

The experience of the Second Level Master to be qualified as InfraBIManager

*Original*

The experience of the Second Level Master to be qualified as InfraBIManager / Fonsati, Arianna; Osello, Anna. - ELETTRONICO. - (2020), pp. 1-1.

*Availability:*

This version is available at: 11583/2878961 since: 2021-03-30T15:56:02Z

*Publisher:*

*Published*

DOI:

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# The experience of the Second Level Master to be qualified as InfraBIManager

Anna Osello, Arianna Fonsati

# infraBIMoPEN


3-5 FEBRUARY 2020 TAMPERE



# Summary

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- Italian context
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- Structure of the Master
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- Future works: next edition from January 2021!

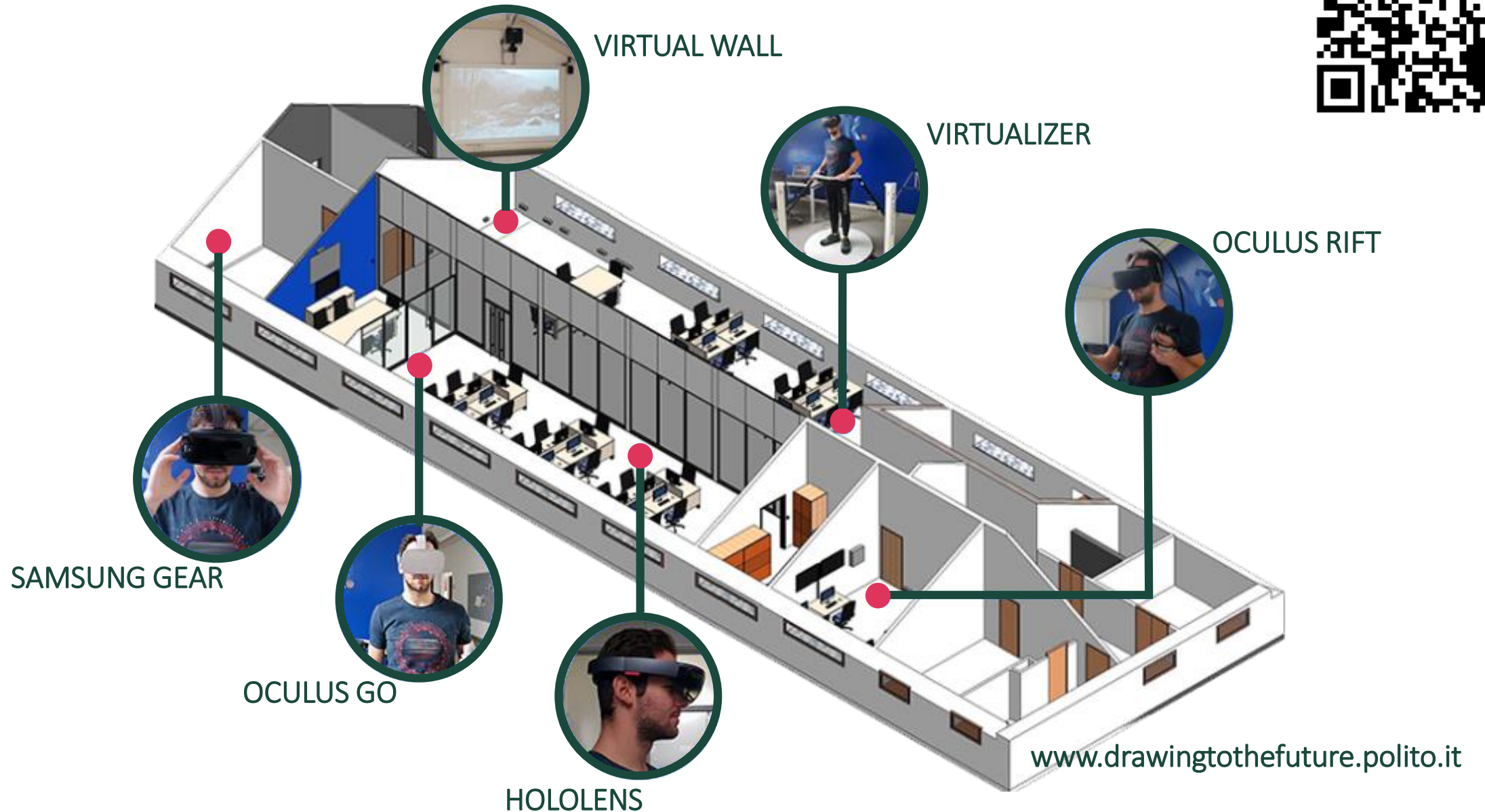
# Introduction

- **InfraBIManager**, Second Level Master 
- **drawingTOthefuture lab**
- **Start: January 24th 2019**
- **Politecnico di Torino**
- **26 participants**, mainly professionals who decided to invest in themselves to play a leading role in the new digital challenges of the AEC sector, showing great interests towards BIM-related topics.

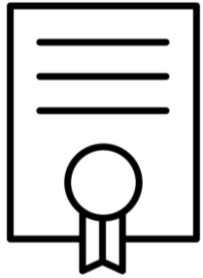
**50%** of students were professionals with **leading roles** in their Companies.

**40%** of students were professionals with more than **15 years of experience**

# drawingTOfthefuture Lab



# Italian context

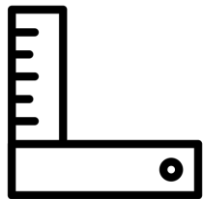


Cogent rules



Legislative Decree 50/2016

Implementing Decree DM 560/2017



Technical,  
non-cogent rule



UNI 11337



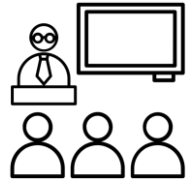
ISO 19650!

# Objectives



The Master aims at training a **professional figure** (InfraBIManager) **expert** both in the **building process** (from the design phase, to the construction phase, to the management and maintenance of the asset) and in **parametric digital modeling**, with particular reference to the theme of infrastructure, in accordance with the recent directives of Legislative Decree 50/2016 and the guidelines published by ANAC.

# Structure of the Master



**Lessons:** 350 hours of lectures given by 50 speakers both from Universities and Companies (Engineering firms) already working with InfraBIM methodology, telling students their own experience and advices.



**Internship:** 375 hours of internship either in their company or somewhere else. **Individual.**



**Project Work:** 250 hours of project work during which they had to put into practice what they had learnt from lectures and exercises on a case study, defining specific objectives to achieve. **Teamwork.**



# Structure of the Master

How can you ask people to be updated by using only old communication strategies?

Students could attend the lessons:



in person



by videoconference



Recorded lessons available for students **at any time**

# Structure of the Master

## TEACHING METHODS

**Module 1:** Project Management

Theory and practice

**Module 2:** Design and Realization of Infrastructures

Theory and a little practice

**Module 3:** Management and Maintenance of Infrastructures

Theory and a little practice

**Module 4:** Methods and Tools for BIM Data Management

**A little theory and A LOT of practice**

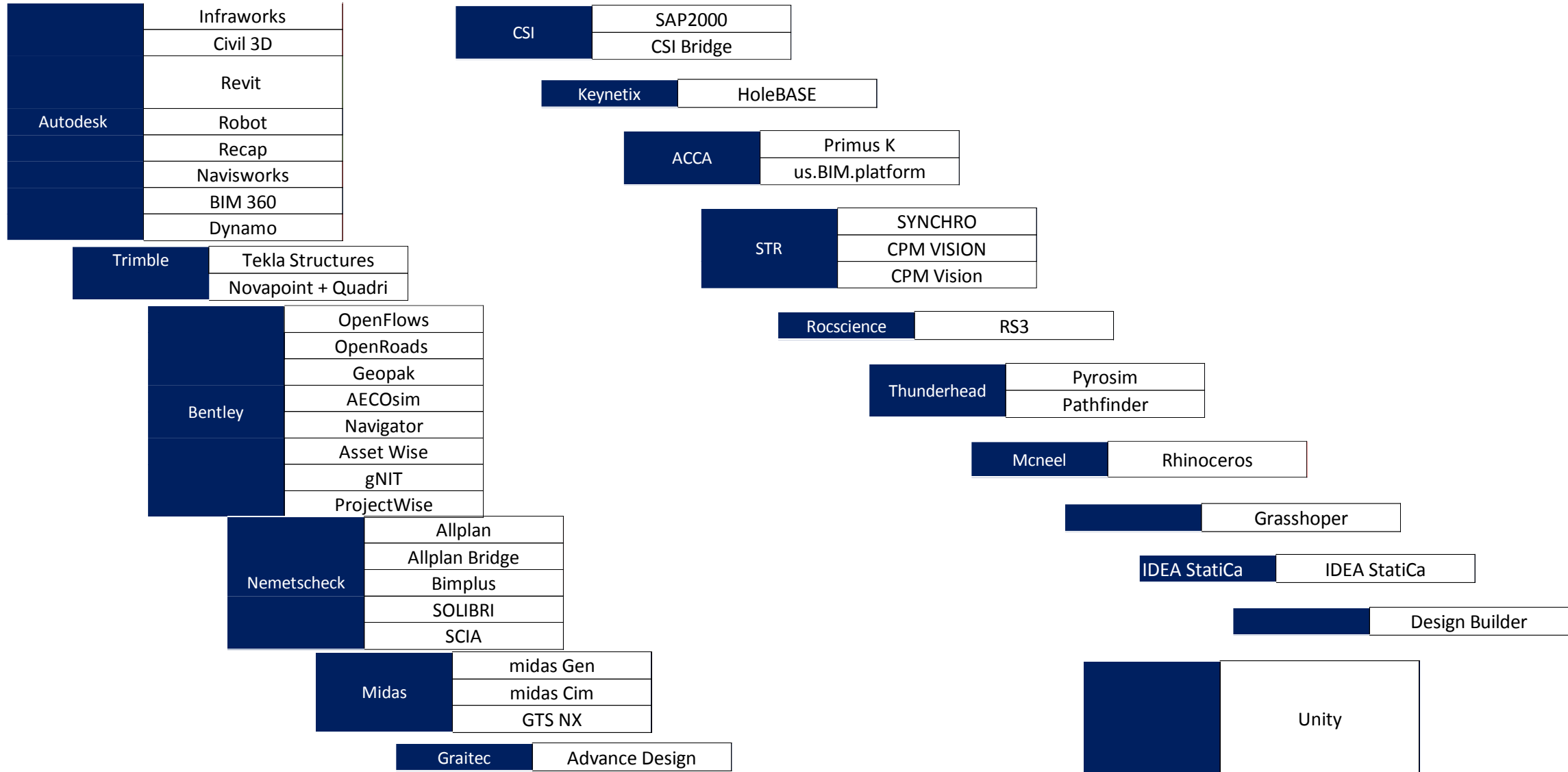


**TRANSVERSAL COURSE (70h)**

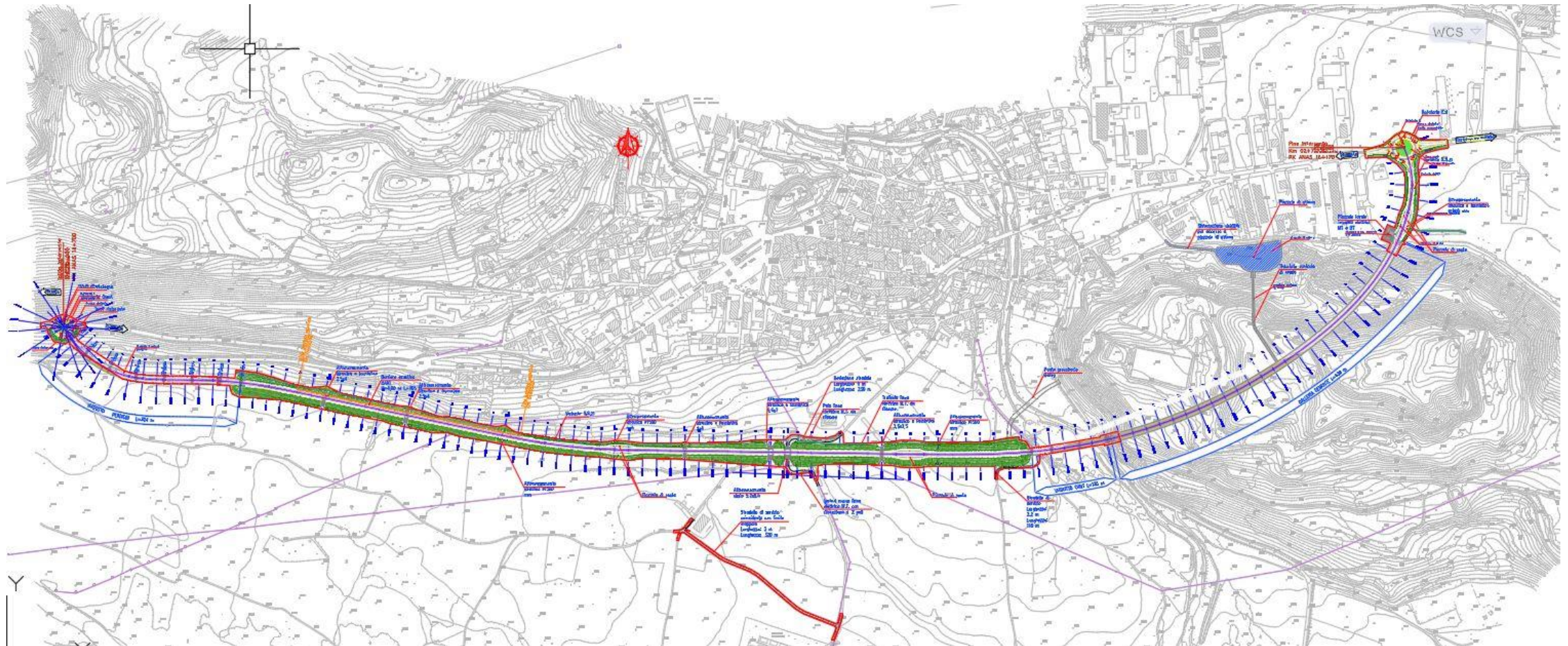
# Key concepts in the Master structure

- Another reason that inspired the starting of such kind of Master was the chance to **present methodology** and **BIM-related tools** in an **unbiased way**, by presenting several software platforms, trying to define **pros** and **cons**, **benefits** and **weaknesses of all products**;
- The aim was to pass the message that **no matter the tools used**, some procedures and **processes** can work properly because of the premises and concepts behind;
- The structure of exercises and project teamwork aimed at **encouraging collaboration among students**. The experience showed that younger professionals better knew how to handle with BIM platforms and tools, but professionals had the necessary expertise deriving from years of work experience;
- Importance of **openBIM** was highlighted by presenting previous experiences of projects developed in such environment.

# BIM tools matrix



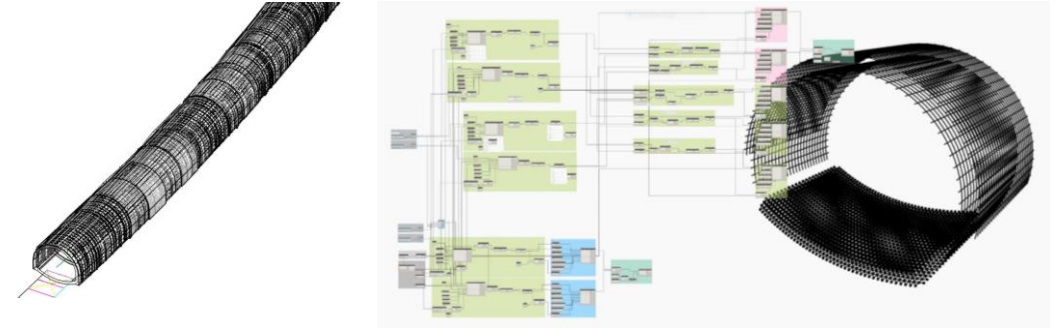
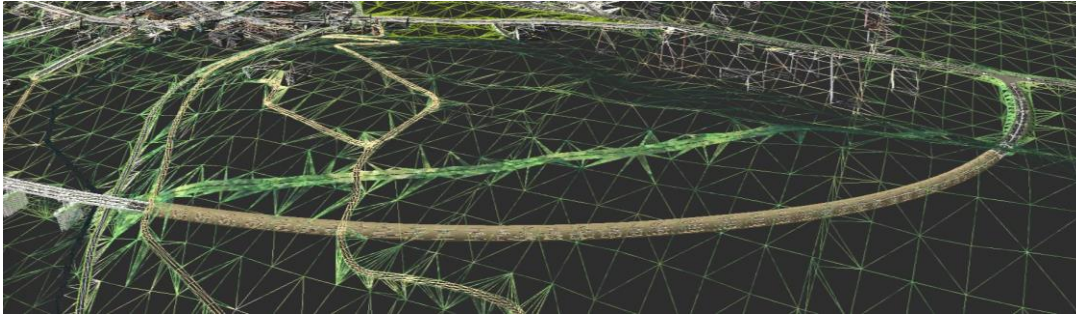
# Exercise



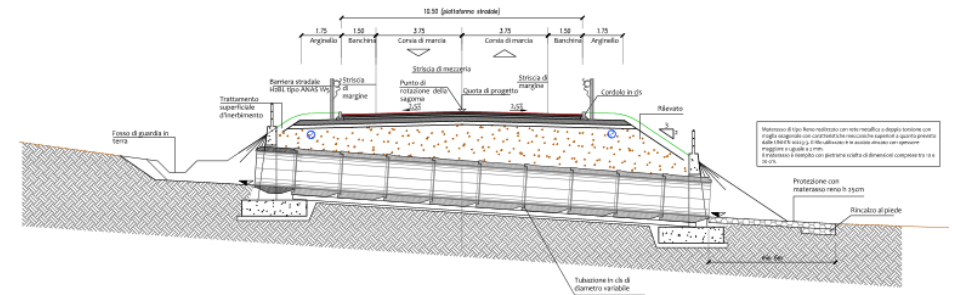
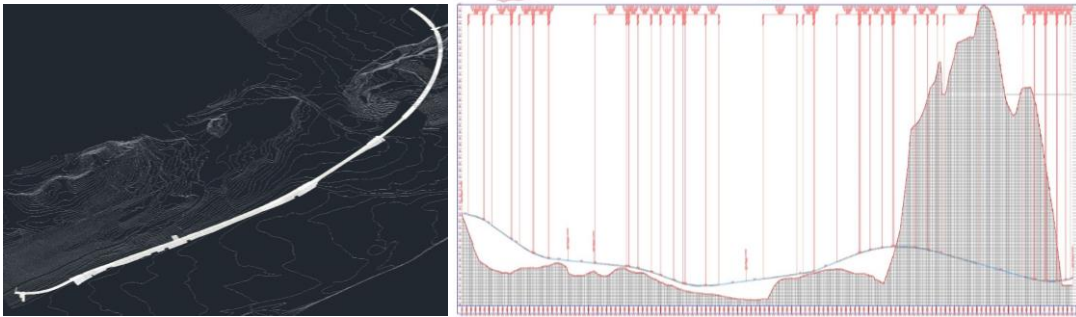
Road Project located in the *Stura di Demonte* Valley, Highway n.21  
It includes: 2 viaducts, 1 tunnel, 1 roundabout

# Exercise

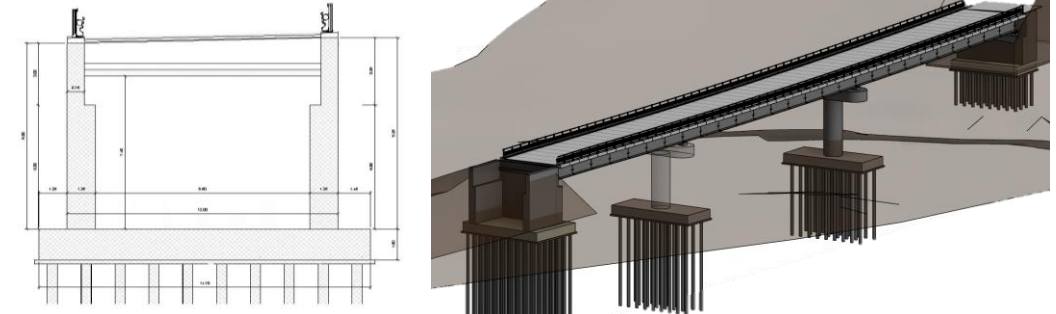
## Demonte Tunnel L = 638m



## Route 2.7 Km

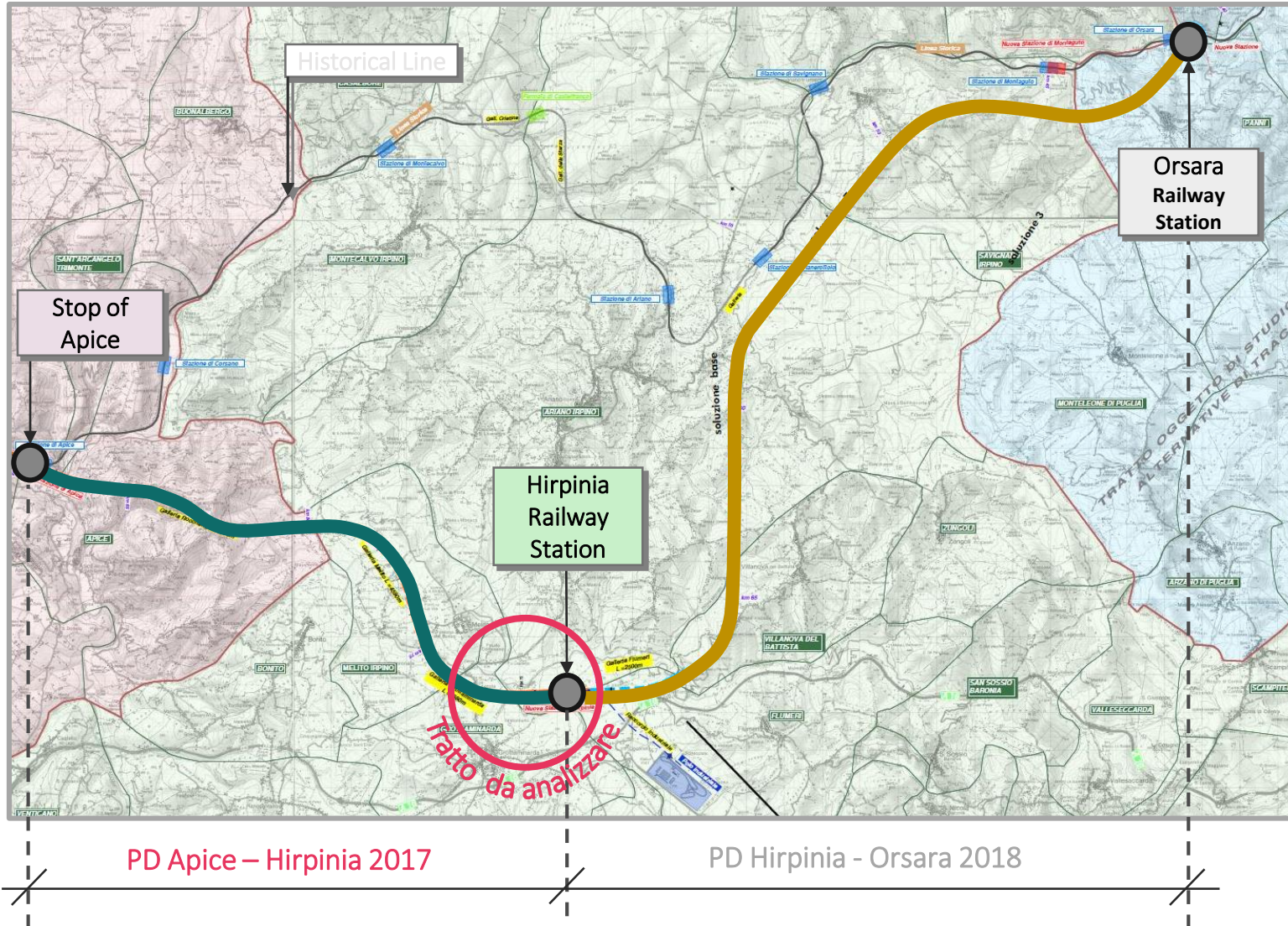


## Cant Viaduct L = 135 m



# Project Work

Provided by 

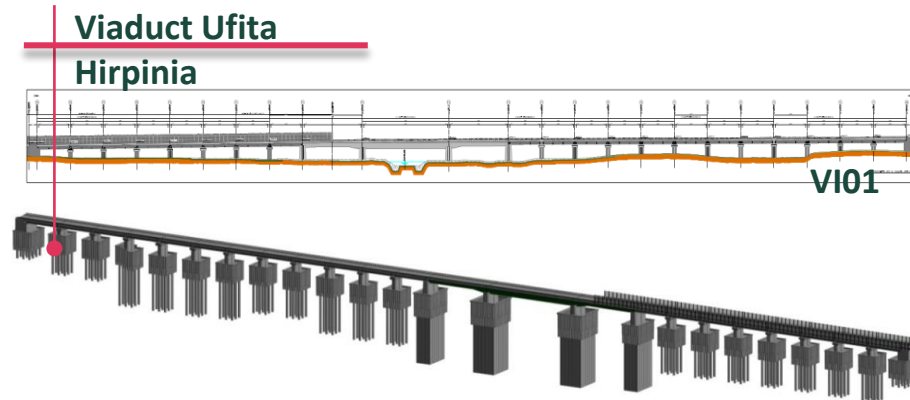
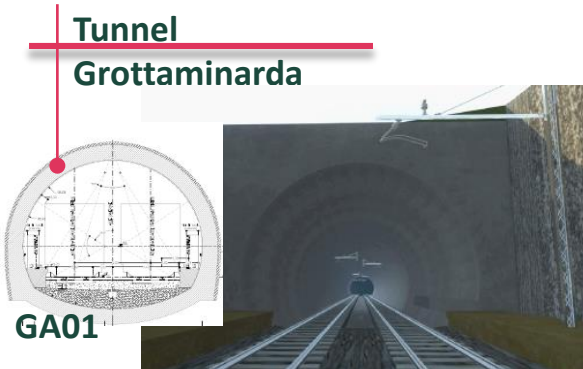
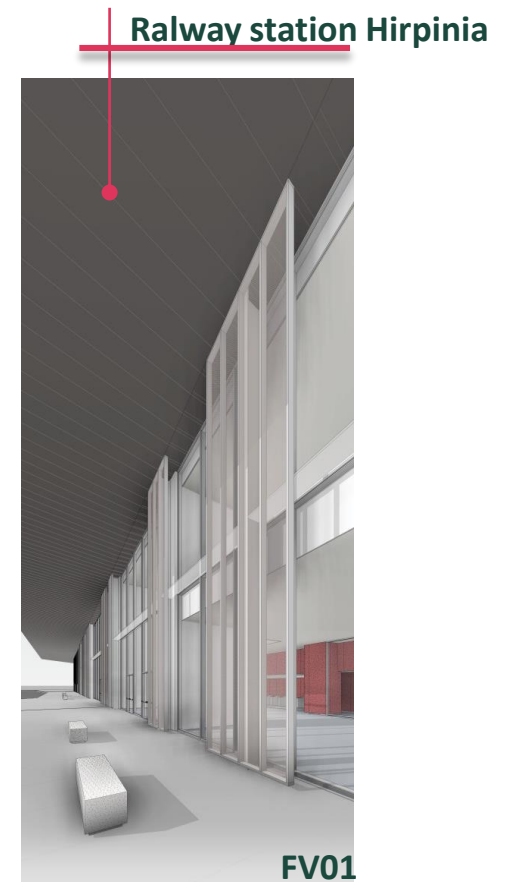
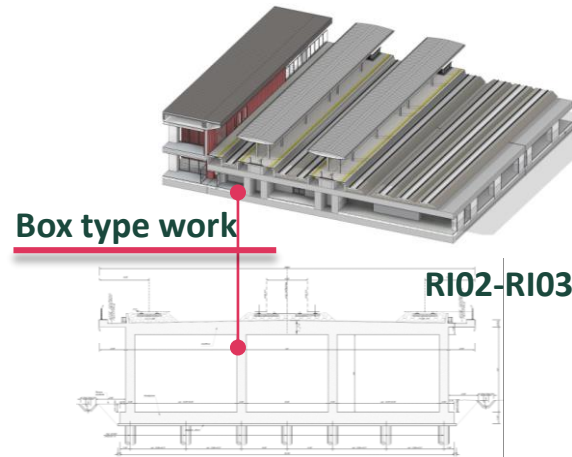
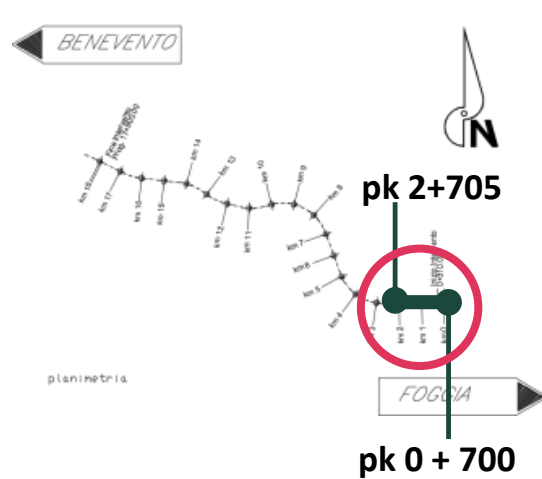


Route Naples – Bari,  
Doubling Railway

Apice – Orsara: I Functional  
Lot Apice – Hirpinia

# Project Work

Provided by 



 *Parts of work for WBS under study*  
Railway infrastructure from Hirpinia Railway Station to the entrance of the Grottaminarda Tunnel

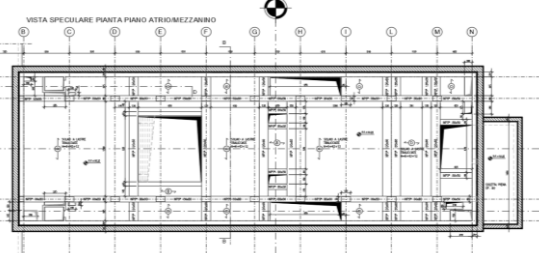
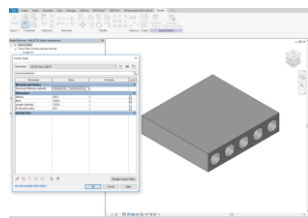
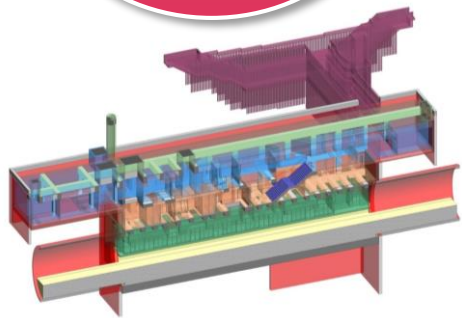


Work made by:  
Alessandro Marchi  
Cecilia Signorile

# Results (Internship)

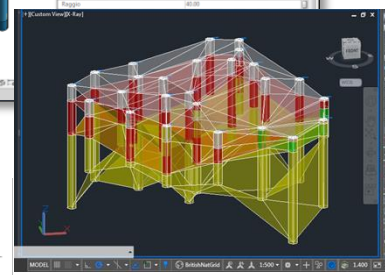
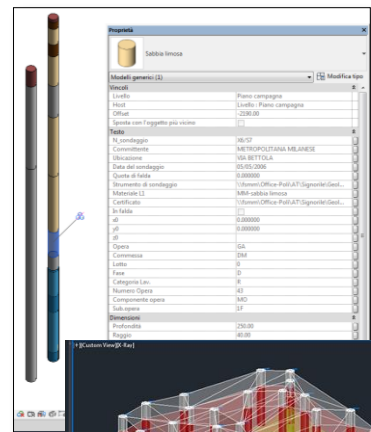
## MM BIM

Bim models & Structural drawings



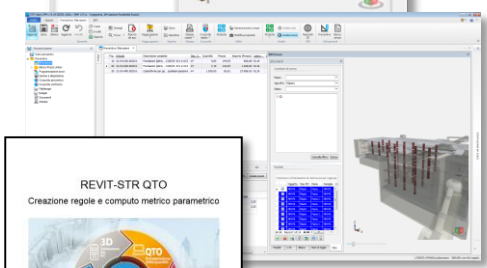
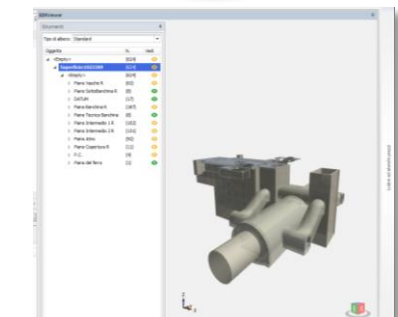
## MM BIM

Geology & Terrain digital model



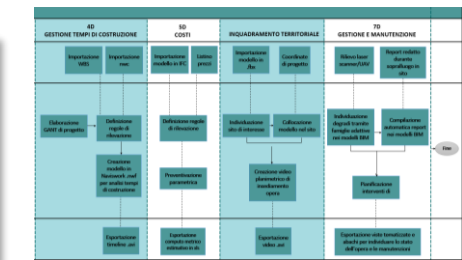
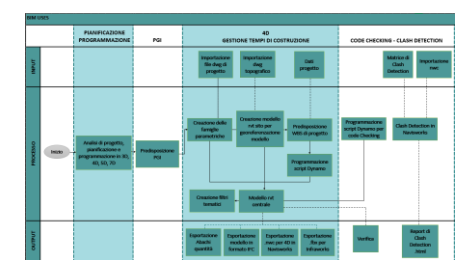
## MM BIM

Quantity Take off



## MM BIM

Bim Uses Workflow



## MM BIM

Bim Guides for Underground lines

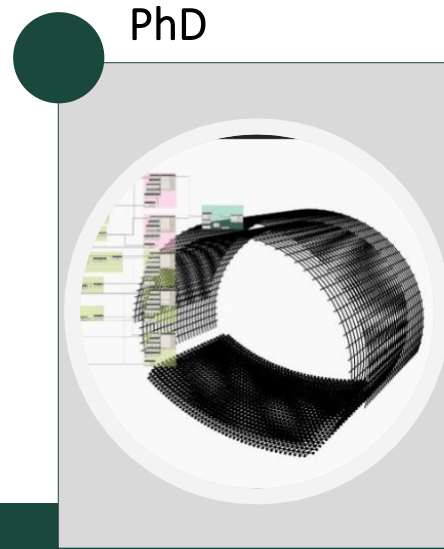
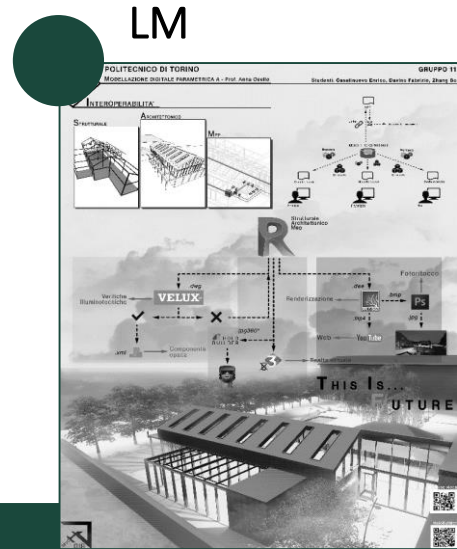
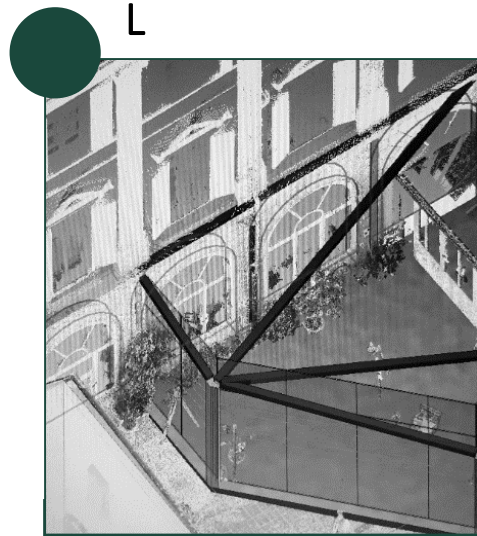


Work made by:  
Danilo Vercellino  
Michele Schiavo  
Nunzio Flavio Leo

# Results (Project Work)



# Conclusions



University

**BIM + GIS + ... = Interoperability**

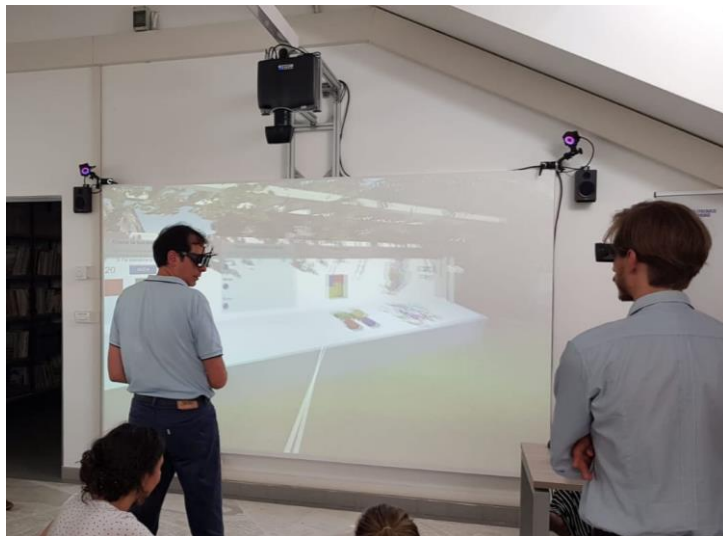


Work

InfraBIManager

A decisive step in this direction can only come if businesses, politics, schools and institutions join forces and go together, because the **digital gap** is transversal

# Conclusions



«A Master **CAN** make a difference»



# Future works

Get ready for the next edition from January 2021!



Picture made by:  
Danilo Vercellino



Thank you for the attention!



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**infraBIMOPEN**

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