

### **AMANAC WORKSHOP**

# WHAT KIND OF BUILT ENVIRONMENT FOR FUTURE GENERATIONS?











# Current «societal» challenges for civil engineering

#### **Transportation Infrastructures:**

1% GDP investment in infrastructures results into +1.5% GDP in 4 years 70 mln people a year moving to urban areas

http://ec.europa.eu/growth/sectors/construction/index\_en.htm

**Coastal protection:** Europe has a 66000 km coastaline (3 times as much the one of US) Coastal defense infrastructure market: 660 bn€/y + 4% year growth foreseen (climate change − 1.7mm sea rise each year)

http://ec.europa.eu/environment/iczm/state\_coast.htm

#### Green growth: promoting the growth of clean energy production

Offshore wind, ocean and geothermal energy: x 10, x100 installed capacity 2020-2050

http://ec.europa.eu/environment/green-growth/images/priorities\_for\_circular\_economy.jpg http://www.oecd.org/greengrowth/greening-energy/greengrowthandenergy.htm





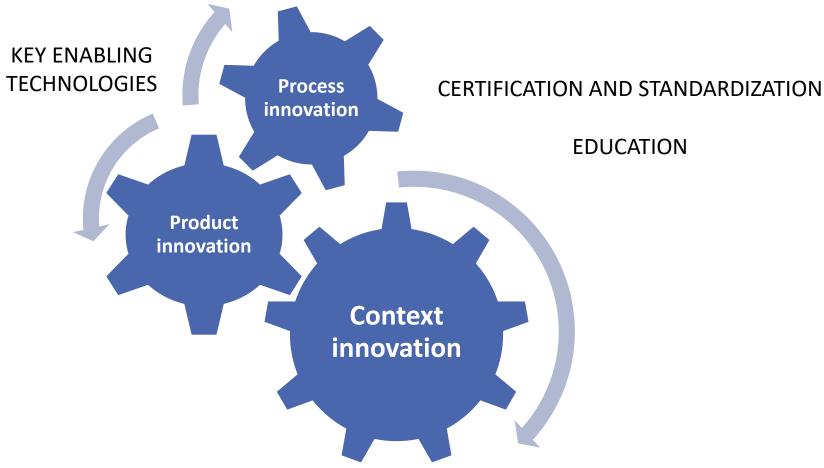




**Blue growth:** doubling revenues in 2020-2030 (from 5 to 10 bln€) 70% of the planet is water but only 5% of economy develops in it

https://ec.europa.eu/maritimeaffairs/policy/blue\_growth\_en Liberato Ferrara & Arnaud Muller Politecnico di Milano Heidelberg Cement

## Three-level innovation















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