

Agnès Petit



- Seit 2018: Gründerin und CEO, Mobbot, Freiburg
- Industrieerfahrung:
 - 2 Jahre als Dozentin an der HWZ
 - Über 6 Jahre bei Creabeton Matériaux
 - Über 4 Jahre bei Holcim Ltd.
- Ausbildung: Mining & Mineralogy, Université de Lausanne und PhD, Cosmochemistry, ETH Zürich

Smart spraying - ROBOTICS OF SPRAYED CONCRETE

Agnes Petit CEO and Founder MOBBOT SA, Freiburg



Traditional construction methods



- Team of 5 workers to build two chambers
- 4 days onsite resulting in 896 km (4x 224 Km)
- > Two meetings onsite FEDRO specifiers, Contractor, subcontractor, resulting in at least 1000 Km for discussion, planning etc
- 3.6 m³ needed, 5m³ of concrete ordered and delivered

The reasons why we should not change

1. “We are building like that since 50 years and it works well”
2. “The FEDRO specifications are defined, clear and we need to comply”
3. It’s just an inspection chamber, it does not count much”
4. “We occupy our workers, what shall we do with them the rest of the day”
5. “The excavation is bigger with prefab element”
6. “The construction of a chambers works in parallel to other jobsite works”

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The reason why we should care



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The world is facing a \$15 trillion infrastructure gap by 2040. Here's how to bridge it

A photograph of a long, curved road at night. The road is illuminated by several tall streetlights with warm, yellowish light. The road surface is dark, and the lane markings are visible. The road curves into the distance, creating a sense of depth and perspective. The sky is dark, and the overall atmosphere is quiet and somewhat mysterious.

Every step counts

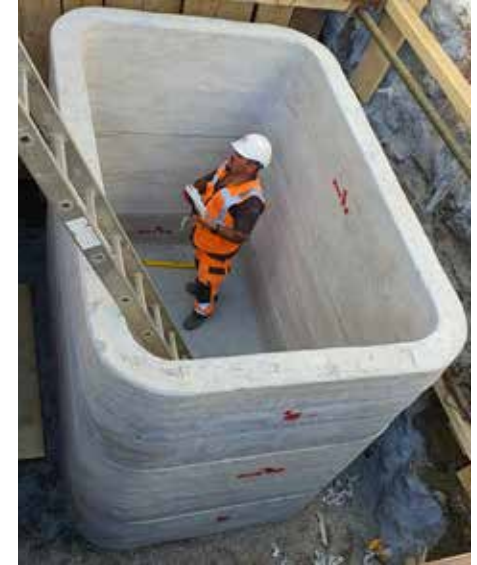
Our 3D printing solution enables to produce bespoke products and deliver them just-in-time



Design

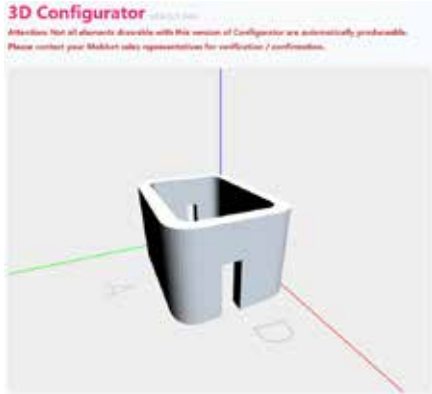


Sprint



Deliver

An integrated supply chain



cablex **axians**
en réseau pour le futur

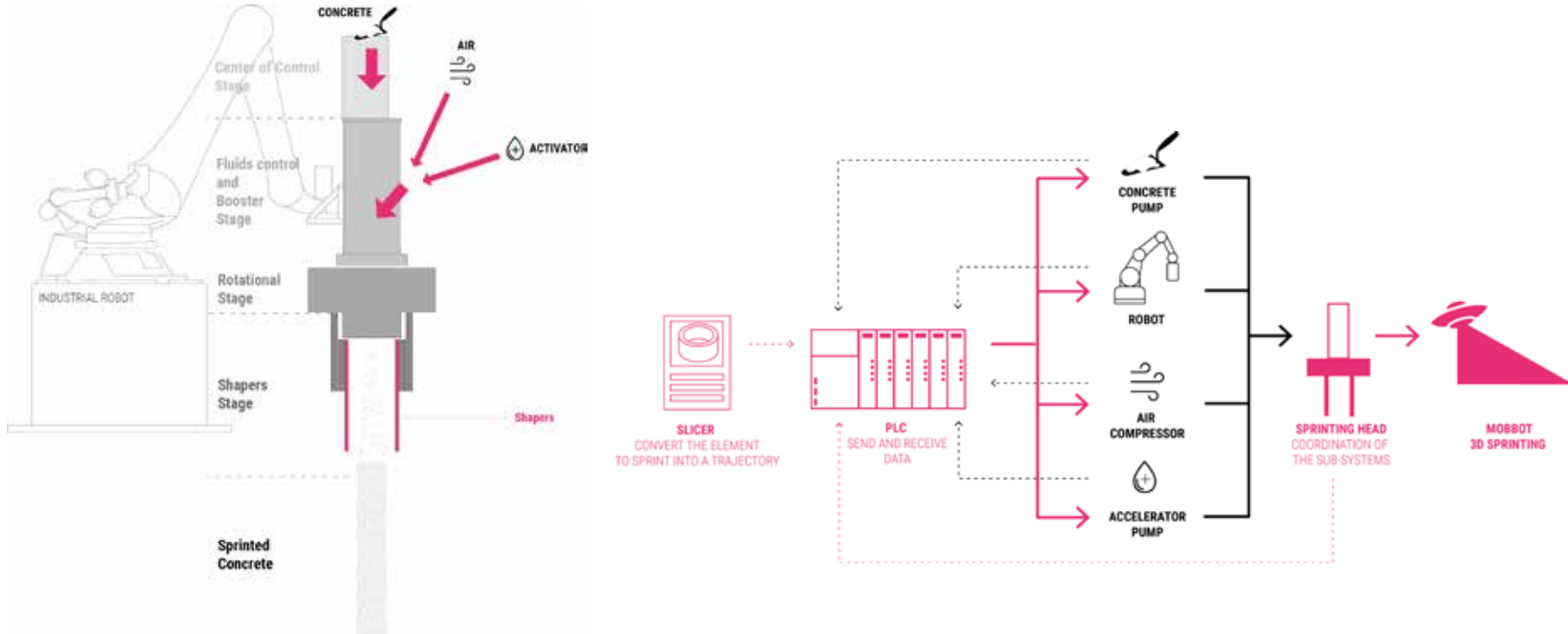


- Online design
- Offsite printing
- Delivery of 3-4 elements within max 72 hours
- Delivered with cover/ lid
- Installation within 30-60 minutes
- Saves 30-100% CO₂ emissions

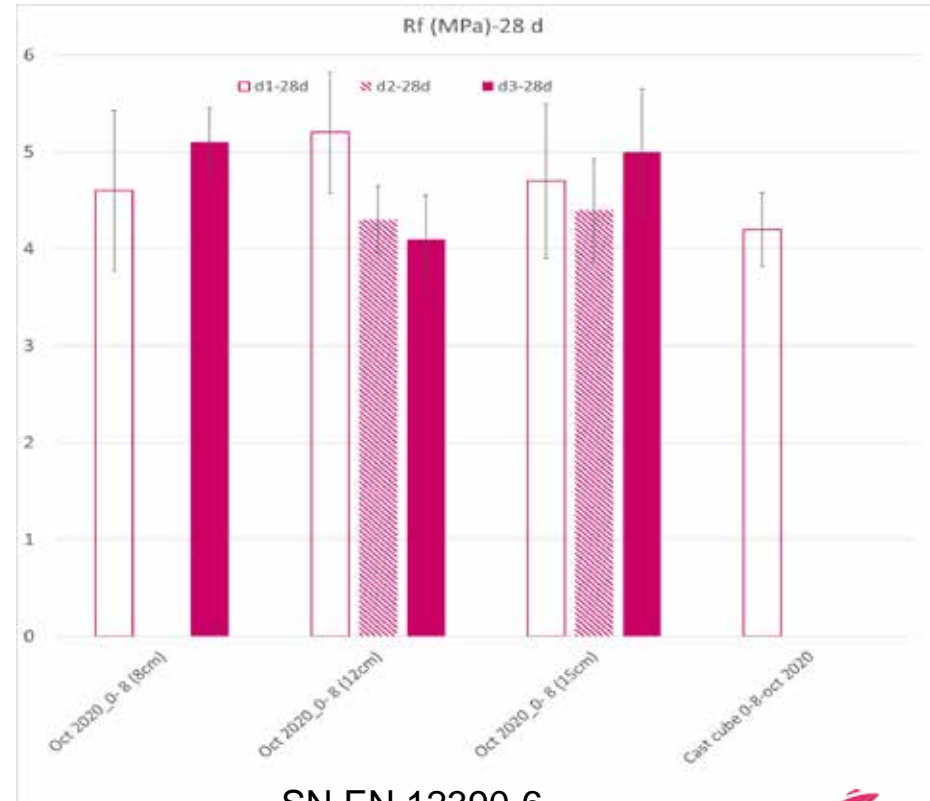
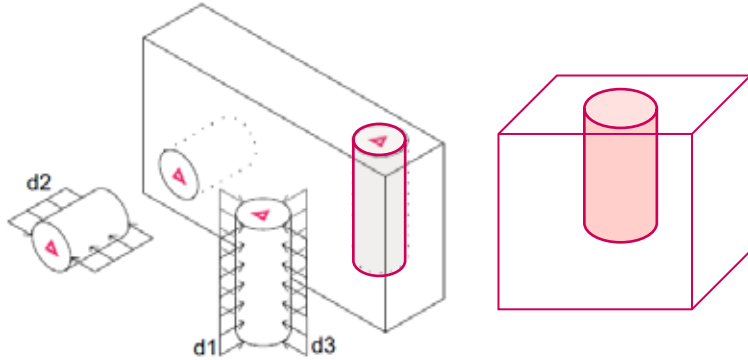
A widely spread



Robotic and automated concrete spraying solution



Mechanical performance of sprinted elements



SN EN 12390-6

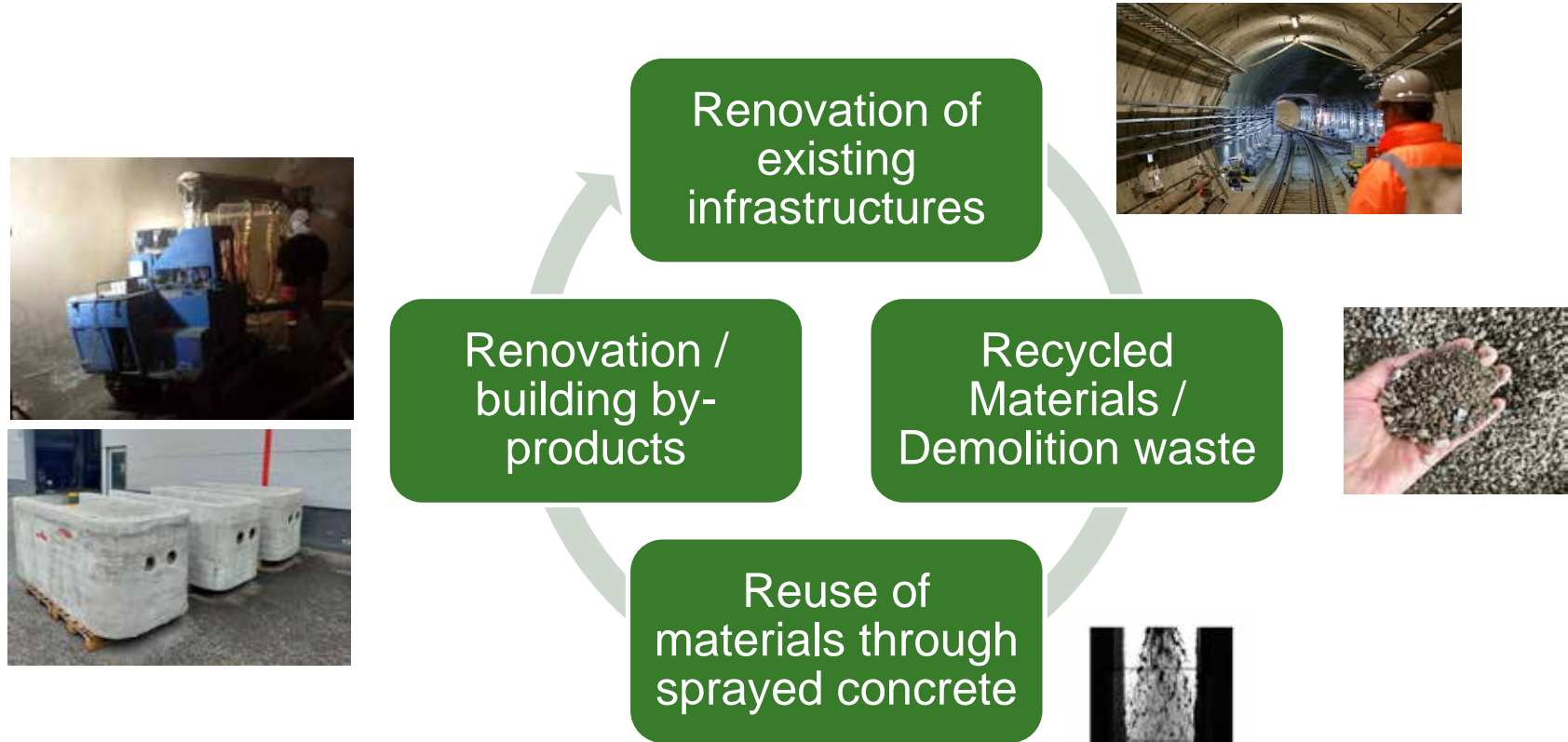
From recipe to product with recycled aggregates



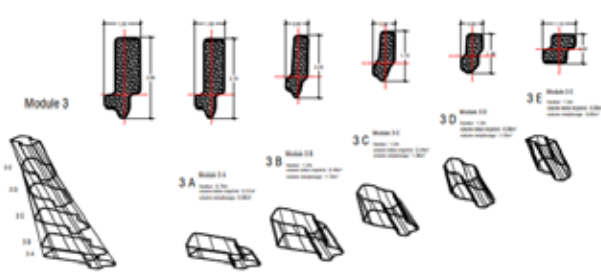
Mechanical performances for a 1-day strength application

	Recipe with Fluvio 5		Recipe with Susteno 4	
	45% recycl. 35% 0-4 10% 4-8	Reference with no recycled aggregates	15% recycled 4-8mm	Reference with no recycled aggregates
Compressive strength 1d (MPa)	26	34	11	12
Compressive strength 3d (MPa)	44	55	30	34
Compressive strength 28d (MPa)	59	74	48	57

How do we empower the circular economy of infrastructures



Rrealization of the weight walls at the level of the abutments



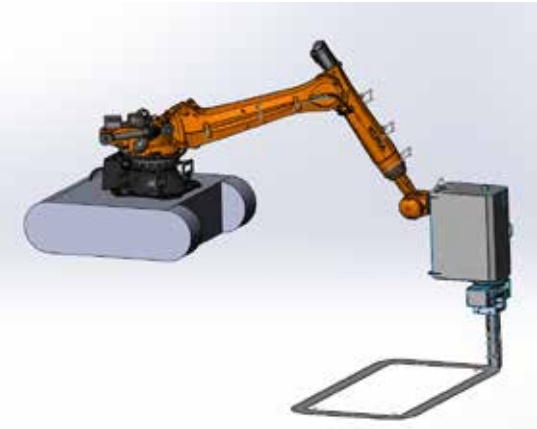
MARC MIMRAM | ARCHITECTE DPLG
INGÉNIEUR ENPC



- Using excavation materials to fill the weight walls
- Using local raw materials to built custom made elements



Our next steps



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PURELY HUMAN



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Holcim

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