



# The IoT at the service of the business: Compliance, security and operation optimization

**Christian Parmigiani**

Chief Executive Officer di 4ward



**TECH & INNOVATION LAB**

**DIGITAL ENTERPRISE 365**

**EVOLUTION OF YOUR COMPANY BEGINS WITH A DIGITAL CHOICE**

# Agenda

**01** The current scenario: Opportunity & Threats

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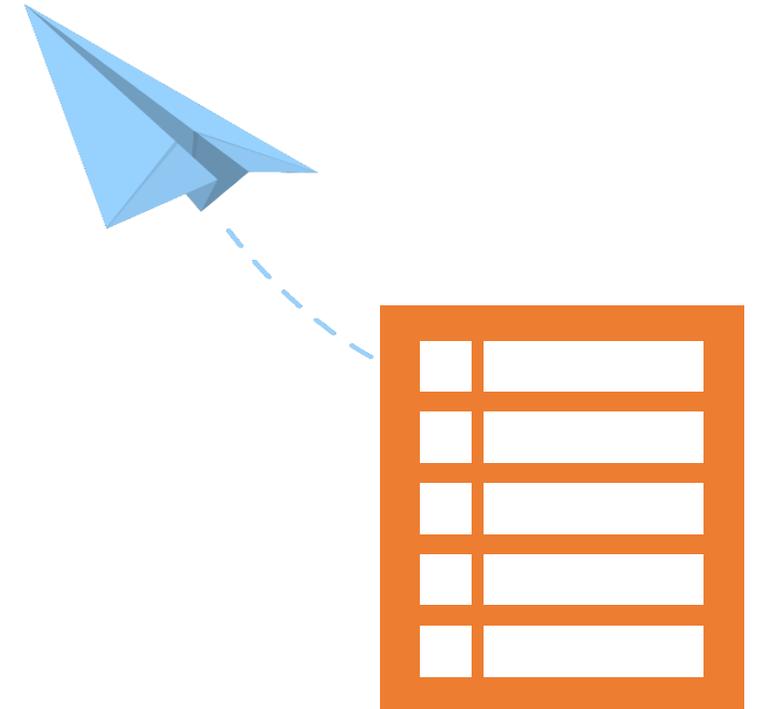
**02** From digital data to real value

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**03** Safety and Security: IoT in physical spaces

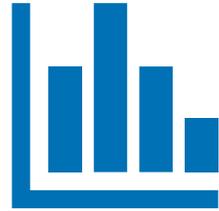
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**04** Predictive Maintenance: IoT & ML applied





Data will grow to  
**44 ZB in 2020**



Today, **80%** of  
**organizations**  
adopt cloud-first  
strategies



AI investment  
increased by  
**300% in 2018**

DATA

CLOUD

AI

The world is changing, technology is fast reshaping it...

Corriere **Innovazione**La Newsletter  
settimanalePer la newsletter Homo  
Technologicus iscriversi  
a [www.corriere.it/newsletter](http://www.corriere.it/newsletter)

# L'intelligenza artificiale vale il 13 per cento del Pil

di **Giulia Cimpanelli**

**D**uecentoventotto miliardi di euro: è questo il contributo che l'innovazione, e in particolare l'intelligenza artificiale, potrebbero portare all'economia italiana entro il 2020, con una crescita com-

È il peso che le nuove tecnologie potranno avere nel nostro Paese, secondo McKinsey, in dieci anni Verona: «Ma l'occasione va colta»

individuate dal World Economic Forum e da McKinsey, nove si trovano in Europa. Una, la Rold, è a Cerro Maggiore, in provincia di Milano.

I confini tra i settori sono poi sempre più labili ed è quindi fondamentale pensare e agire in ottica di ecosistema. In questa direzione si colloca, ad esempio, la European Au-

Chi è





## NEEDS

1

Businesses want to **empower people** with **insights** to make **smart**, well-informed **decisions**

2

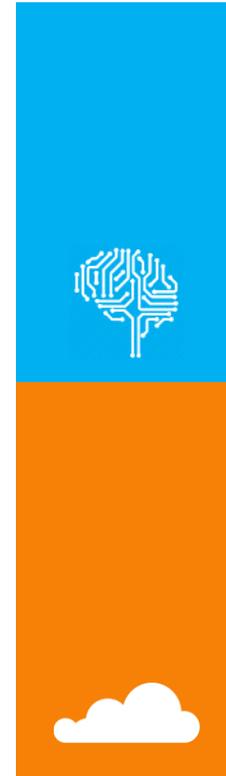
Organizations need to **standardize** and **modernize** existing BI systems of record, visualizing aggregate data, **identify trends**, **drive action**

## INTELLIGENCE



MAN  
POWER

+



AUTOMATION

**...and new challenges....**

## PAINPOINTS

3

Most companies rely on **legacy reporting** which head to **slow** and **reactive** decisions

4

The amount of data does not fit **human analytics capability**, to **drive smart and fast decision** automation & intelligence should help human being (augmented intelligence)

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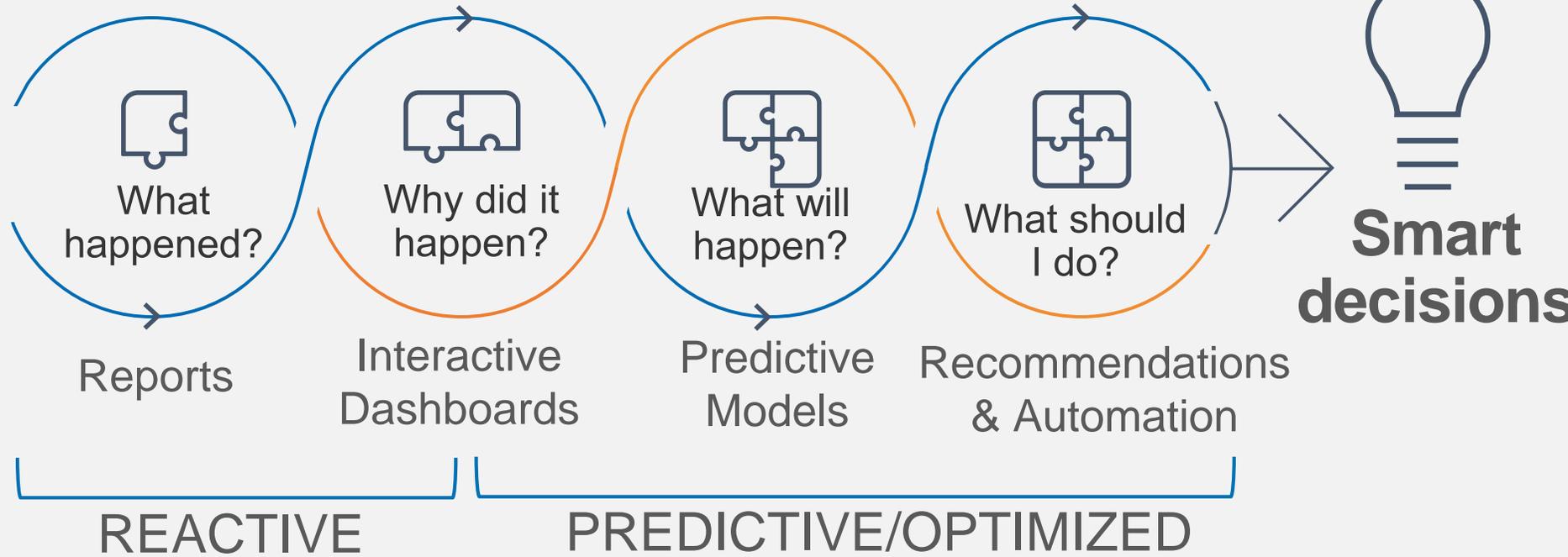
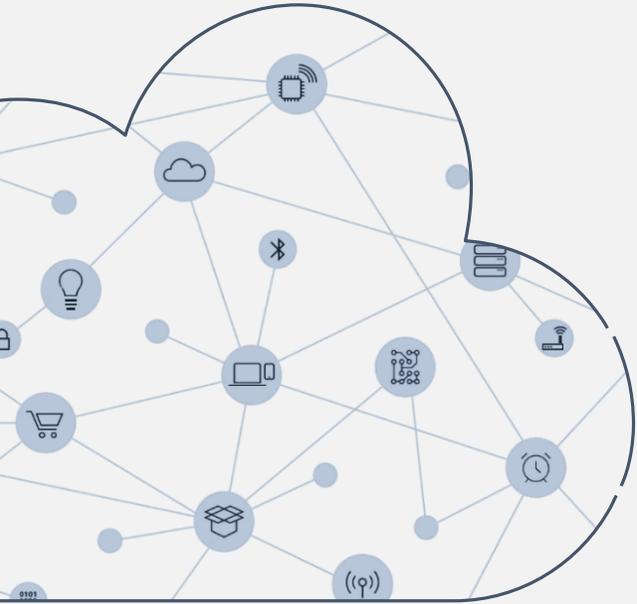
# From Digital data to Real value



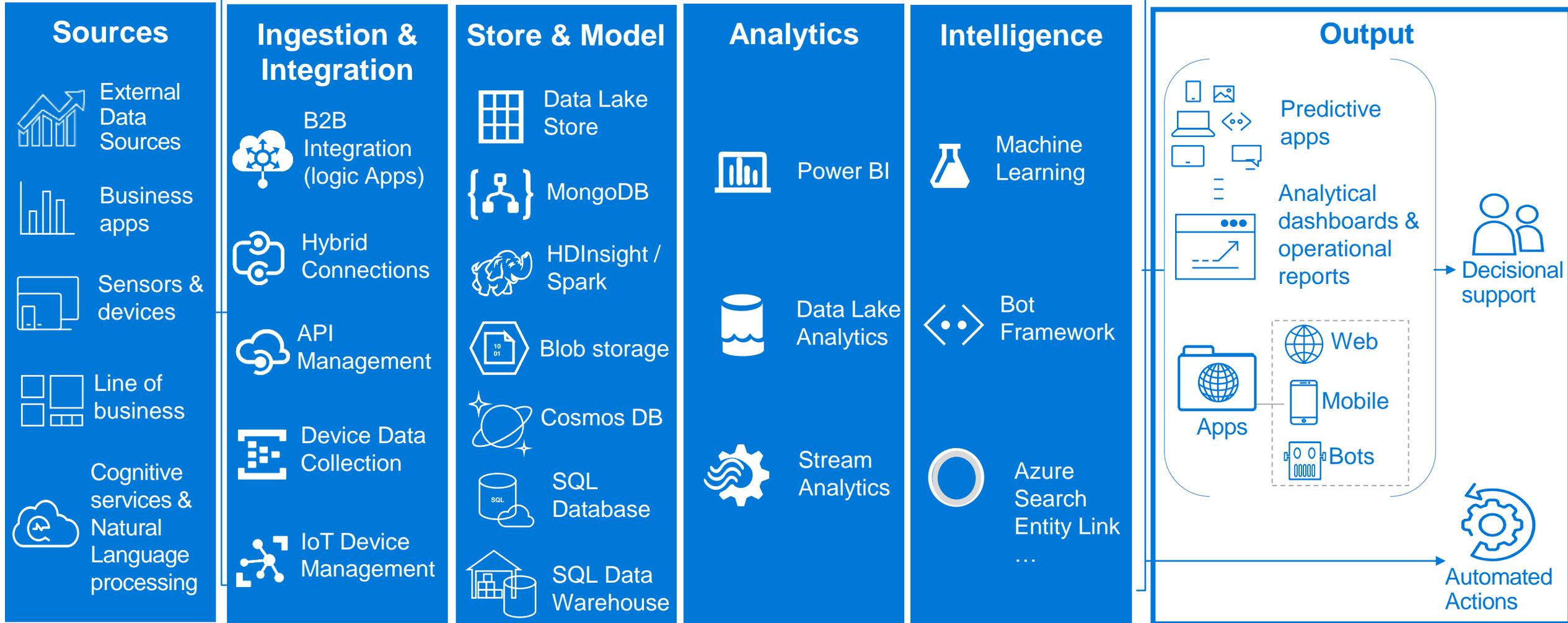
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# Transform data into intelligent actions



Data

Intelligence

Action



# Data Intelligent Framework in Manufacturing



**Safety &  
Security**



**Predictive  
maintenance**



**Custom  
applications**



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# Safety & Security



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**3**



**deaths every day in Italy (more than 599 victims in the last 7 months)\***

**1**



**Injury every 50 seconds in Italy\***

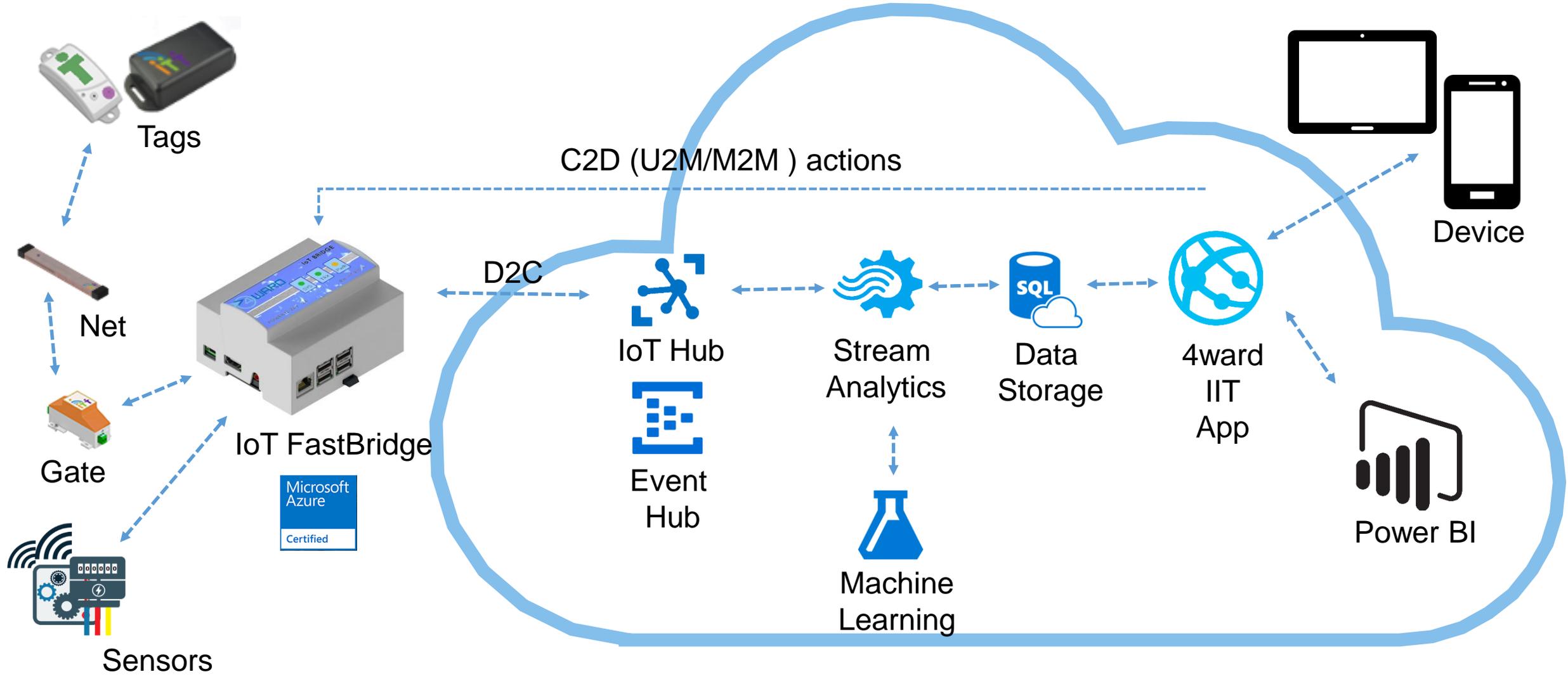
**45 B€**



**Work injuries costs in Italy (about 3,5% of GDP)\*\***

\*Source: Istituto Nazionale Assicurazione Infortuni sul Lavoro (Inail) – August 2019

\*\*Source: Agenzia Europea per la sicurezza e la salute sul lavoro (EU-OSHA) – 2019





Man-down  
detection



Incident  
prevention



Man-  
machine  
anticollision  
solutions



Access  
Control of  
dangerous  
areas

detection of  
dangerous  
conditions  
(i.e. CO2)



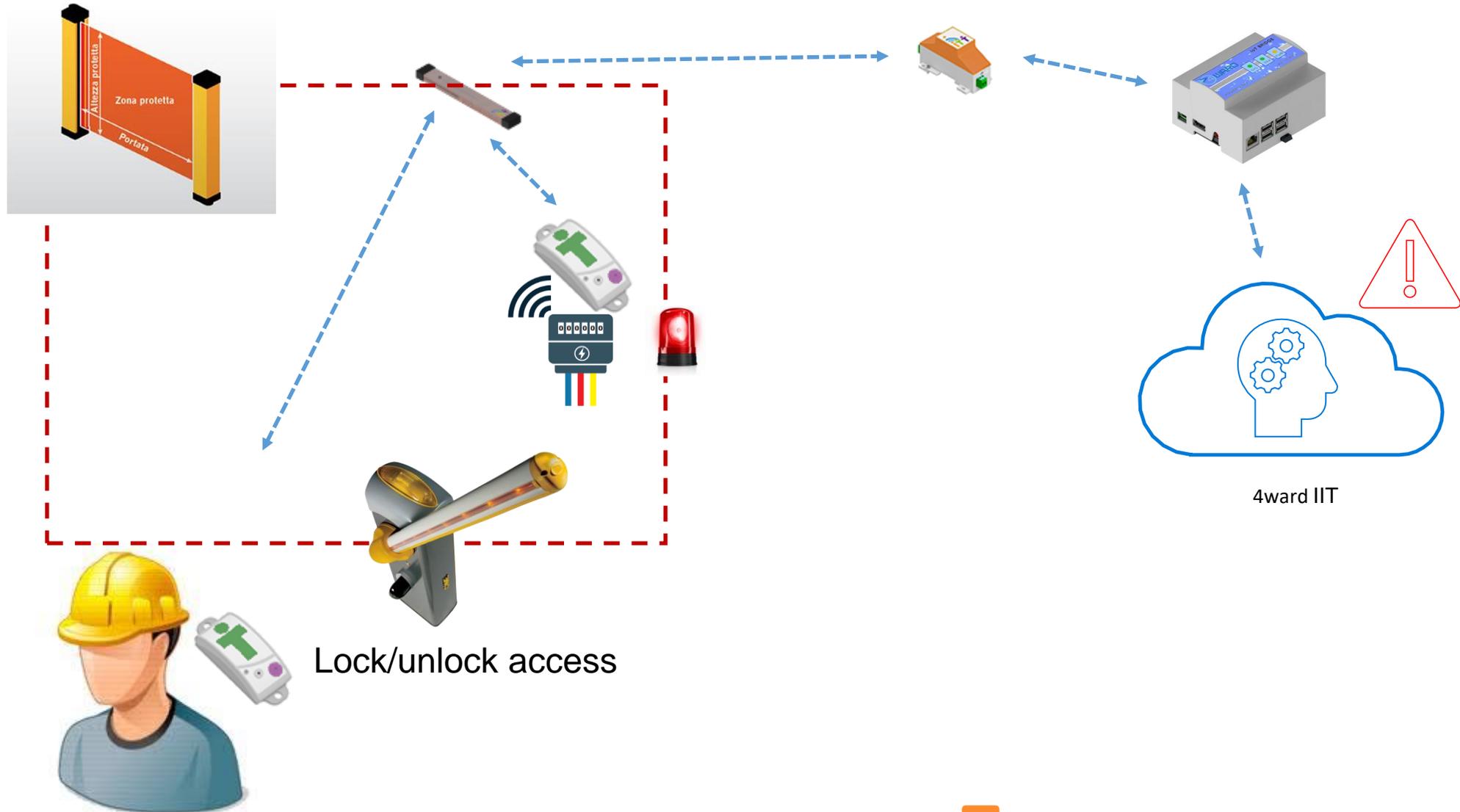
Localization  
and  
monitoring  
(indoor-  
outdoor) of  
people,  
objects and  
vehicles



Automatic  
alarms (sent  
to tags,  
mobile  
devices,  
audio-visual  
sensors)



- Check distance & position from net and other tags
- Exchange data (position, speed, height, etc)
- Feedback, Action



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# Predictive Maintenance: IoT & ML Applied

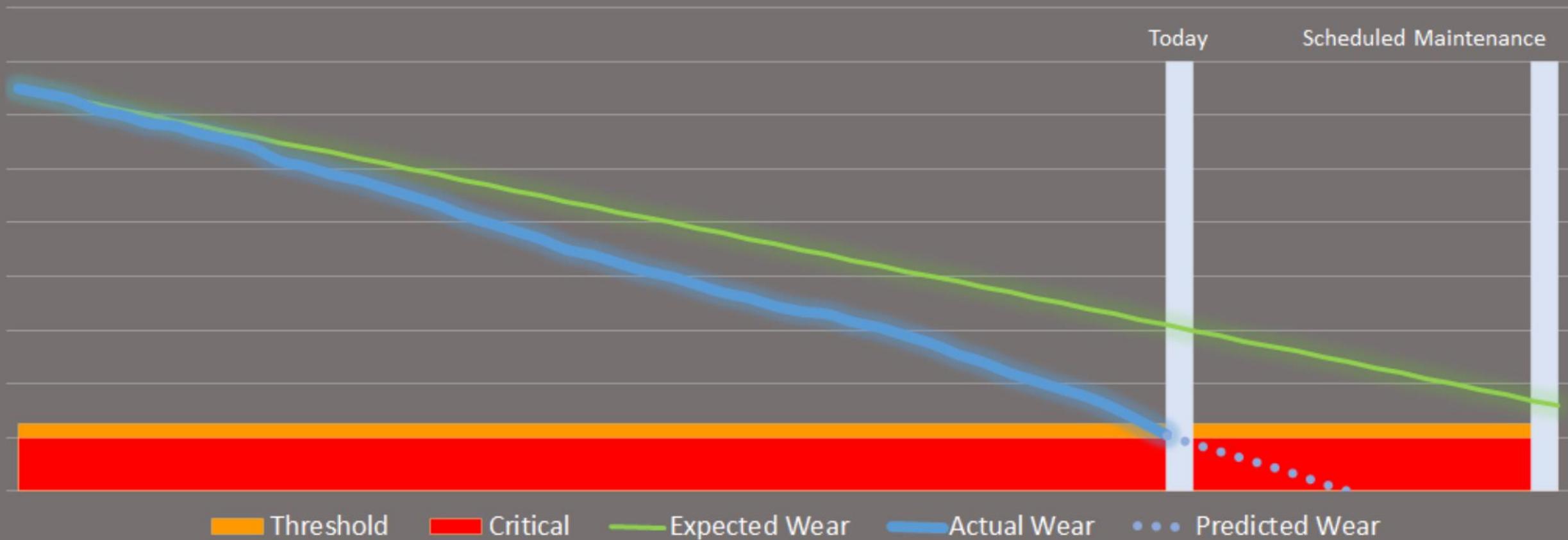


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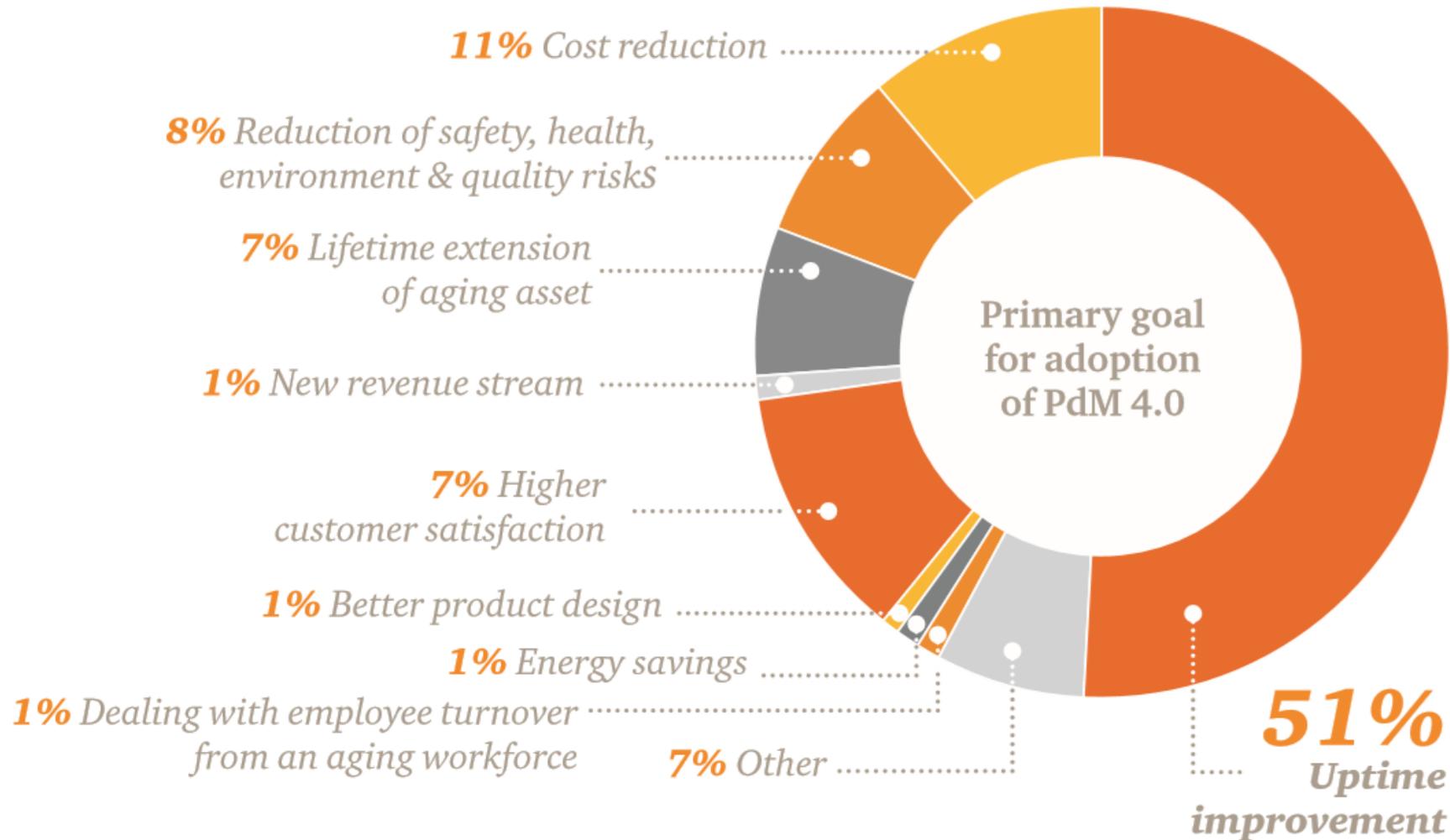
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## Primary Fuel Pump - Predicted Remaining Useful Life



# Predictive Maintenance Main Goals



\*

12%

Reduction of  
Maintenance costs

9%

Improve Uptime

20%

Extend assets  
lifetime



## Sensor

*Connected assets*

- Onboarding
- Connectivity
- Device management
- Security



## Data

*IT/OT convergence*

- Big Data ingestion
- Big Data infrastructure
- Merging sensor data with business information



## Insight

*Data analysis*

- Root-cause analysis
- Asset Health monitoring
- Machine learning
- Anomaly detection
- Triggering of corrective actions



## Action

*Maintenance activities*

- Prioritized maintenance and service activities
- Optimized warranty and spare parts management
- Prescriptive maintenance
- Quality improvements



## Outcome

*Business value*



Improved  
customer  
experience



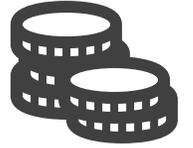
Increased  
products quality  
+ New Services



Hardware  
Agnostic  
(integration /  
retrofitting)



malfunctions  
prevention



Costs optimization  
& competitive  
advantage



Reduced &  
planned  
maintenance time



R&D  
effectiveness



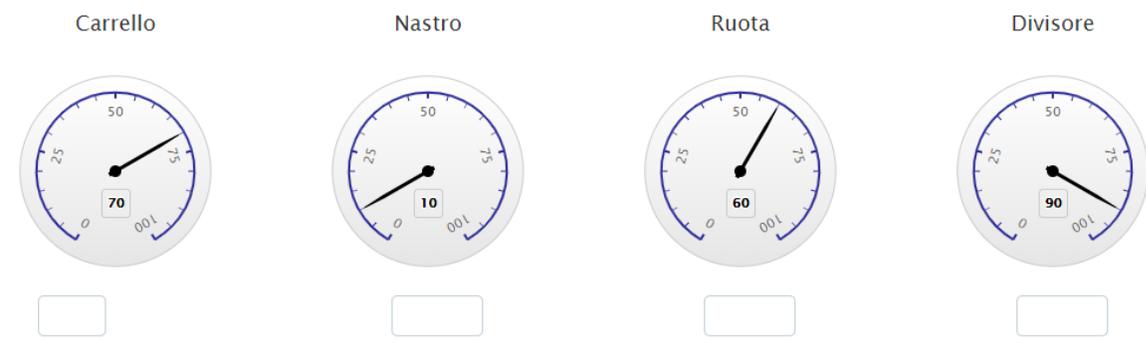
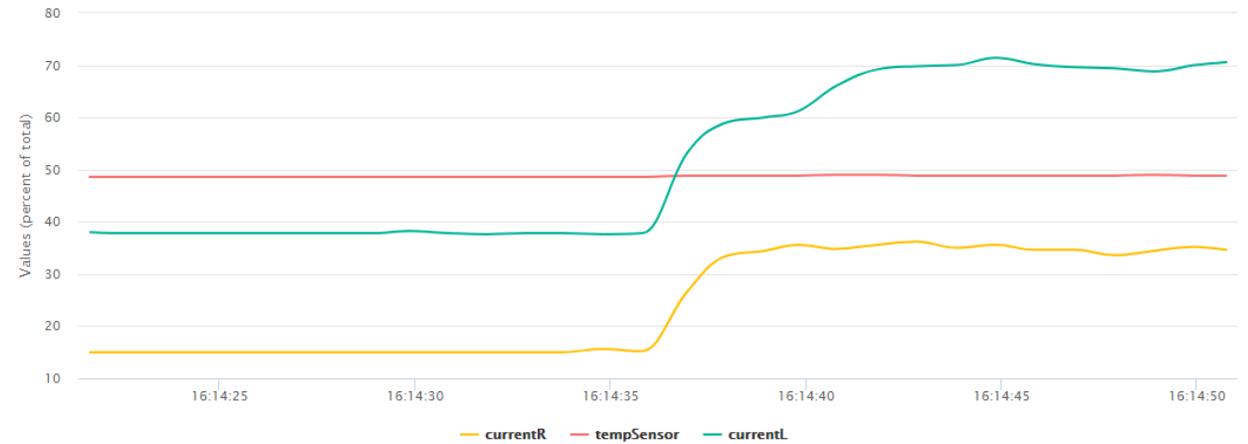
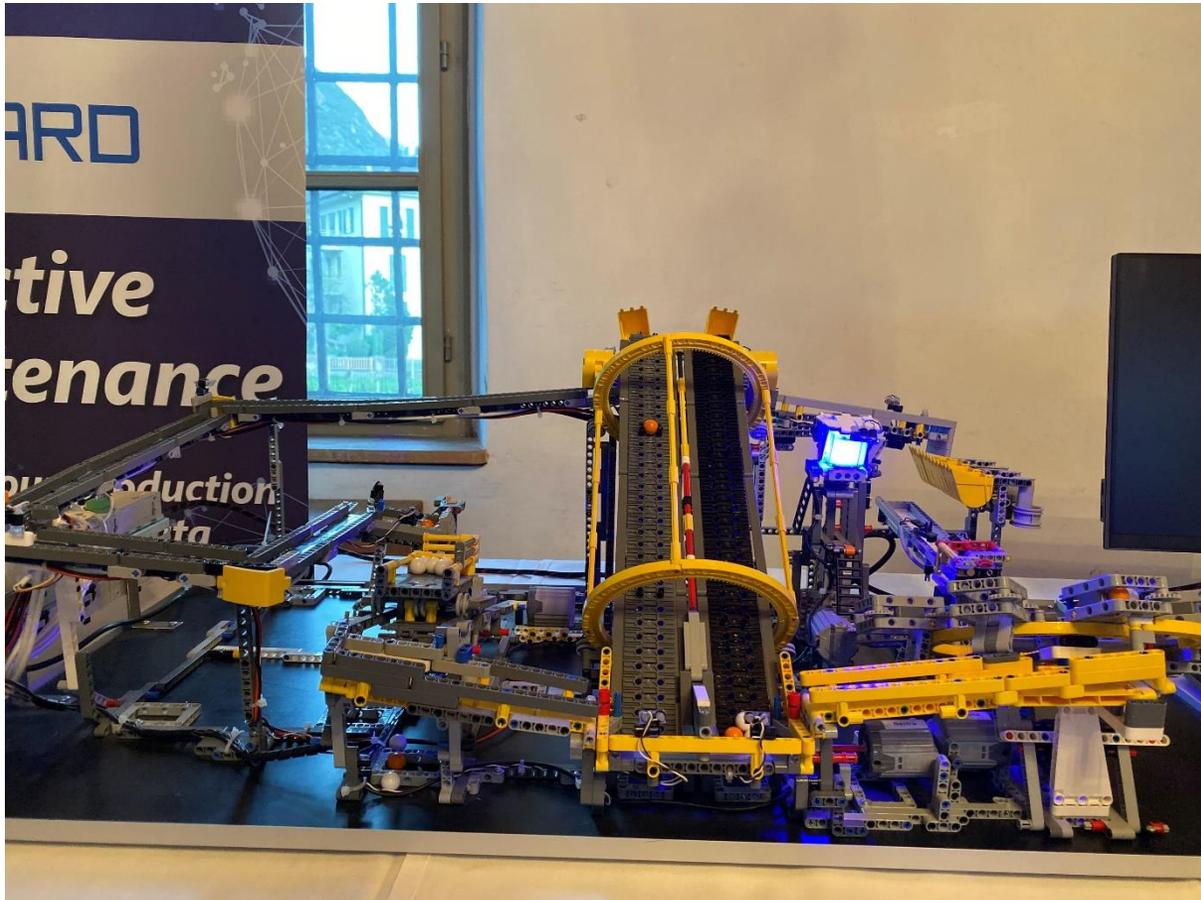
Optimized  
procurement



Monitored &  
increased  
operational efficiency



Monitored &  
optimized  
production



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# Grazie!

christian.parmigiani@4ward.it



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