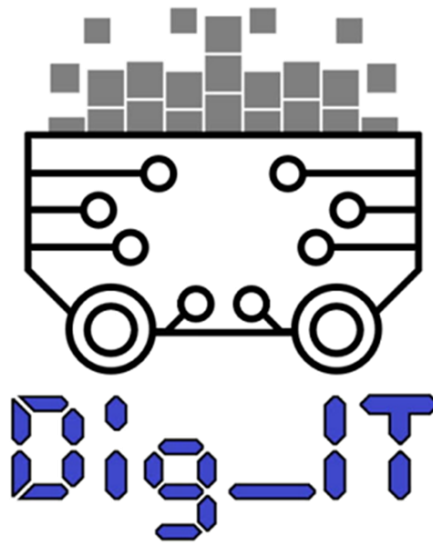


DIG_IT



Summary:

Dig_IT is a Horizon 2020 funded project that will address the needs of the mining industry to move forward towards a sustainable use of resources while keeping people and environment at the forefront of their priorities. In order to achieve its objective, Dig_IT proposes the development of a smart Industrial Internet of Things platform (IIoTp) that will improve the efficiency, safety and sustainability of mining operations by connecting cyber and physical systems. The platform will collect data from sensors at 3 levels: (i) human, (ii) assets, (iii) environment and will also incorporate both real time and historical market data.

Duration:

1 May 2020- 30 April 2024

Objectives:

The objective of the project is the development of an Industrial Internet of Things platform (IIoTp) that collects data from the mining industry (data sources: humans, machines, environment and market) and transform them into knowledge and actions aimed at improving the worker health and safety, improving the operations efficiency and minimizing the environmental impact of mining.

The platform will integrate data of diverse nature: people, machines, environment and market. On a human level, it will gather biometric data of workers, their location and environmental conditions at their workplace. At the machine level, the operation of the machines involved in mining operations is monitored. To characterize the environment, air, water and terrain conditions will be recorded. Furthermore, the tool will also consider market data.

The Dig_IT project will focus on the quality of the data and their analysis and exploitation to support the management of the mines in real time. To this end, the consortium is made up of a balanced combination of companies with extensive experience in the mining sector and leading companies and research groups in the areas of knowledge required for the development of the IIoT platform.

The Dig_IT IIoT platform will be applied and validated in five use-cases, indicated in Figure 1-right: (1) La Parrilla (Spain); (2) Marini Marmi (Italy); (3) Titania (Norway); (4) Hannukainen (Finland); and (5) Kemi (Finland). Each use-case differs from the others in terms of location (climate), terrain nature, raw material and type of exploitation, so that each use case offers unique challenges for the IIoT platform.

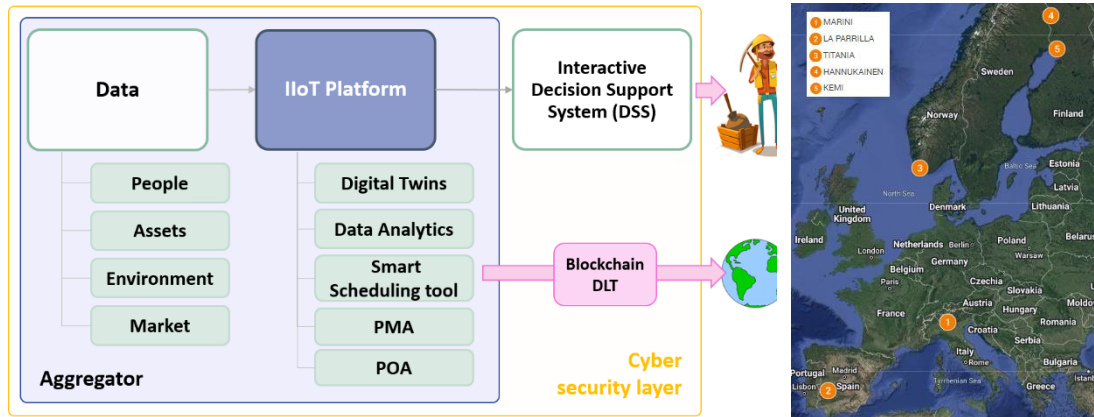


Figure 1 – Dig_IT project: (left) Concept; (right) Pilots location

Use cases:

To validate Dig_IT propositions, five industrial use cases in Europe with different mine lifecycle phases, mining methods, and technology adoption levels are used:

- 1.-**La Parrilla Mine** (Spain), a reopening open-pit of tungsten (Critical Raw Material).
- 2.-**Hannukainen Mine** (Finland), an open-pit of iron ore, gold and copper mine brownfield project currently in permitting phase.
- 3.-**Kemi mine** (Finland) a ferrochrome underground mine operated by Tapojarvi.
- 4.-**Tellnes mine** (Norway), ruled by Titania AS, an ilmenite open-pit mine operating near a very active community aiming to share environmental data towards establishing trust with the local community.
- 5.-**Marini Marmi** (Italy) an underground quarry of marble stone, e.g: Nuvolato di Gré and Ceppo di Gré.

Budget: € 6 997 416,25

Consortium:

- INSTITUTO TECNOLOGICO DE ARAGON
- CORE INNOVATION AND TECHNOLOGY OE
- BRUNEL UNIVERSITY LONDON
- TAMPEREEN KORKEAKOULUSAATIO SR
- RO TECHNOLOGY SRL
- INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS
- SUBTERRA INGENIERIA SL
- STRATAGEM ENERGY LTD
- EUROCORE CONSULTING SPRL
- LIBRA MLI LTD
- MARINI MARMI SRL
- TAPOJÄRVI OY

- SINTEF NORLAB
- Titania AS
- SCHNEIDER ELECTRIC SPA
- Zentrix Lab
- IOTA

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