

## DEMONSTRATORS

**Greece** | Blockchain application supporting reduction of construction waste generation used on concrete logistics processes

**Italy** | Digital management of materials and waste in the design phase of infrastructural projects

**Czech Republic** | Automated CDW management solutions using digital twin in roads' construction

**Czech Republic** | Automated CDW management solutions using digital twin for buildings

**Spain** | Off-site treatment of CDW and valorisation in recycled products and ECO aggregates

**UK** | BIM tools for digitalized waste management in design and construction stage



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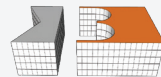
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**AUTOMATED SOLUTIONS  
FOR SUSTAINABLE &  
CIRCULAR CONSTRUCTION  
& DEMOLITION WASTE  
MANAGEMENT**



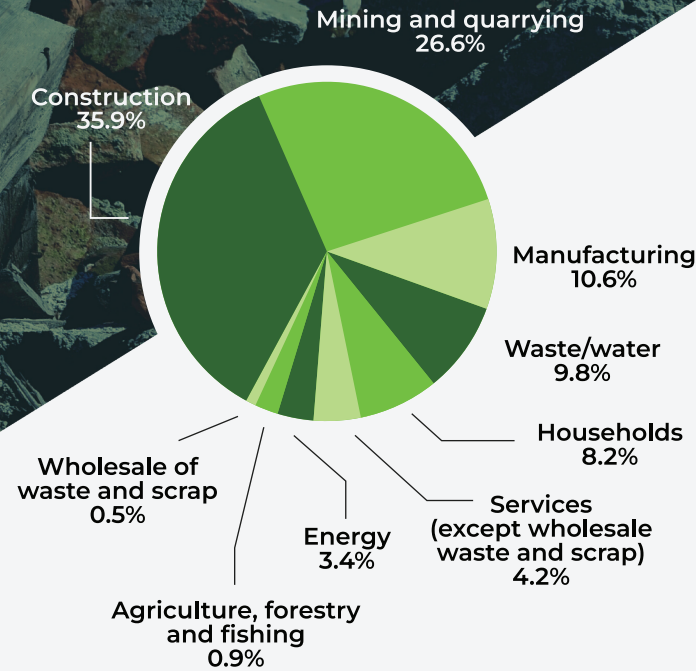
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- MORE THAN 10 BILLION TONNES OF CONSTRUCTION & DEMOLITION WASTE (CDW) IS GENERATED IN THE WORLD
- 35%-65% OF LANDFILL VOLUME OCCUPATION
- CHINA, US AND EU ARE THE BIGGEST CDW PRODUCERS
- EU-27 RECOVERY RATE AROUND 90%
  - MAINLY FOR LOW VALUE UTILIZATION (DOWNCYCLING)

## WASTE GENERATION

By economic activities & households, EU-28, 2018



## SOLUTIONS

- Digital information system (DIS)
- Automated solutions in logistics and delivery for CDW and resource efficiency in construction processes
- Robotics for fine sorting of CDW
- Waste management in BIM processes
- New materials with digitized quality assessment technologies
- Non-destructive testing for existing built asset conditions and service life evaluation
- Assessment of sustainability and circularity in building life-cycle
- Automatization in creating digital twins for existing buildings and effective deconstruction planning

## GOALS TO ACHIEVE

1 EU GREEN DEAL

2 EU WASTE FRAMEWORK DIRECTIVE

3 ZERO ENERGY & WASTE TARGETS BY 2050

## OUR MISSION

### AVOID WASTE

- Integrate secondary materials in design
- Mitigate future waste generation using smart design (LCA)

### MINIMISE WASTE

- Reuse recycled products and by-products
  - Prefer durable materials
- Employ digital construction planning
- Segregate waste on site and reuse

### REDUCE WASTE

- Asset management using digital twins
- Continuous structural health monitoring
  - Mitigate waste and segregate
- Prioritise reuse during refurbishment

### PRESORT WASTE

- Deconstruction planning using digital twins
  - Enforce selective waste treatment
  - Dismantle when possible

### VALORISE WASTE

- Develop and produce new competitive recycled materials
  - Avoid inefficient recycling solutions
- Use products from locally recycled materials