT

ANALYSE & ACT

Indoor & outdoor

5 years battery life

Public network

No infra
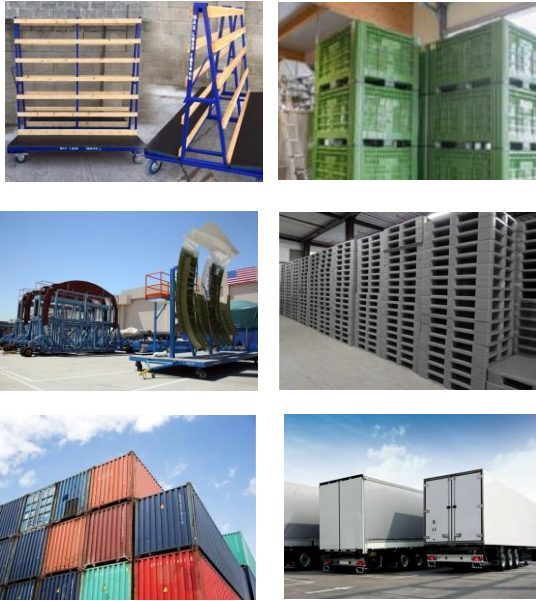
Driven by real business value

Plug & play IoT platform

Affordable IoT with minimal process change

Sensolus provides a reliable geo-IoT solution for all assets

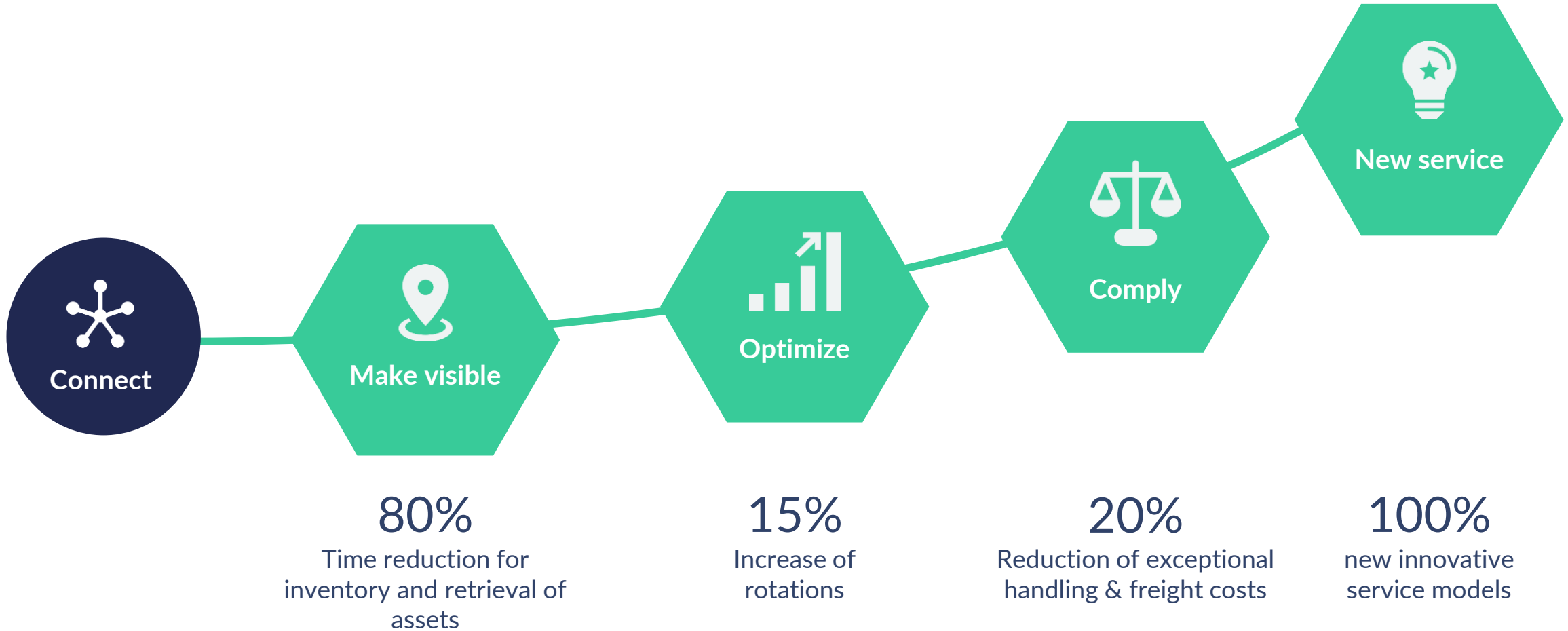
Low-power communication Protocols

Localisation Techniques

Device management

Data integrity (patent)

End2end security

Device life-cycle management tools

Asset management applications

All type of non-powered assets

From connected assets to connected processes

Our value proposition

Focus on value creation

KPIs which optimize business processes (such as WIP) and quantify losses

Complete data sets to ensure compliance and enforce new payment or invoicing schemes

Tools to **accelerate the transition** from one-off revenue to recurring business models, while staying in control

A true expert eco-system

IoT business expert team with many years of experience in creating business value with IoT

Trained partner network to offer local support and services to the end-customers

Including **multiple tracking technologies and protocols**, manufactured with global strategic partners

The best solution out there

Multi-tenant, **asset management application** powered with multi-protocol trackers & sensors
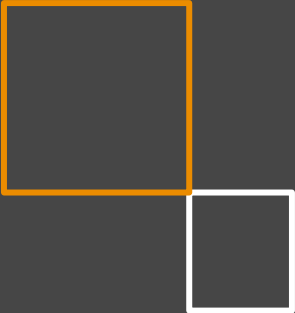
Configurable **edge- and cloud**, ensuring life-time low-power operations aligned with evolving needs

Enterprise-ready, including life cycle management, security and bi-directional integration of business data

sensolus | Are you ready for the journey?

2

Blackbird

How to turn your challenge into success by adopting Blackbirds IoT solution

Finn Hunneche, Founder

BLACKBIRD

SMART DATA COLLECTION

Finn Hunneche – Founder Blackbird Smart Data Collection

Blackbird – The company:

• Founded as legal entity in Sep 2015, in Copenhagen

• +1500 equipment's daily online, SaaS model

• 15 languages, installations in 27 countries

• +250 million data entries per day

• Market focus: EU and USA

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Master of Science Engineering, PMP
Technical University of Denmark,

Any process can be improved with data

… the ability to utilize data will decide the fate of companies

Where is your company on the digital journey?
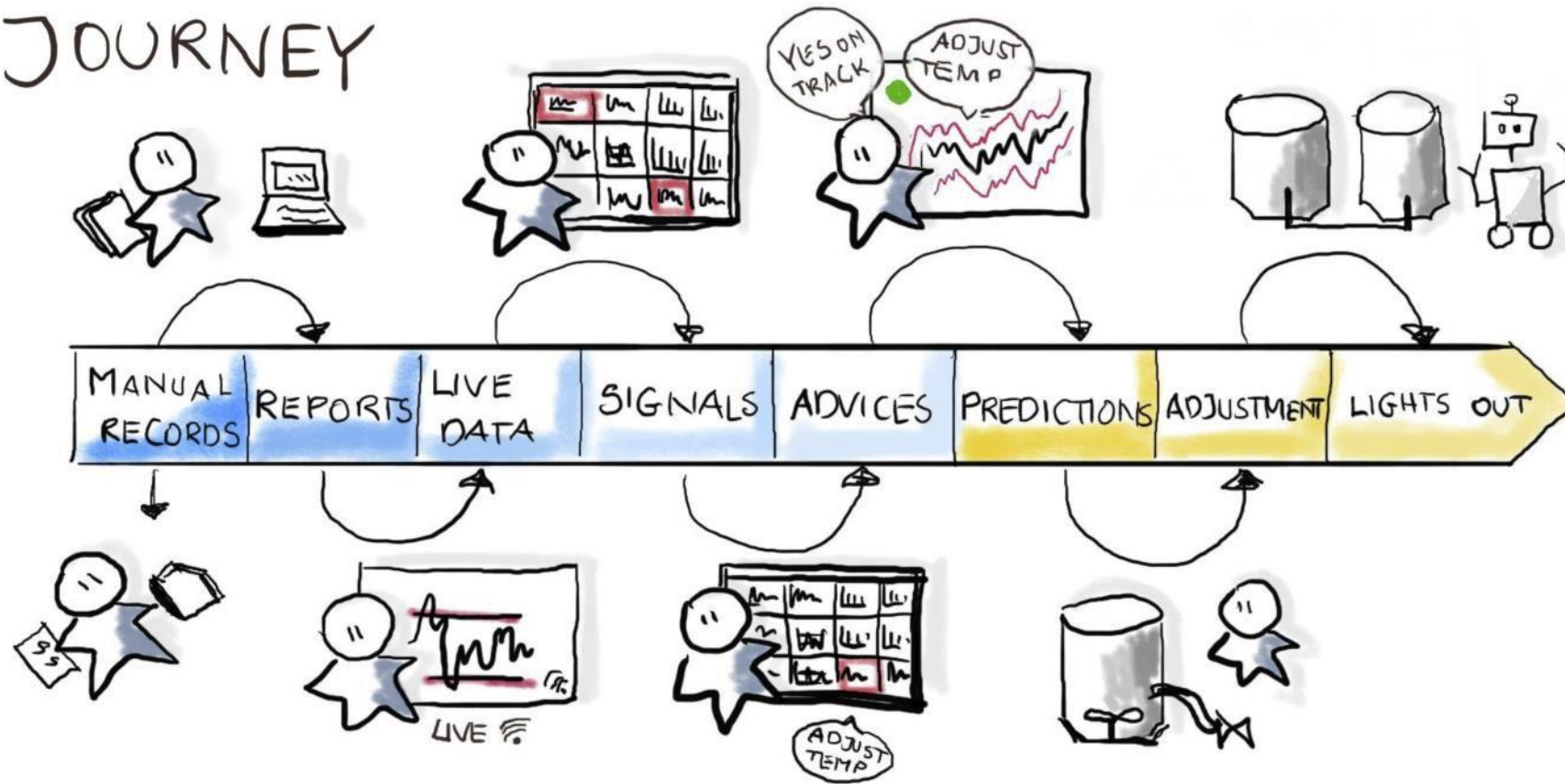
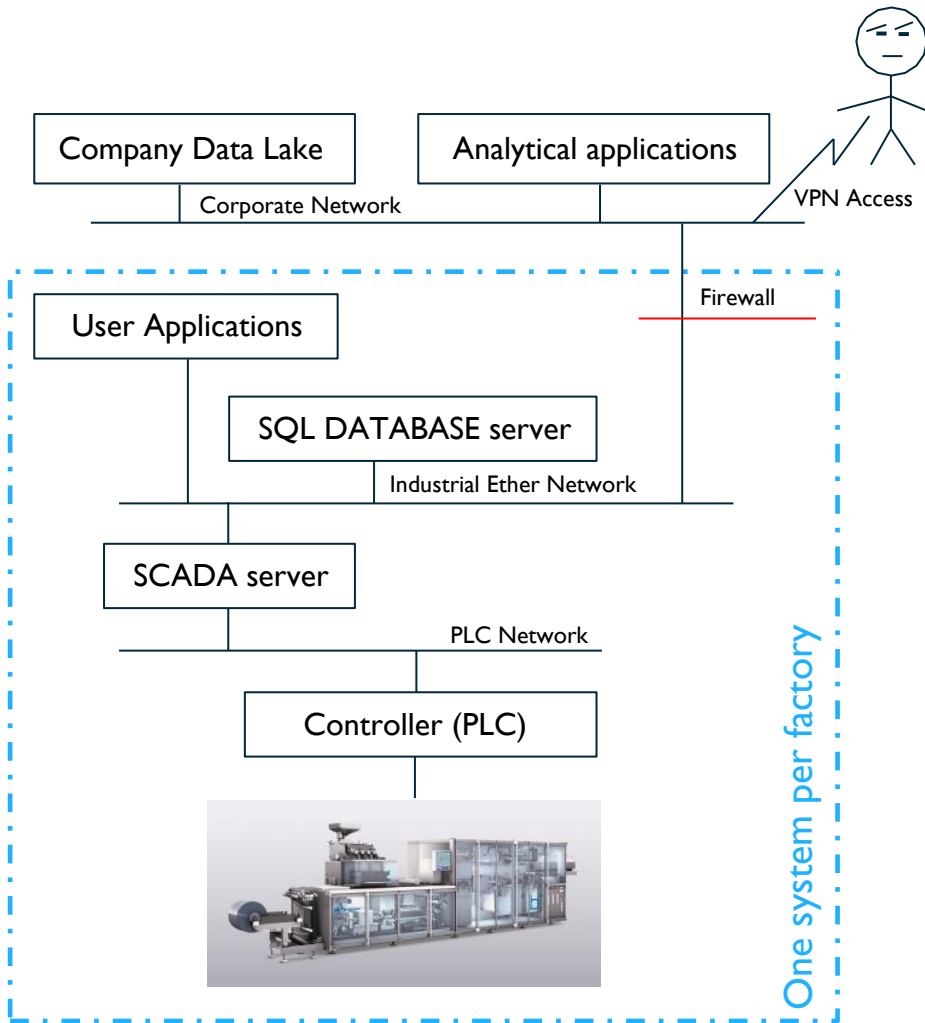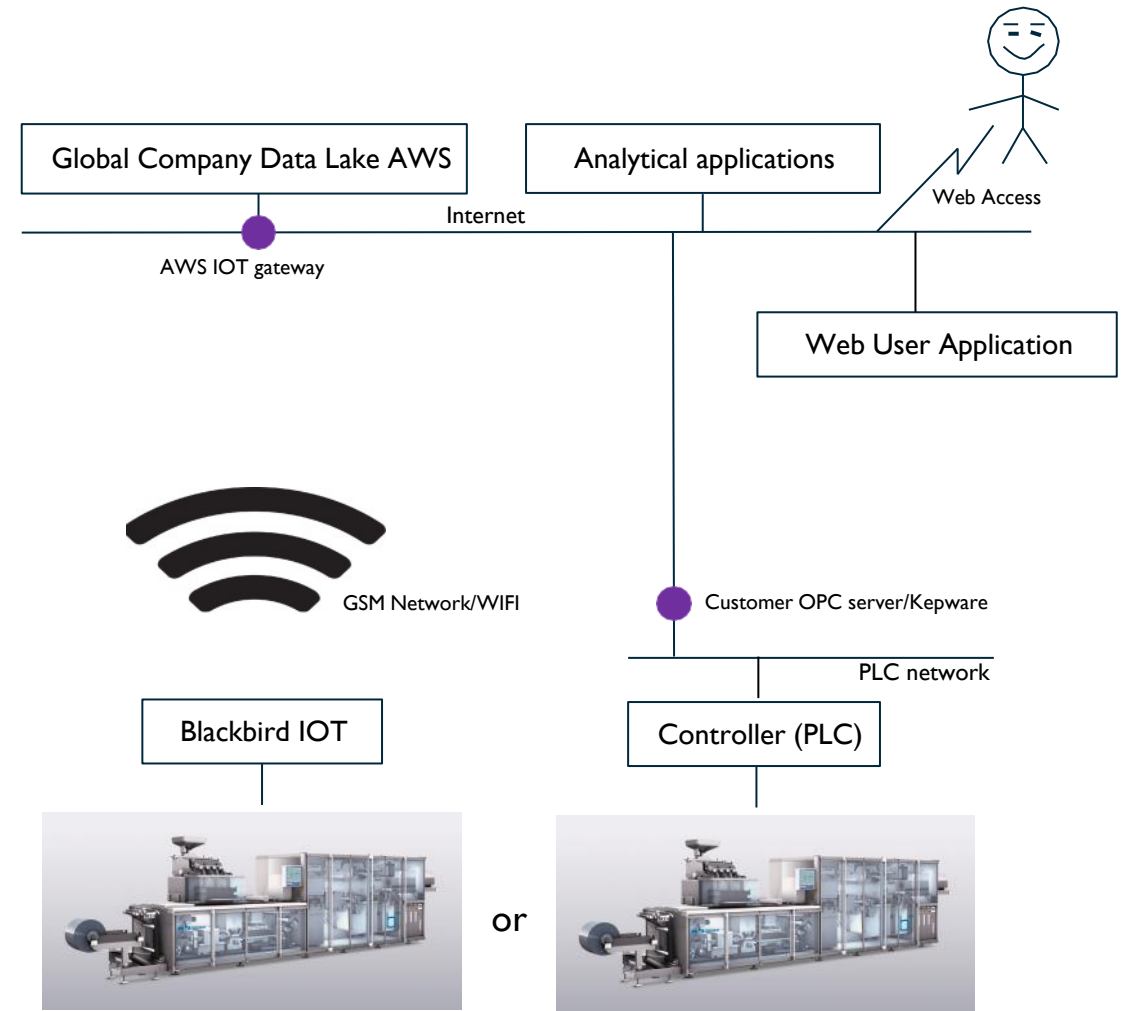# The challenge for millions of companies

65% of all industry processes are not connected to anything!

Most companies collect data like this

Company Data Lake

Analytical applications

VPN Access

Corporate Network

Firewall

User Applications

SQL DATABASE server

Industrial Ether Network

SCADA server

PLC Network

Controller (PLC)

One system per factory

Blackbird provide smarter options

Global Company Data Lake AWS

Analytical applications

Web Access

AWS IOT gateway

Internet

Web User Application

GSM Network/WIFI

Customer OPC server/Kepware

PLC network

Blackbird IOT

or

Controller (PLC)

BLACKBIRD
SMART DATA COLLECTION

Installed in a few hours

Make Your Factory More Efficient and Profitable
More Than an OEE System

REAL TIME
PRODUCTION DATA
FOR DOWNTIME
ANALYSIS

OEE
ANALYSIS
TO INCREASE PRODUCTIVITY

MONITORING
FACTORY
KPIs
FOR PROCESS OPTIMIZATION

PROCESS
IMPROVEMENT
FOR COST REDUCTION

LIVE PRODUCTION
PERFORMANCE
TRACKING

OEE

70.3%

The Blackbird solution is an end-to-end solution that consists of the Factbird® data collection hardware and the Blackbird Cloud Application on AWS. You can collect data from anywhere in your factory and use the built-in analytics to make your production more efficient and profitable.

BLACKBIRD
SMART DATA COLLECTION

Smart factory functions and data shared globally in your company

Interfaces to SAP, RestAPI, etc

AWS Shared or private cloud
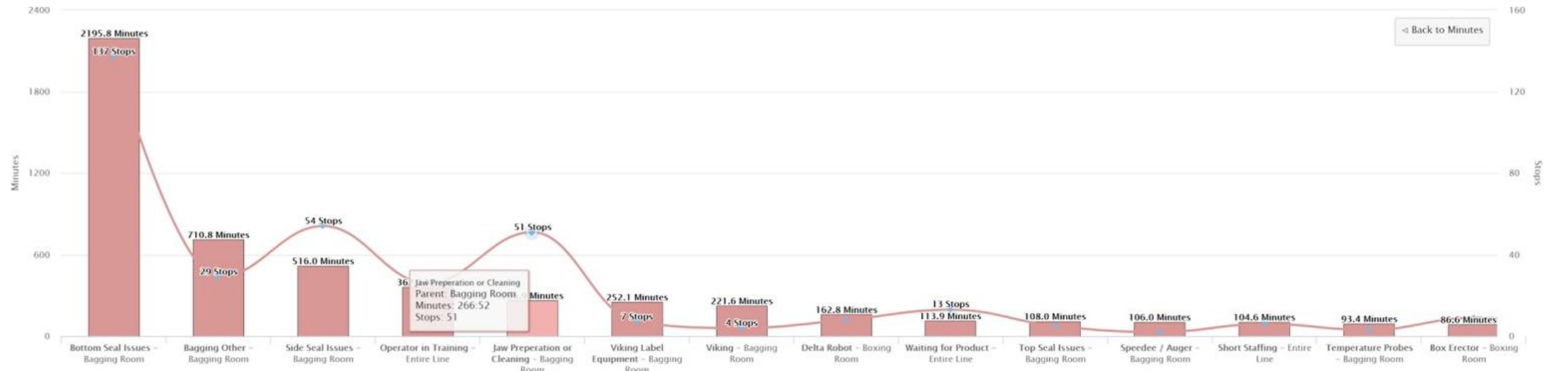
Web interface

MQTT data stream
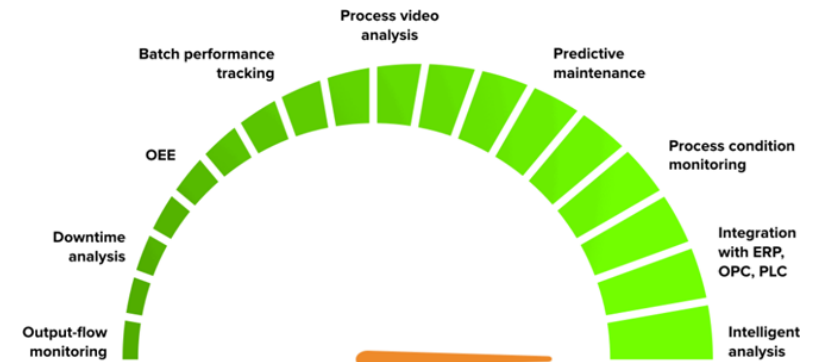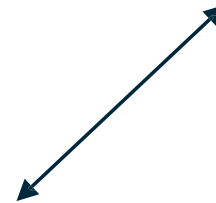
Digital Smart Factory – *In real time*

BLACKBIRD
SMART DATA COLLECTION
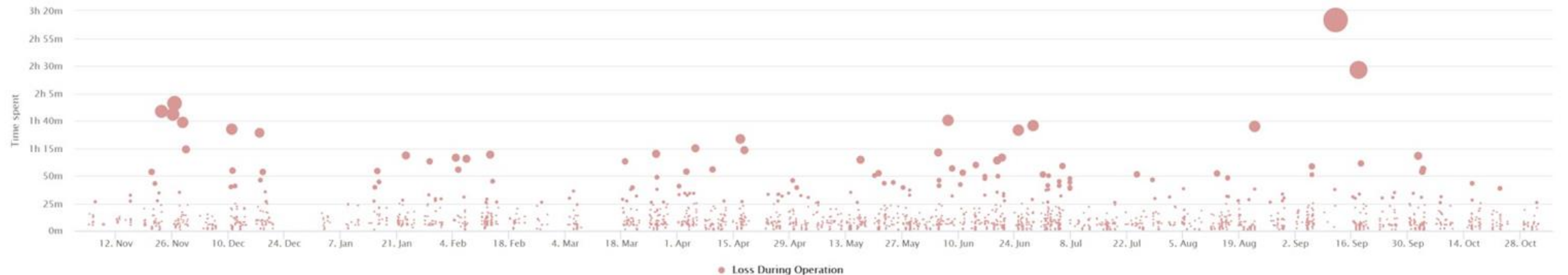
Applications are ready to use – No programming required

Build-in data analysis visualizing your biggest challenges – In real-time!

Blackbird customer case: Food industry – 2 mil EUR ROI in the first year

150 chicken processing lines connected in 5 countries in just 12 months

Total corporate data transparency and benchmark of factories

Results: 2 mil EUR return on investment in the first year!

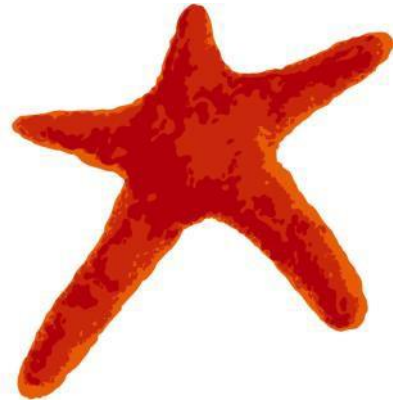# Blackbird customer case: Implementing a global standard for OEE

350 production lines connected in Asia, Europe and USA

Global focus on down-time reasons and line efficiency

Results: Transparency, efficiency and better decision making

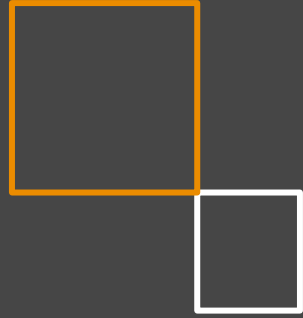# Blackbird customer case: Pharma company eliminating SCADA systems

36 Production lines connected in Denmark and France

Blackbird in private cloud

Blackbird fully integrated with machine PLC's - using Kepware

User log-on only via Lundbeck Corp (full A/D)

BLACKBIRD
SMART DATA COLLECTION

2

Controlant

Leveraging IoT real-time technology in fighting COVID-19

Ranald Haig
VP of Sales
Controlant

Controlant

About Controlant

Operating globally since 2007	300+ customers in 110+ countries	IATA compliant *approved airlines available upon request	21 CFR Part 11 EU Annex 11 ISO 9001 ISO 27001

Controlant

Controlant's mission

Our mission is to improve product quality and safety in the supply chain, as well as reduce cold chain waste by 90%

Controlant

COVID-19 supply chain impact

Supplier bottlenecks

Reduction in movement

Alternate routes

Impact on processes

Lost visibility during handoffs

Greater threats of risk

Impact on product quality

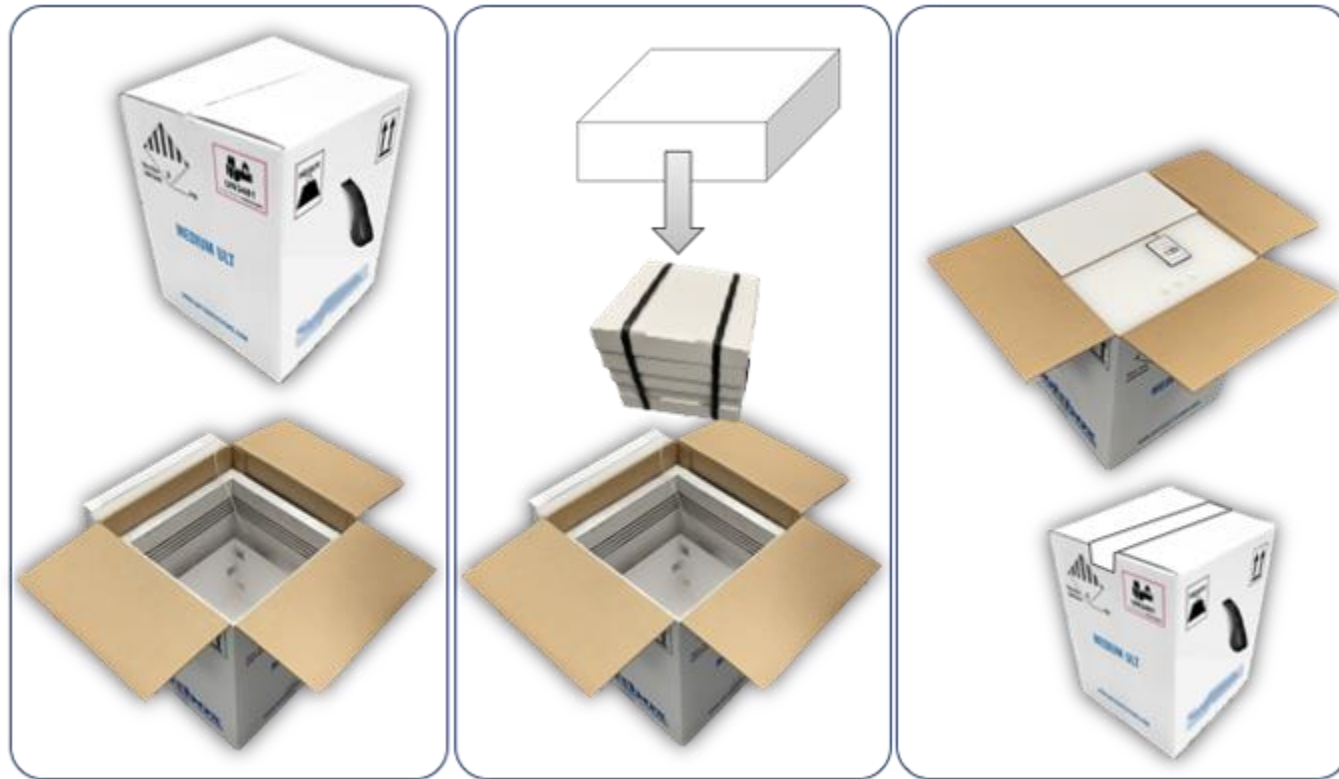Controlant

Controlant's Cold Chain as a Service®

Hardware: Wireless, reusable data loggers collect data in real-time.

Software: Intelligent cloud platform delivers supply chain analytics & insights.

Partnership: Proactive services optimize efficiency & reduce waste.

Distributing the COVID-19 vaccine

Monitoring vaccines during transport and onsite storage

Control tower monitors location and quality conditions

Herculean level of collaboration among key stakeholders

Automation of business, logistics, and quality processes

Reverse logistics for reusable packaging and data logger

COVID-19 Supply Chain Results

Delivery to final destination

166
Countries

40,93K
Destinations

581,4K
Boxes

2,88bn
Dosages

Across 6 Carriers in 1-4 Days

94,3%
Delivered within 3 days

48,2%
Delivered within 1 day

80,3%
Delivered within 2 days

98,6%
Delivered within 4 days

Product Quality Status

99,998%
Success Rate*

*Dosages delivered with final decision
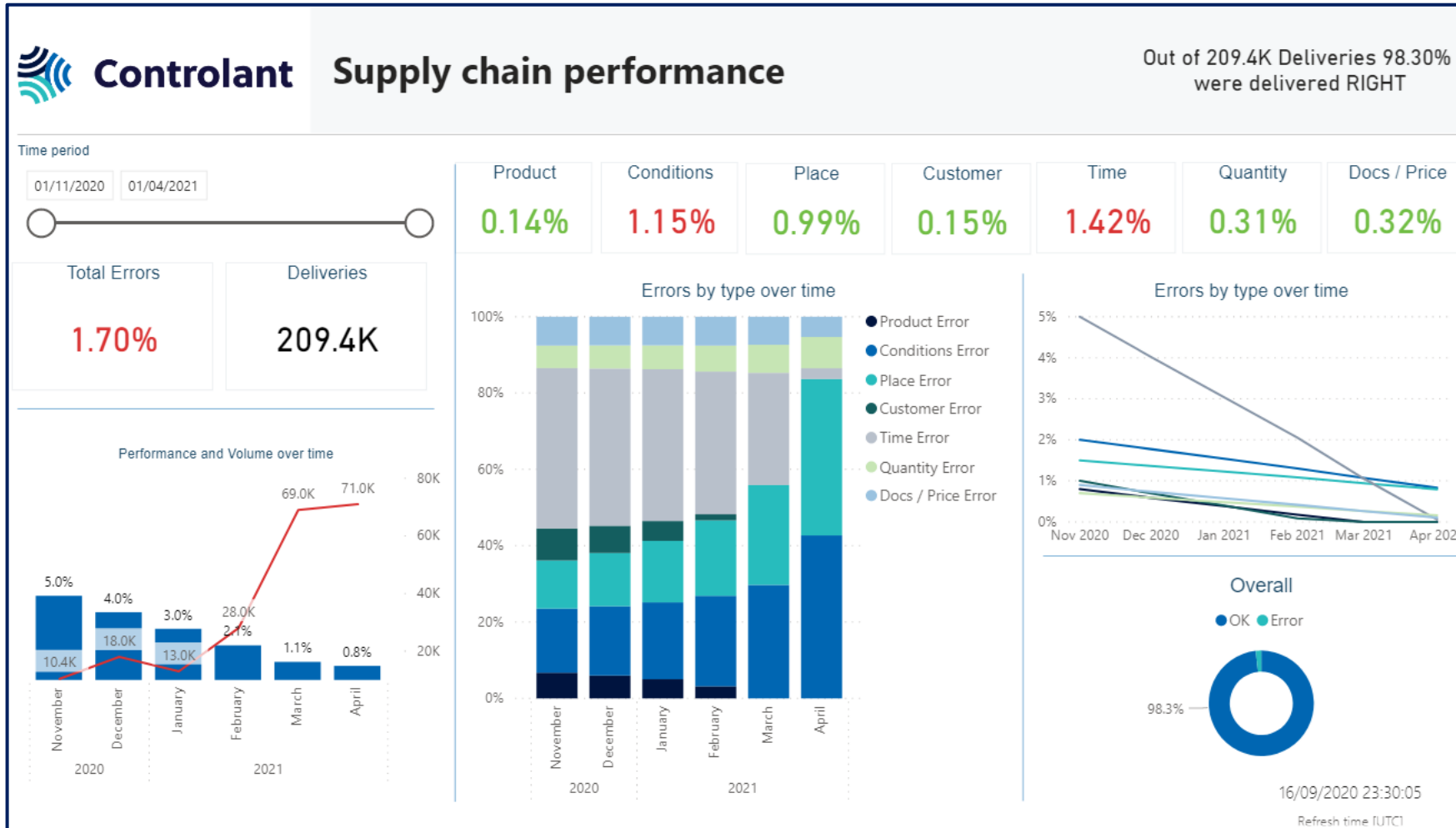
Controlant

The Importance of Data

Data delivers insights on performance and trends to increase agility and responsiveness

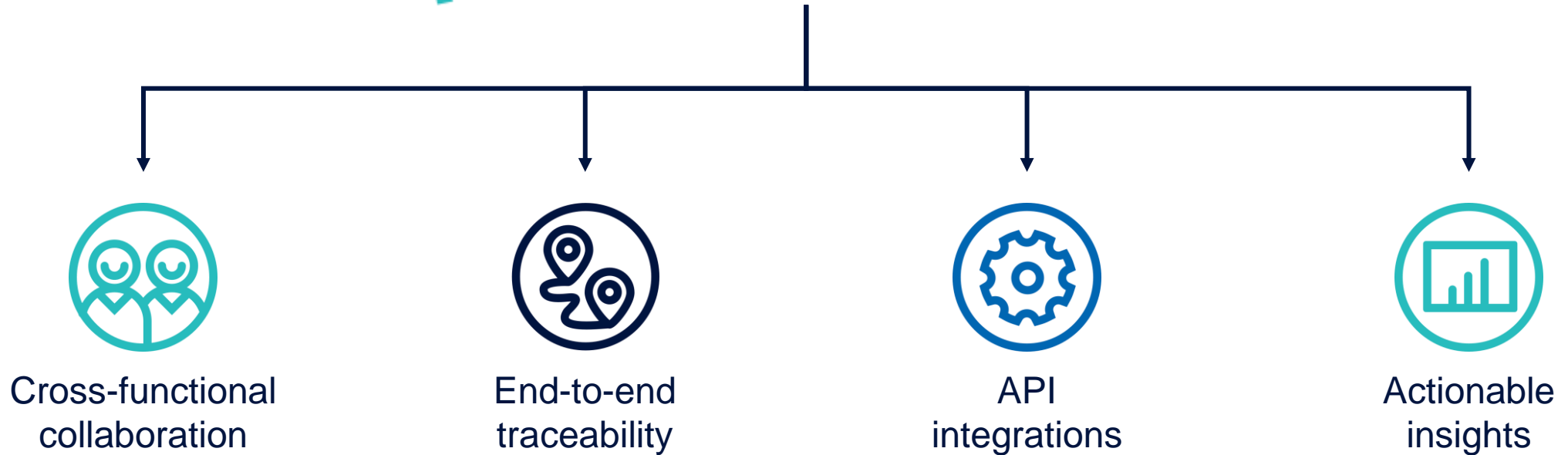**On supply chains:** Origins, destination, routes, and sub-routes

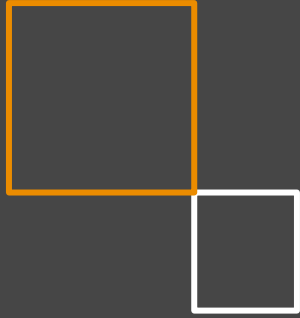**On partners:** Freight companies, airlines, packaging solutions, etc.

On external points of interest: Cross-docks, harbors, airports, borders, etc.

A single source of truth with

Cross-functional collaboration

End-to-end traceability

API integrations

Actionable insights

Panel Discussion

Questions?

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You'll receive an email which contains a link to the recording of this session and slides used within a few days.

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Thank you!

Interested in learning more about IoT strategy?