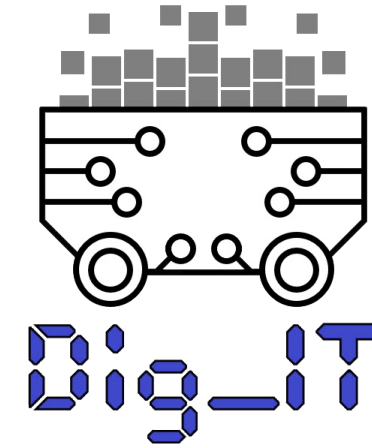




A Human-centred Internet of Things Platform for the Sustainable Digital Mine of the Future

Project duration: from 01/05/2020 to 31/04/2024

GRANT AGREEMENT NUMBER: 869529

Project Coordinator: María García-Camprubí (ITAINNOVA)

Technical Manager: David de Paz (SUBTERRA)

Speaker: Lorenzo Bortoloni (Ro Technology)



Dig_IT Partners



Project Details Summary

Partners
16

Project Number
869529

Person Months total
843

Project Acronym
Dig_IT

Number of Work Packages
10

H2020-SC5-2018-2019-2020

Number of Tasks
45

Starting Date 1.5.2020

Number of Deliverables
65

Duration in months 48

Number of Use Cases
5

Website
<http://digit-h2020.eu>

Topic
SC5-09-2018-2019

Countries by name and partners per country
Italy (3), Spain (2), United Kingdom (2), Norway (2),
Greece (2), Finland (2), Serbia (1), Belgium (1),
Cyprus (1).

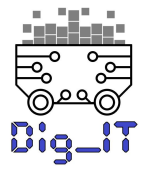
Coordinator



Dig_IT Partners: 16 Organisations from 9 Countries (6 EU members)

- 1 ITAINNOVA
- 2 CORE INNOVATION
- 3 BRUNEL
- 4 TAU
- 5 ROTECH
- 6 ICCS
- 7 SUBTERRA
- 8 STRATAGEM
- 9 EUROCORE
- 10 LIBRA
- 11 MARINI
- 12 TAPO
- 13 SINTEF
- 14 TITANIA
- 15 SEI
- 16 ZENTRIX LAB

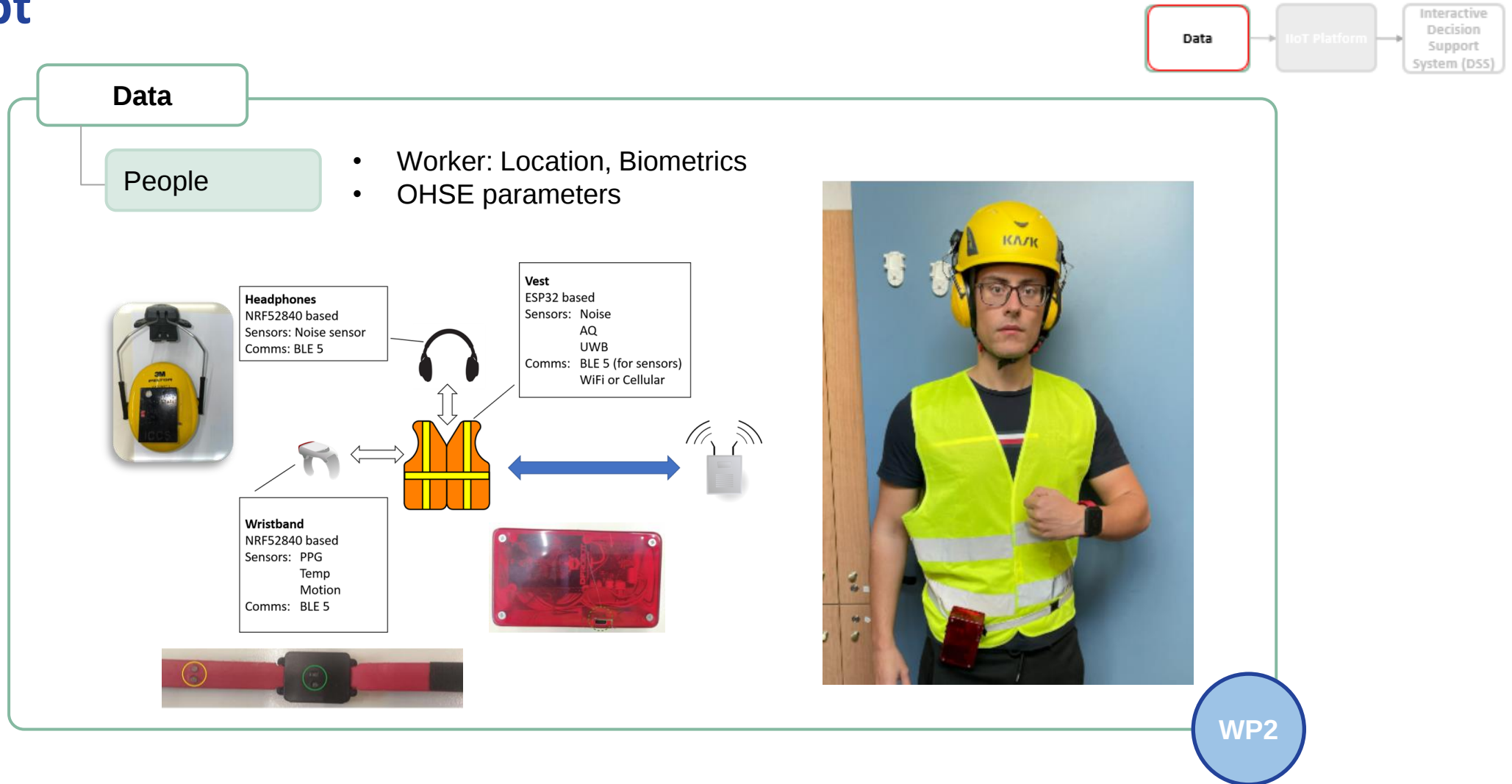




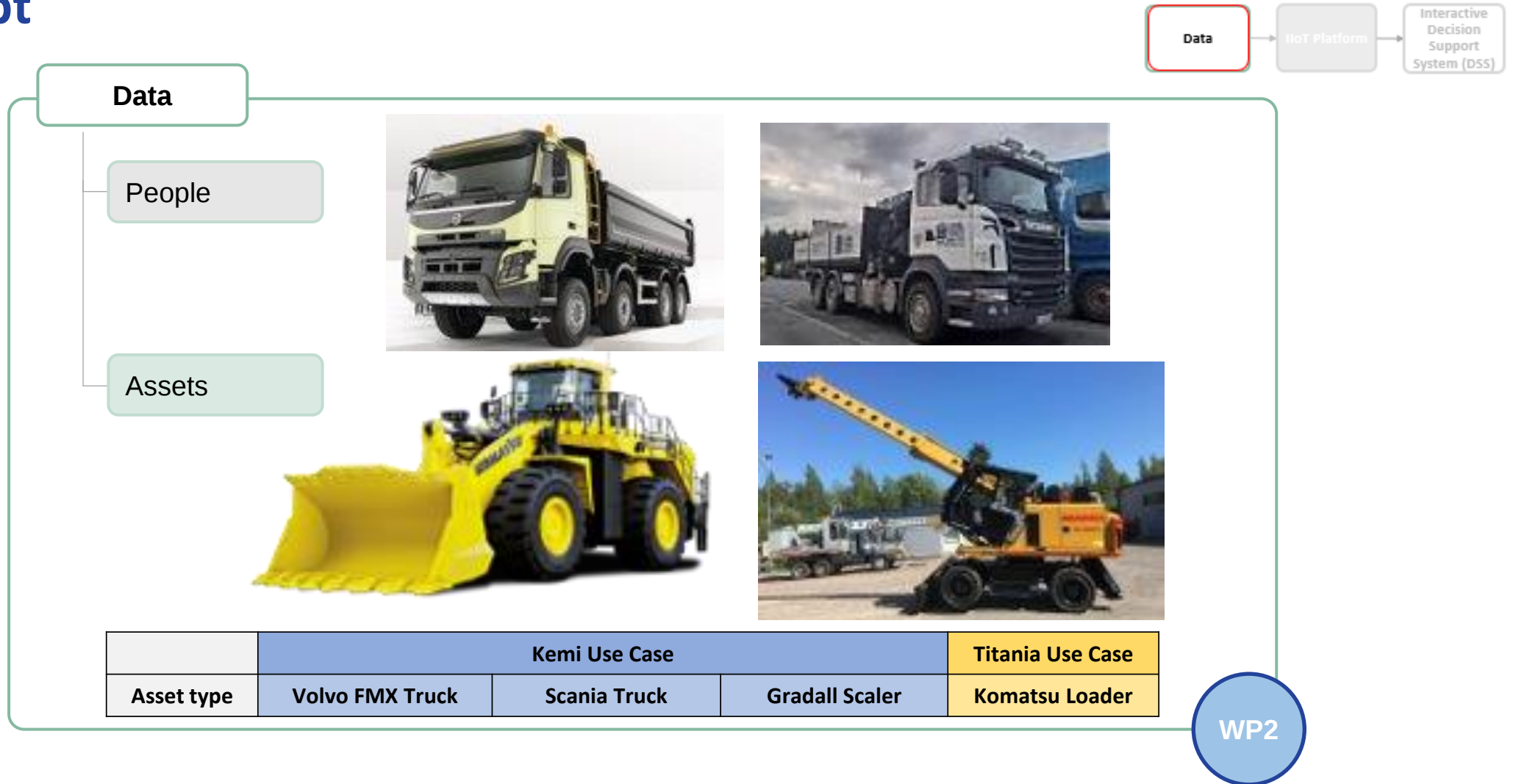
Concept



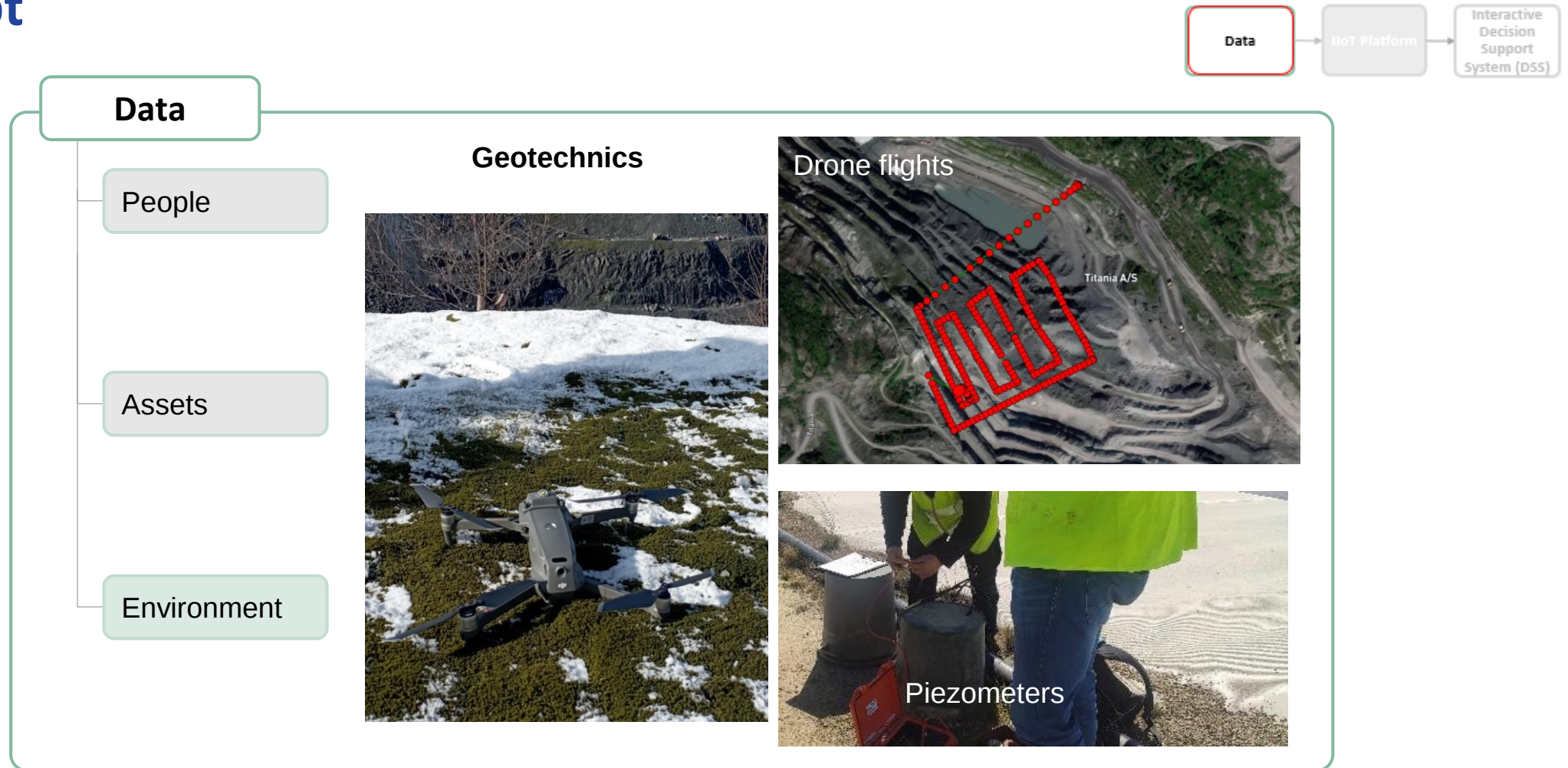
Concept



Concept



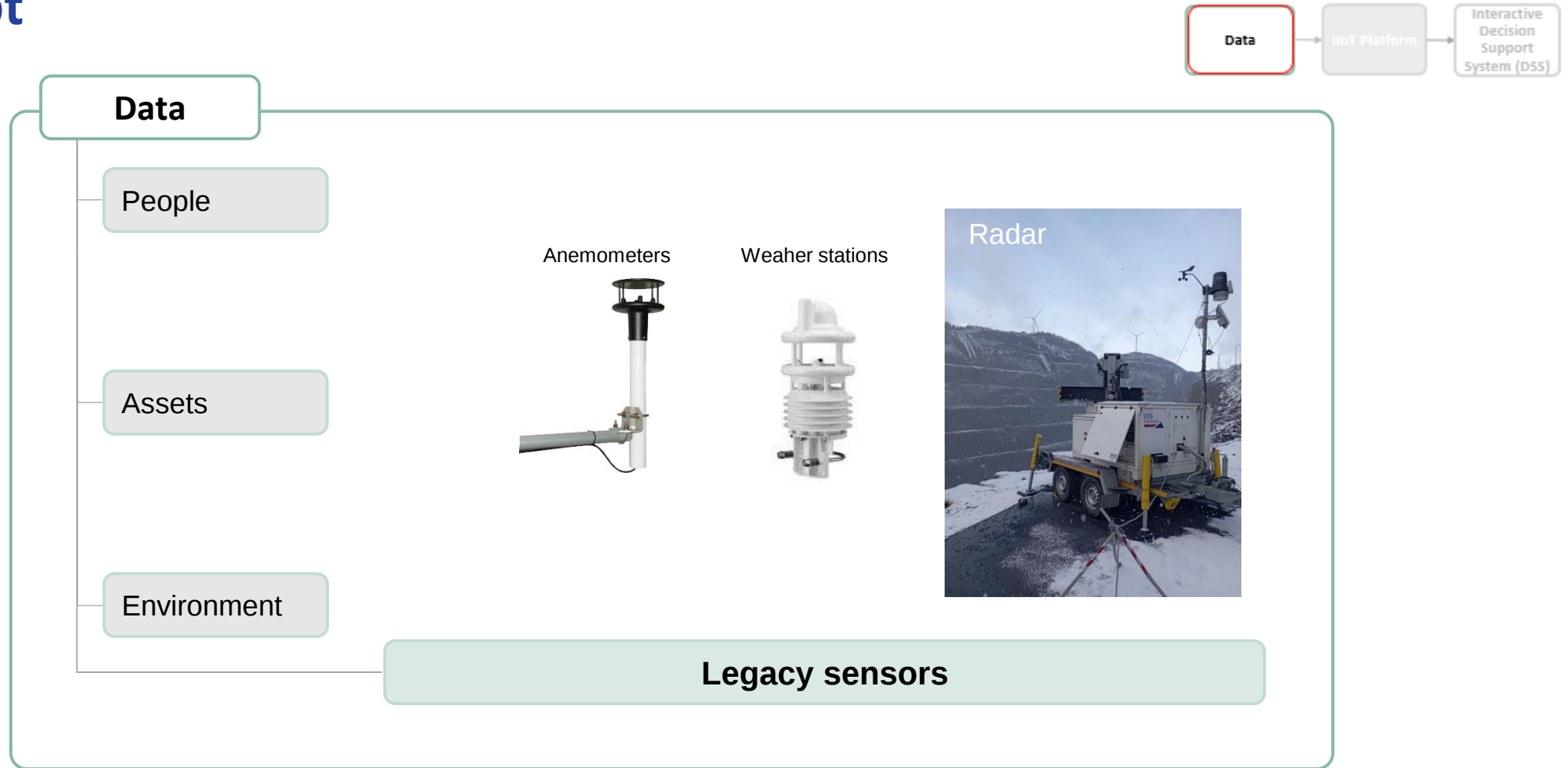
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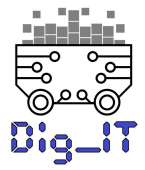


Concept



Concept





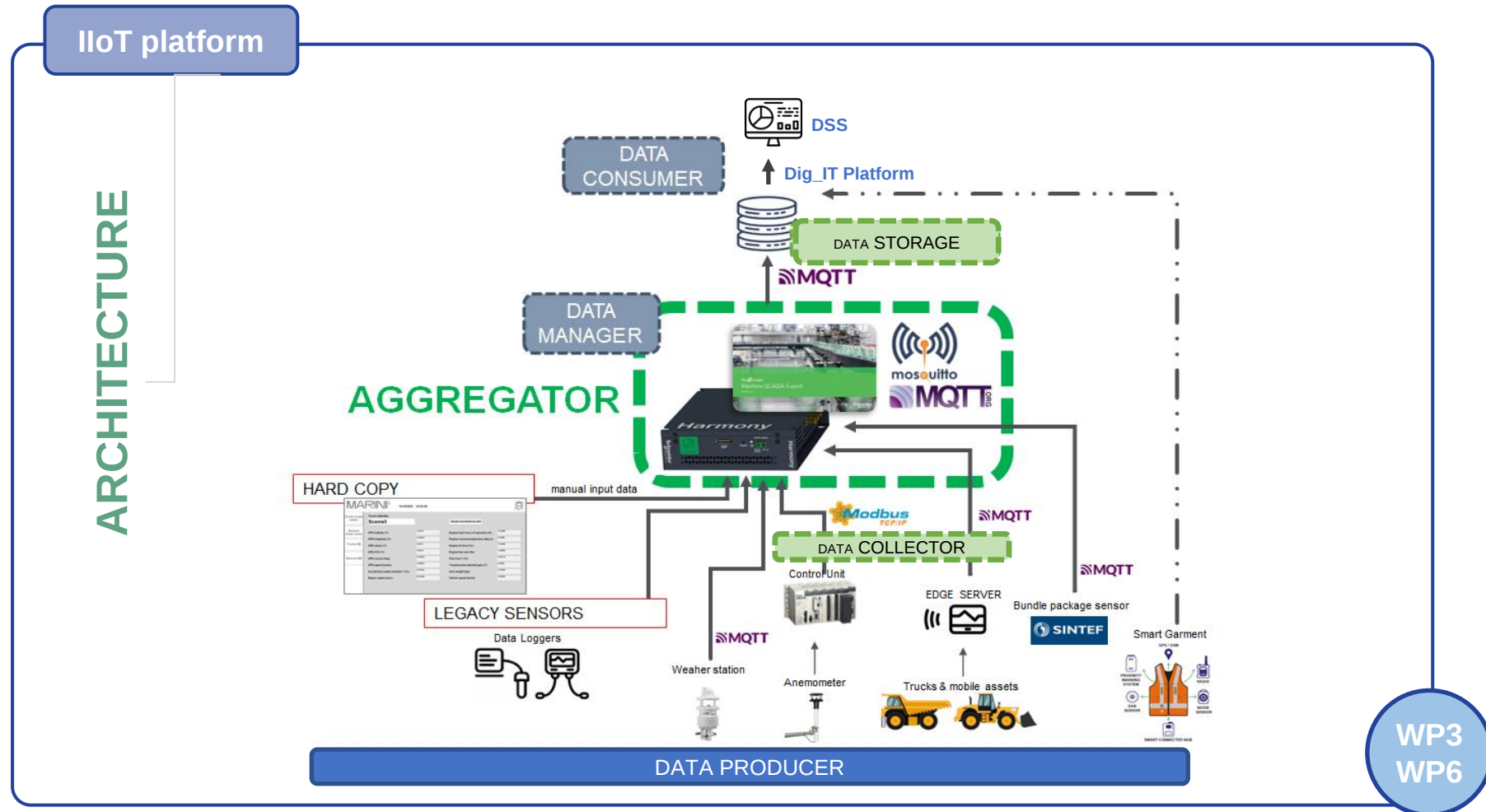
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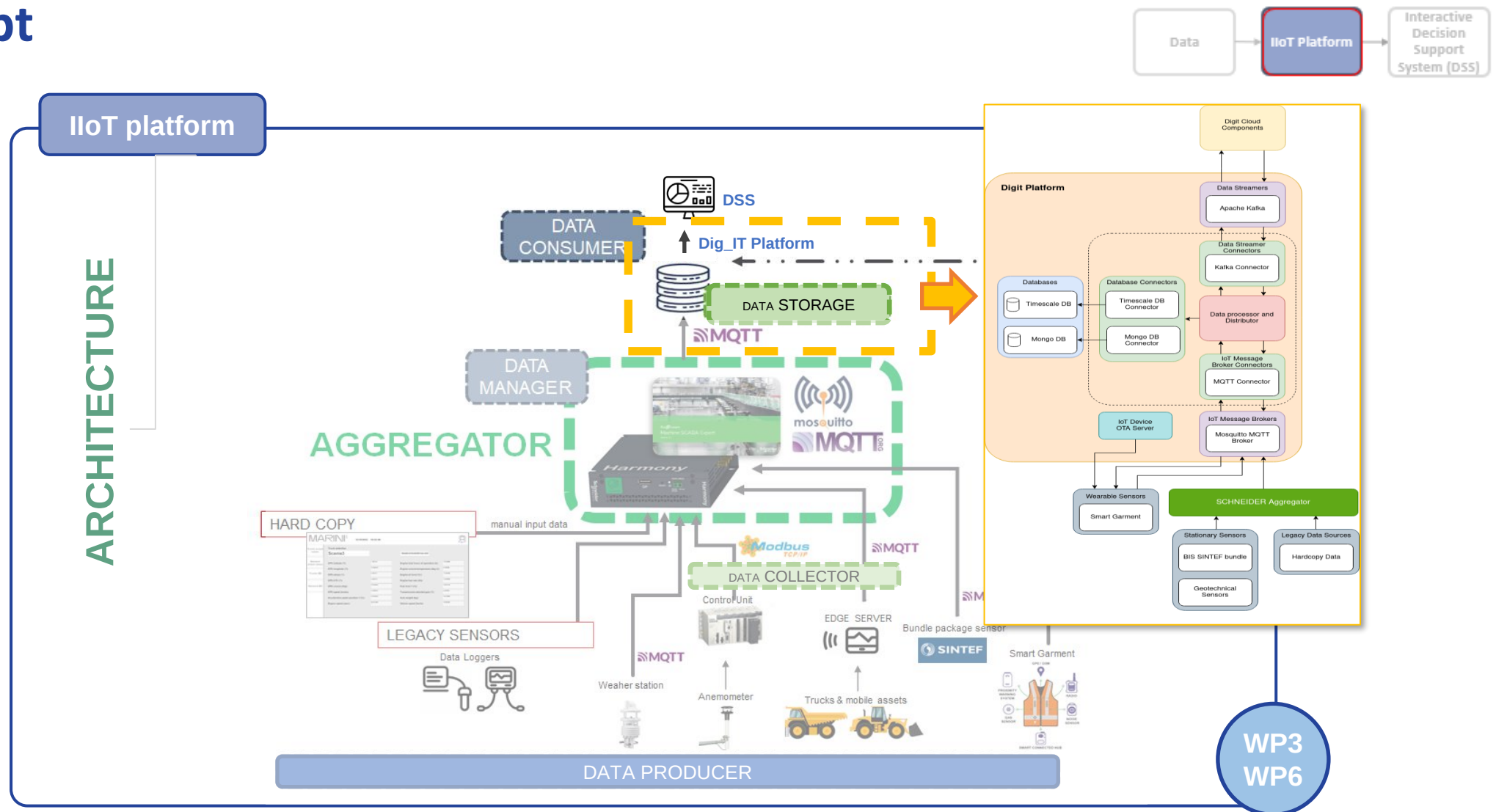
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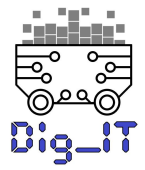


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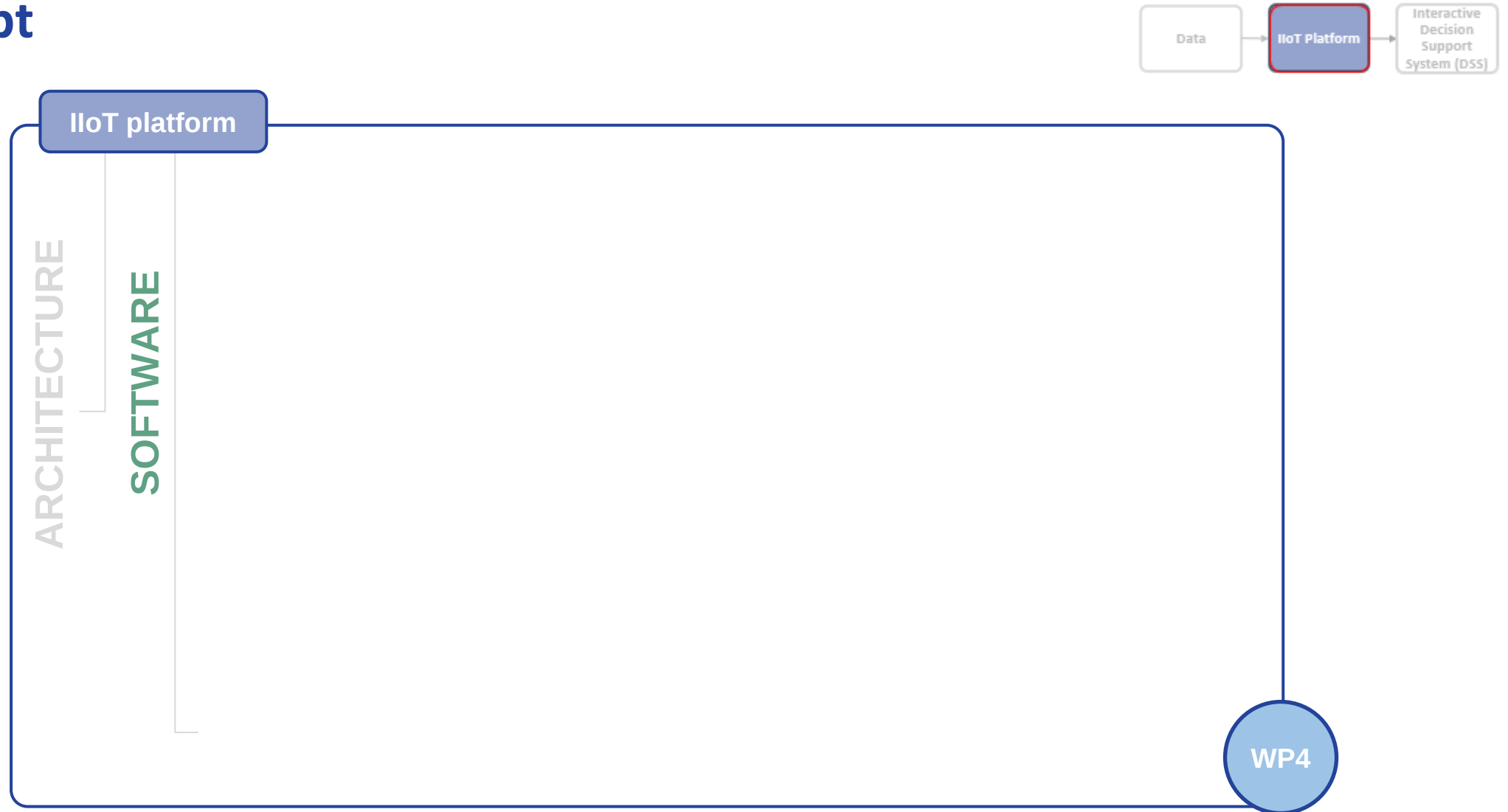


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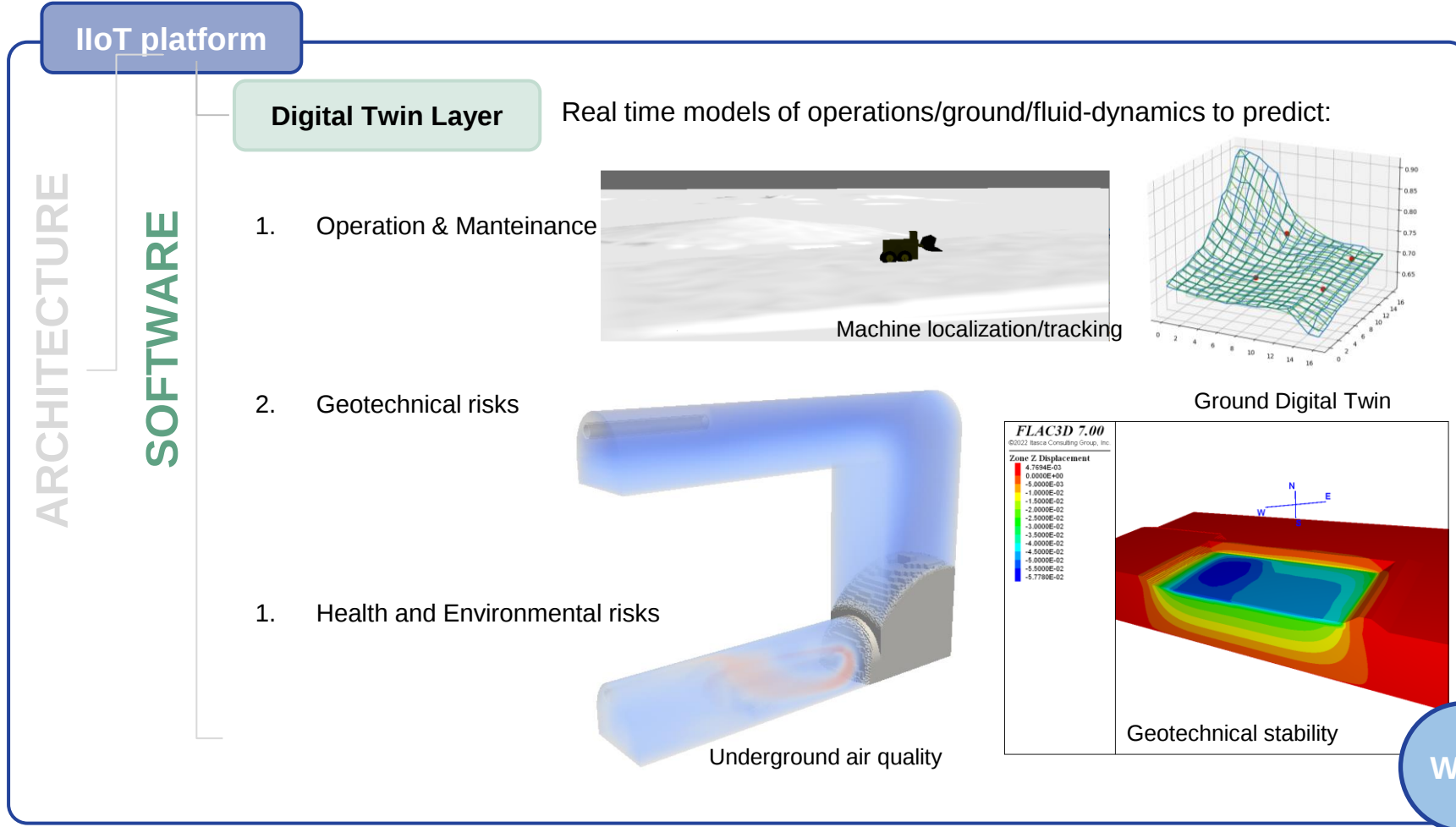




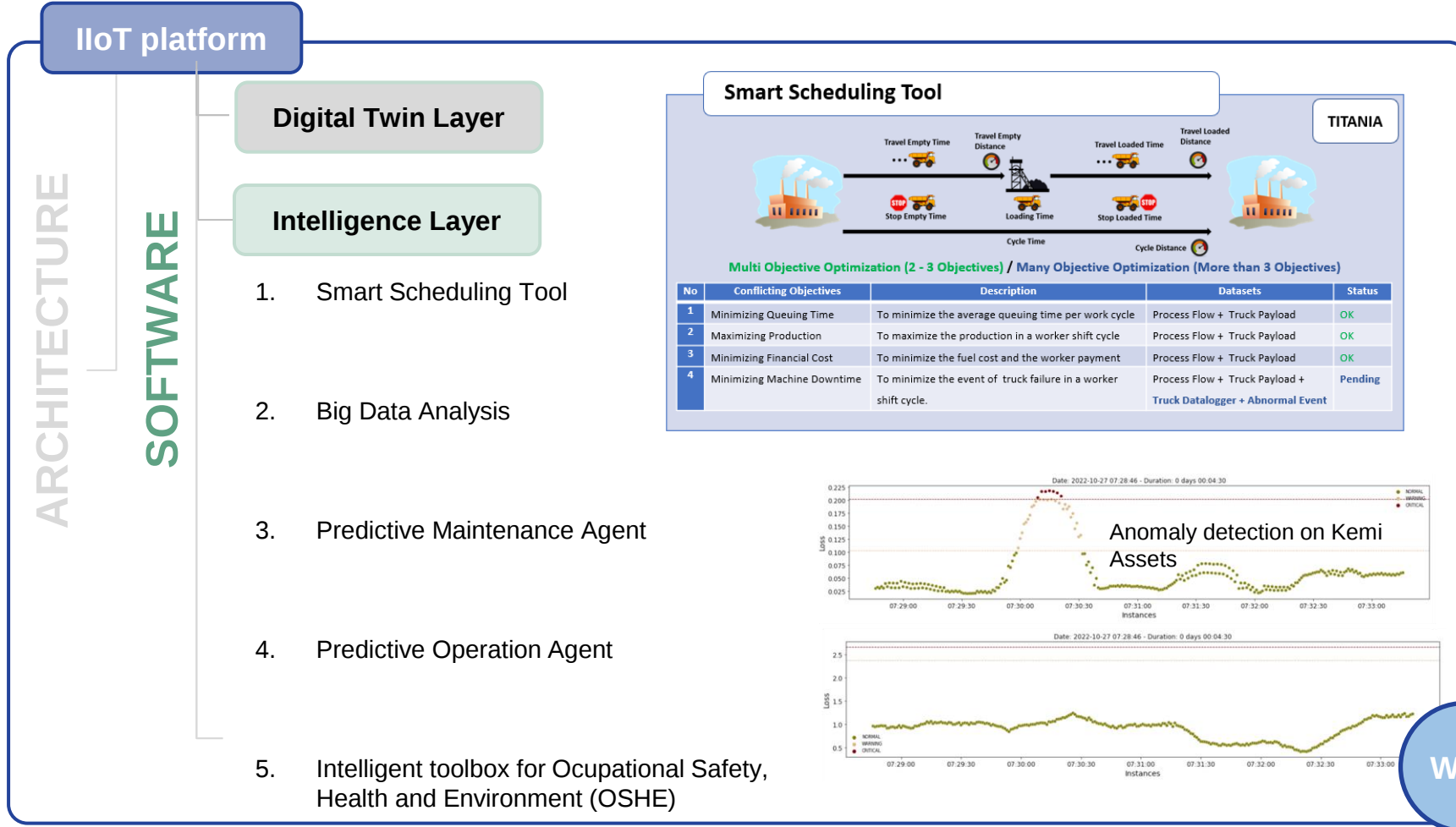
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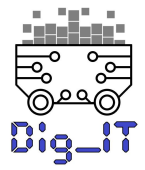


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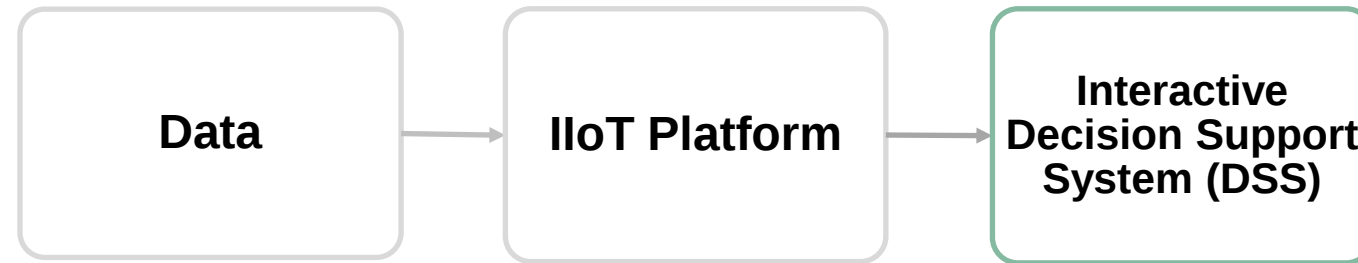


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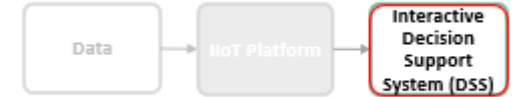


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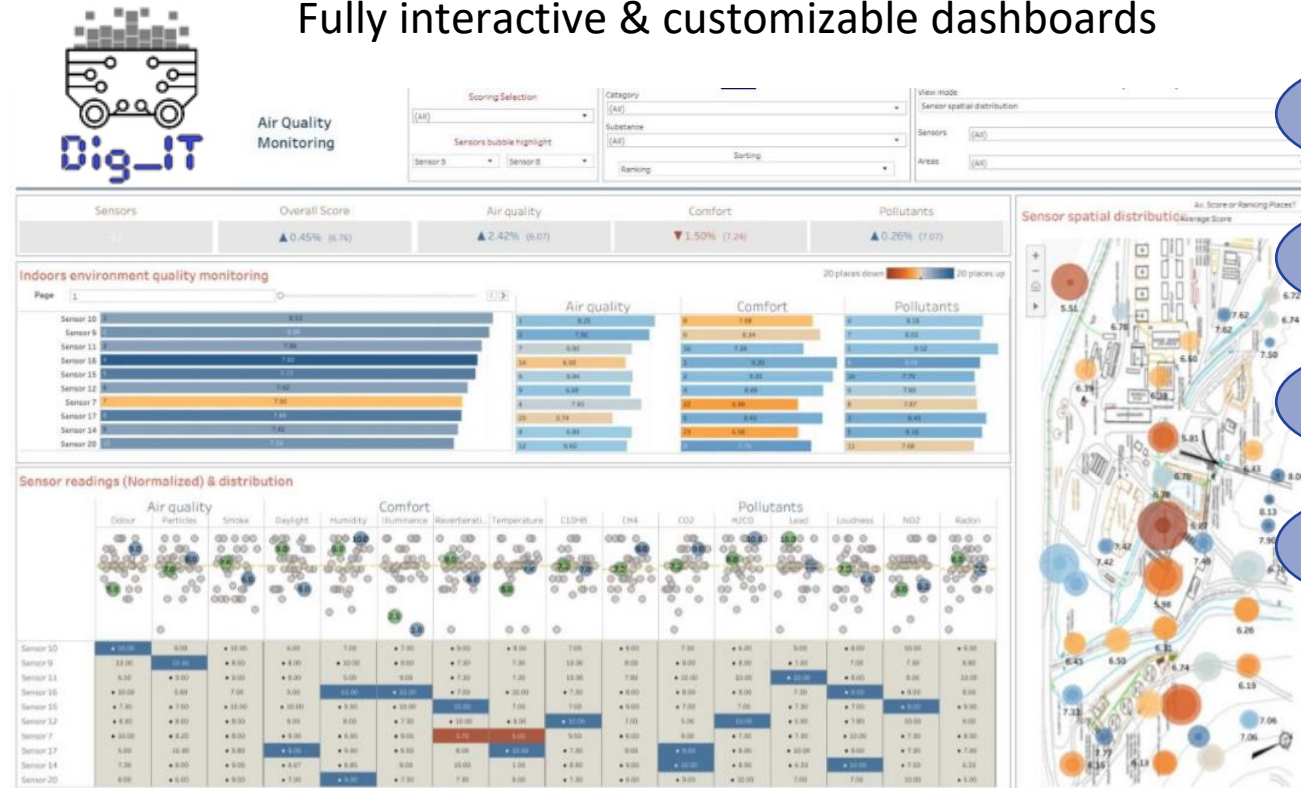
Concept



Interactive DSS

Fully interactive & customizable dashboards

FRONT-END



Exploration

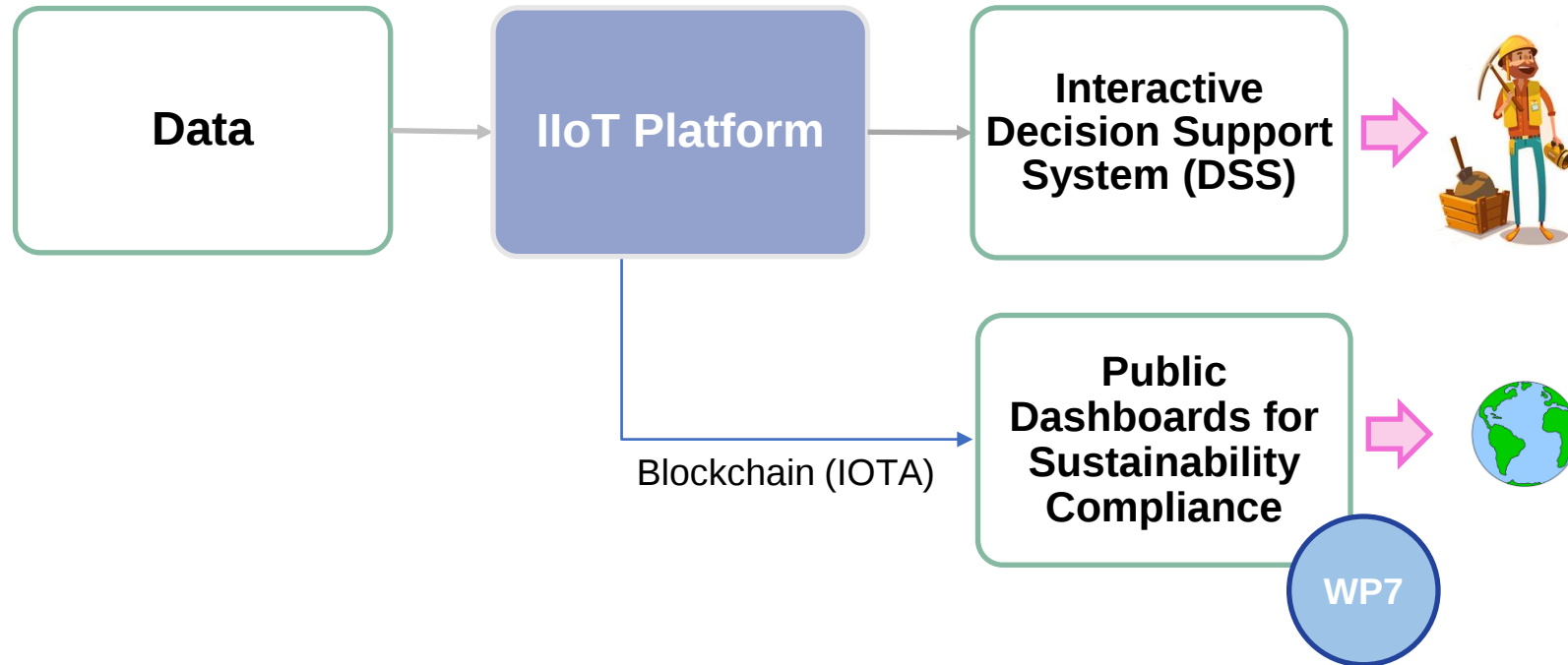
Operation

EHS monitoring

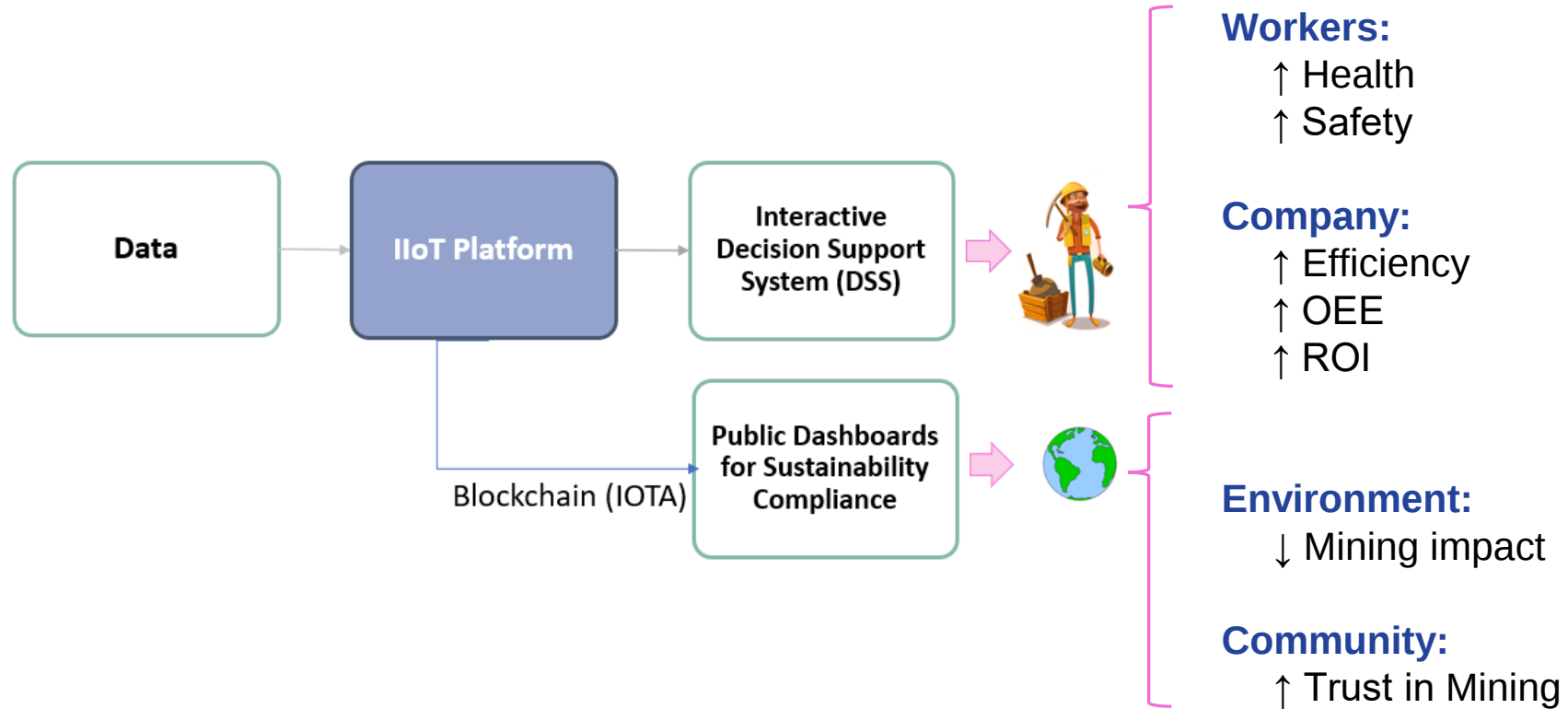
Alerts



Concept

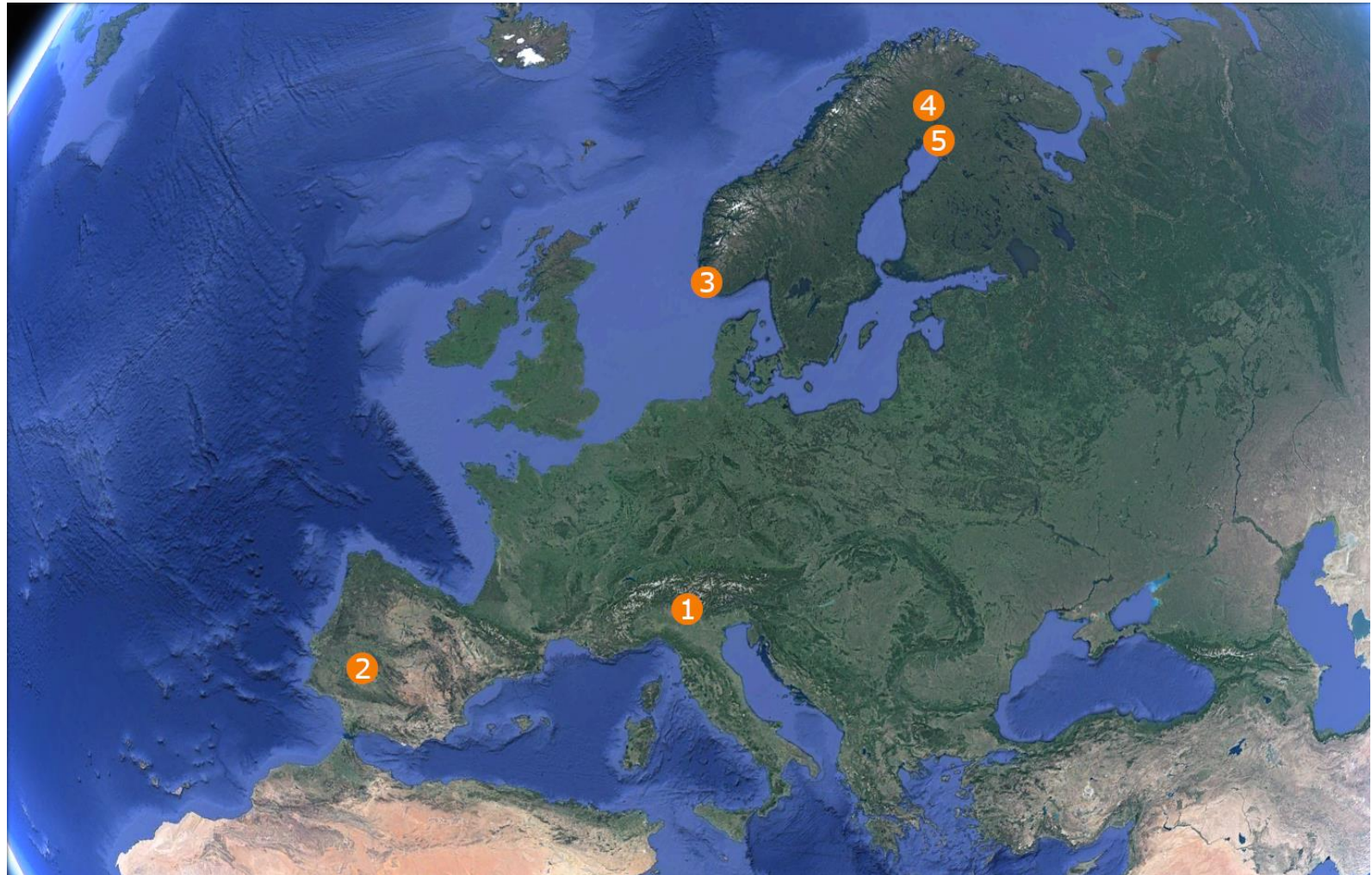


Goals



Use Cases

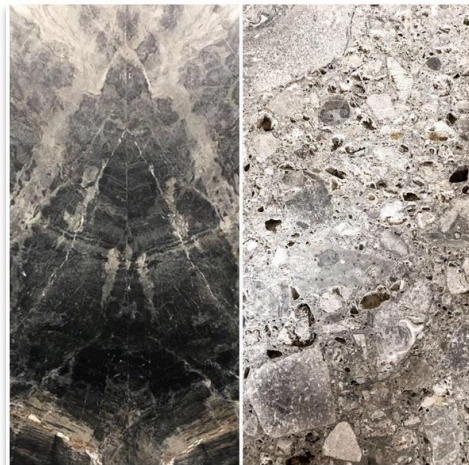
- 1 Marini
- 2 La Parrilla
- 3 Titania
- 4 Hannukainen
- 5 Kemi



Use Cases: MARINI MARMI (Italy)

- Underground quarry
- Exclusive stones:
 - **Ceppo di Gré** (on the right) is a monogenic dolomitic breccia.
 - **Nuvolato di Gré** (on the left) is a sedimentary, carbonatic, veined and breccia textured.

MARINI 1897



Use Cases: MARINI MARMI (Italy)

- Underground quarry
- Exclusive stones:
 - **Ceppo di Gré** (on the right) is a monogenic dolomitic breccia.
 - **Nuvolato di Gré** (on the left) is a sedimentary, carbonatic, veined and breccia textured.
- **Challenges and Needs:**
 - Safety of personnel.
 - Air quality.
 - Unplanned downtime.
 - Waste.
- **How Dig_IT addresses the needs**
 - Dig_IT predictive operation.
 - Predictive maintenance agent.
 - Dig_IT EHS online monitoring.
 - Smart Garment.

MARINI 1897



Use Cases: LA PARRILLA (Spain)

- Open-pit
- Tungsten mine



Use Cases: LA PARRILLA (Spain)

- Open-pit
- Tungsten mine
- **Challenges and Needs:**
 - Lack of maintenance.
 - Overall slope angle .
- **How Dig_IT addresses the needs**
 - Dig_IT geotechnical DT component.
 - Monitoring the main parameters of the slop behaviour .
 - Providing the framework for decision making based on the requirements .



Use Cases: TITANIA (Tellnes mine, Norway)

- Open-pit
- Ilmenites



Jøssingfjord Drying plant



Hommedal Mineral Processing plant

Use Cases: TITANIA (Tellnes mine, Norway)

- Open-pit
- Ilmenites.
- **Challenges and Needs:**
 - Water discharge monitoring.
 - Slope stability.
 - Personnel safety and equipment security.
 - Predictive maintenance of mine equipment.
 - Overall operation monitoring and scheduling
- **How Dig_IT addresses the needs**
 - Dig_IT EHS online monitoring.
 - Dig_IT geotechnical DT.
 - Dig_IT will assess the feasibility of implementation of POM.
 - Dig_IT smart scheduling component.



Jøssingfjord Drying plant



Hommedal Mineral Processing plant



Use Cases: KEMI (Finland)

- Underground mine
- Chrome

TAPOJÄRVI



Use Cases: KEMI (Finland)

- Underground mine
- Chrome
- **Challenges and Needs:**
 - Real-time information on machine operation.
 - Air quality in vehicle cabins
 - Mine's air quality at work sites
- **How Dig_IT addresses the needs**
 - Dig_IT geotechnical DT component.
 - Air quality information.
 - Dig_IT EHS online monitoring.

TAPOJÄRVI



Use Cases: HANNUKAINEN (Finland)

- Open pit mine
- Iron concentrate & Cu-Au concentrate

TAPOJÄRVİ



Use Cases: HANNUKAINEN (Finland)

- Open pit mine.
- Iron concentrate & Cu-Au concentrate.
- **Challenges and Needs:**
 - Lack of digitalization of OEHS.
- **How Dig_IT addresses the needs**
 - Dig_IT develops and tests EHS online monitoring.
 - Sustainability compliance Labelling (SCL) will be envisioned online.

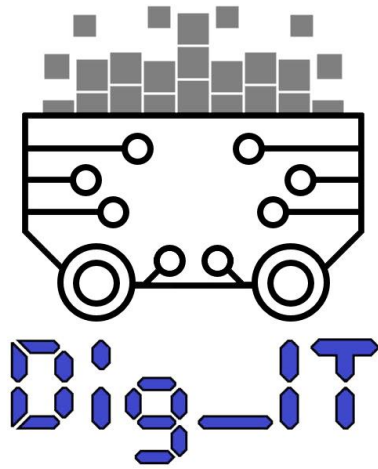
TAPOJÄRVİ



Use Cases: technologies summary

Table 1-4 Use-case scenario validation chart

Dig_IT technologies	Dig_IT Use Cases Validation				
	MARINI	LA PARRILLA	TITANIA	KEMI	HANNUKAINEN
IIoT Platform	✓	✓	✓	✓	✓
Cyber Security Layer	✓	✓	✓	✓	✓
RT DT- Geotechnical	✓	✓	✓		
RT DT FD Risk Maps	✓		✓	✓	
RT DT Assets			✓	✓	
Big Data optimisation		✓	✓	✓ (2)	
Smart Scheduling		✓	✓		
Sustainability Compliance			✓		✓
Smart Garment OSH	✓		✓	✓	
Online OHS measurements	✓		✓	✓	
Online measurements ambient environment	✓ (1)		✓	✓	✓
Predictive Operation	✓		✓	✓	
Predictive Maintenance	✓		✓	✓	
Intelligent toolbox for OHSE	✓		✓	✓	
Business Intelligence	✓	✓	✓	✓	✓
(1) Only measurements required to support RT DT FD					
(2) Only data analysis to support RT DT Assets					



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Thanks for your Attention



<http://digit-h2020.eu/>



<https://www.linkedin.com/company/digitproject/>



<https://twitter.com/digitproject>



<https://www.facebook.com/digitproject2020>

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