

+ COMPETENCE INDUSTRY MANUFACTURING 4.0

18/05/2022

CIM4.0 OVERVIEW

Paolo Brizzi / DIGITAL FACTORY RPOGRAM

Cristina Cibrario / EDUCATION & COMMUNICATION



Roadshow 2022 – Prima Tappa / GESTIRE LA TRANSIZIONE DIGITALE ED ECOLOGICA

WHO WE ARE

CIM4.0 is a **public private partnership (PPP)** composed by **3 public bodies, 22 enterprises** and **2 business associations** aimed to:

- + face industry 4.0 challenges
- + support technology transfer
- + run innovation project
- + boost technology awareness
- + manage innovation fundings

+ COMPETENCE
INDUSTRY
MANUFACTURING
4.0



Ministero dello
sviluppo economico

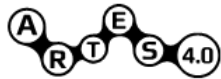
PIANO NAZIONALE
INDUSTRIA 4.0



THE 8 ITALIAN COMPETENCE CENTER

+ CIM
4.0

START4.0



SM
ACT

bi-r3x
Big Data Innovation & Research Excellence

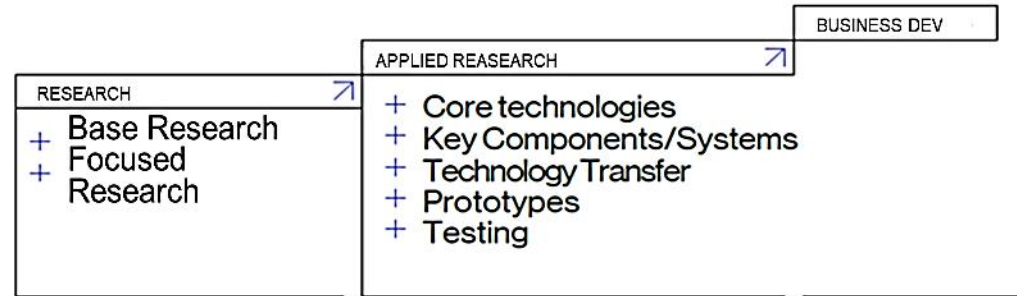
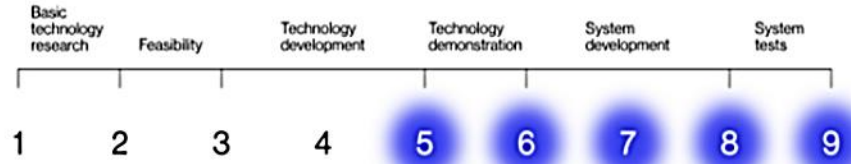
MEDITECH
COMPETENCE CENTER

+ CIM
4.0

TECHNOLOGY DEVELOPMENT FOCUS

TRL

Technology
Readiness
Level



Key enabling
technologies

UNIVERSITIES

COMPETENCE
CENTER I4.0

COMPANIES

Vertical
implementation

CNR
ENEA

KNOWLEDGE
PRODUCTION
CHAINS

Production
Chains

CONSORTIUM

FULL MEMBER

ACTIVITY PARTNER



3 PUBLIC BODIES

22 ENTERPRISES

2 ENTERPRISE ASSOCIATIONS

6/10 NEW PARTNER



HIGH EDUCATION



AUTOMOTIVE TECHNOLOGY
CHAIN LEADER



AEROSPACE TECHNOLOGY
CHAIN LEADER



SOFTWARE TECHNOLOGY
PROVIDERS



HARDWARE TECHNOLOGY
PROVIDERS



SERVICE INTEGRATORS



END USERS

+ CIM
4.0

RESOURCES & ASSETS



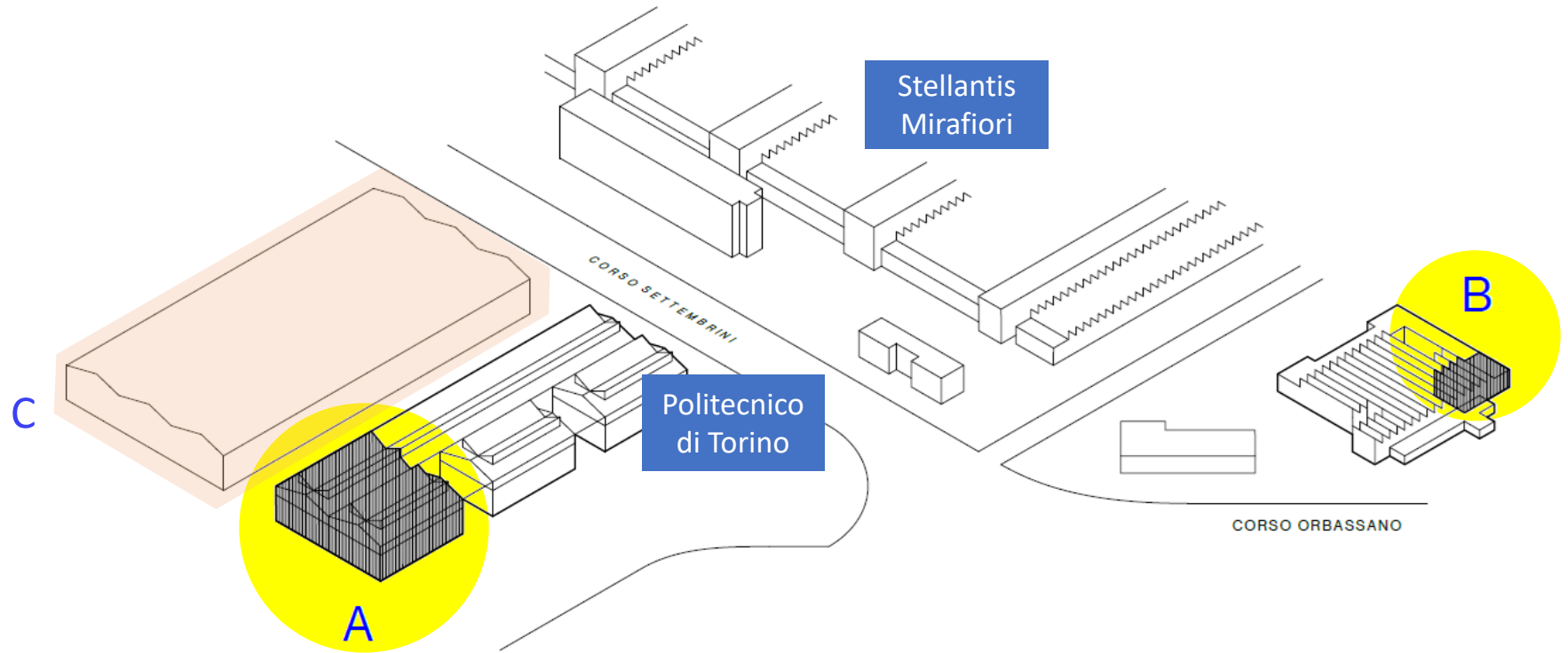
PEOPLE

- + **#15 CIM4.0 specialized personnel**
- + **#138 professional employees** of the Consortium members involved in the activities through several Working Groups (WG)
 - 82 senior resources
 - 34 junior resources
 - 7 associate professors
 - 15 full professors

ASSETS

- + 2 open spaces / 20 workstations
- + 2 equipped areas dedicated to training
- + Possibility to access the learning centers of our consortium
- + **2 Pilot Lines: cutting-edge technologies and machinery**
 - + **DIGITAL FACTORY**
 - + **ADDITIVE MANUFACTURING**

LOCATIONS



- | | |
|--|---------|
| A – Sede centrale CIM4.0, corso Settembrini 178 | 2100 mq |
| B – Additive Manufacturing Pilot Line, strada della Manta 22 | 800 mq |
| C – New spaces | 4000 mq |

CORE COMPETENCES

UPSKILLING & RESKILLING



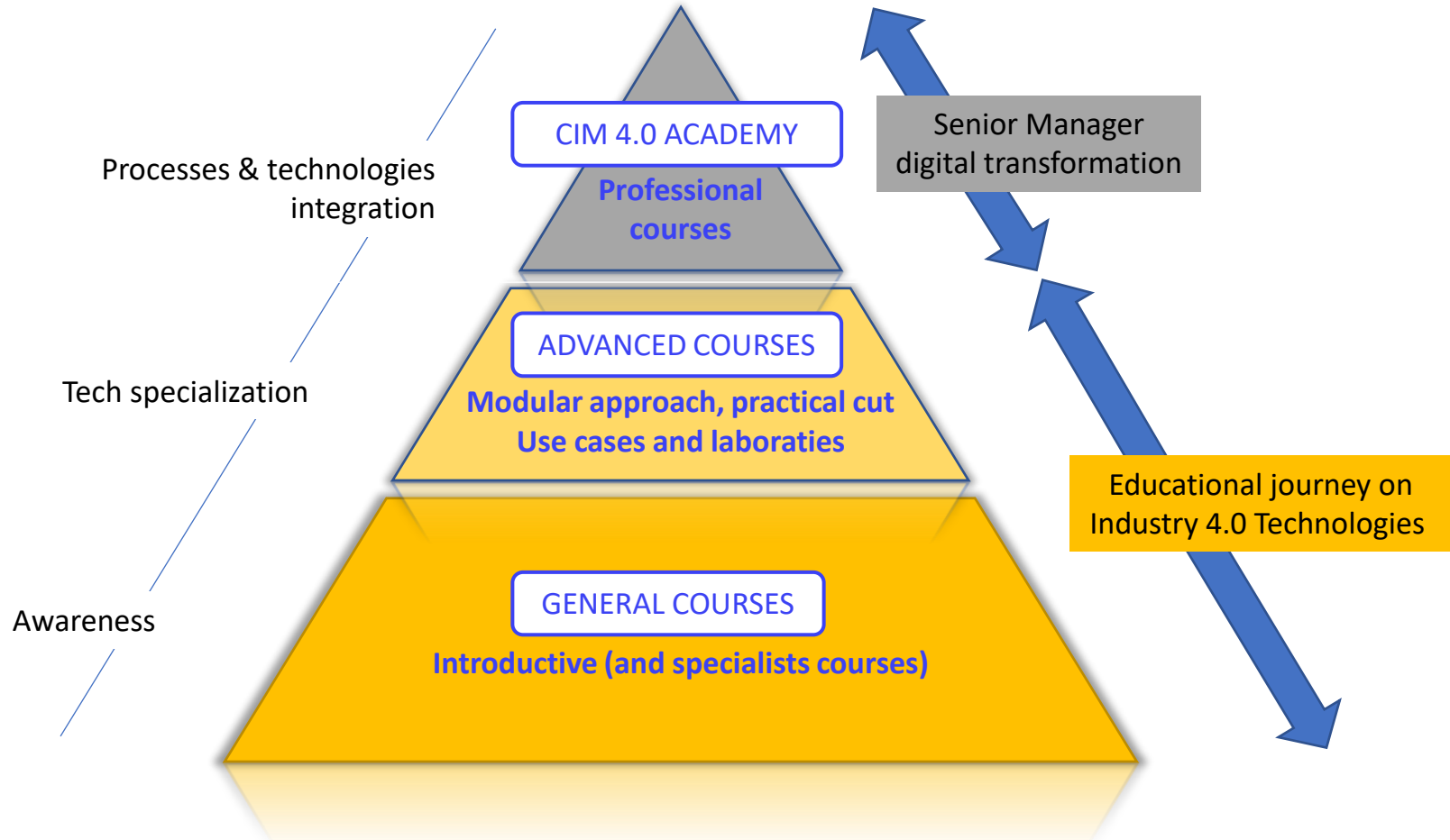
ADDITIVE MANUFACTURING



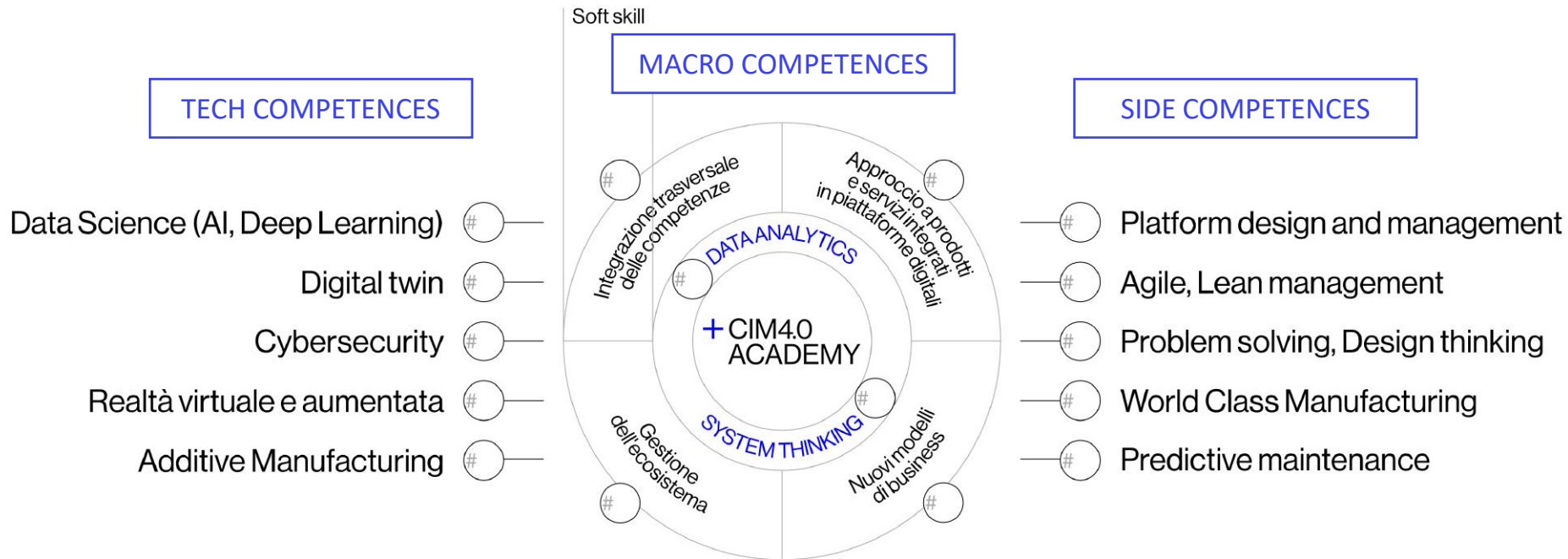
DIGITAL FACTORY



EDUCATIONAL OFFERING



CIM4.0 ACADEMY

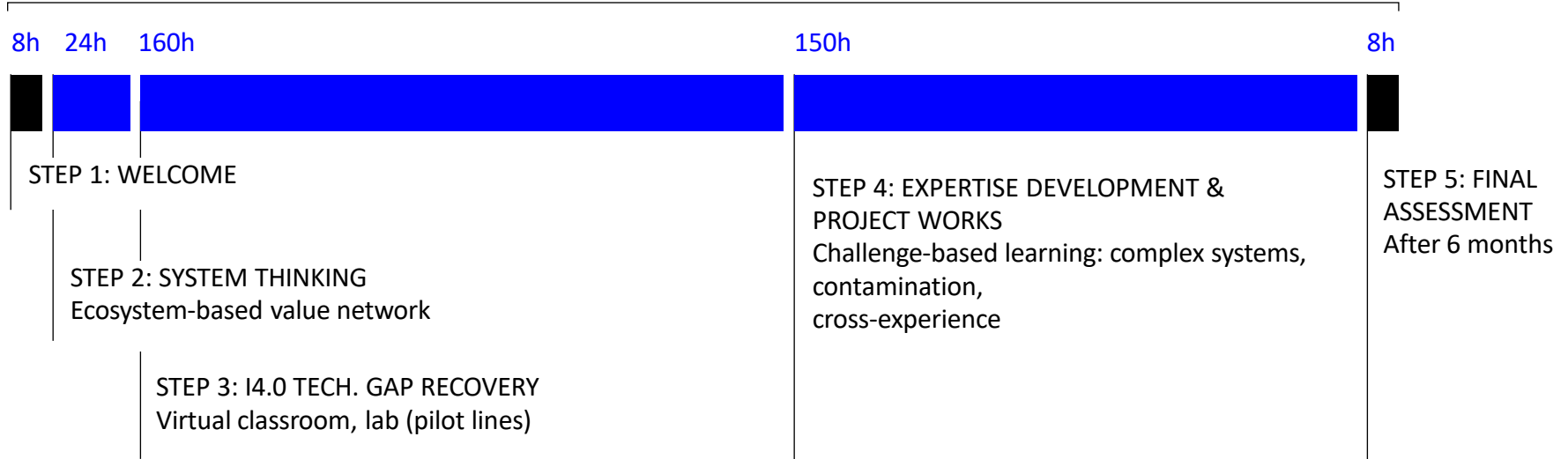


DIGITAL TRANSFORMATION

CIM4.0 ACADEMY

TRAINING PATH STRUCTURE

350 hours



LANGUAGE Italian

FORMAT Part time (2h Tuesday, 2h Thursday, 8h Friday, 4h Saturday)

MODE Hybrid, virtual classrooms and classroom attendance (C.so Settembrini 178, Turin, Italy)

TEACHERS Professors from the academy and subject matter expert from the industry

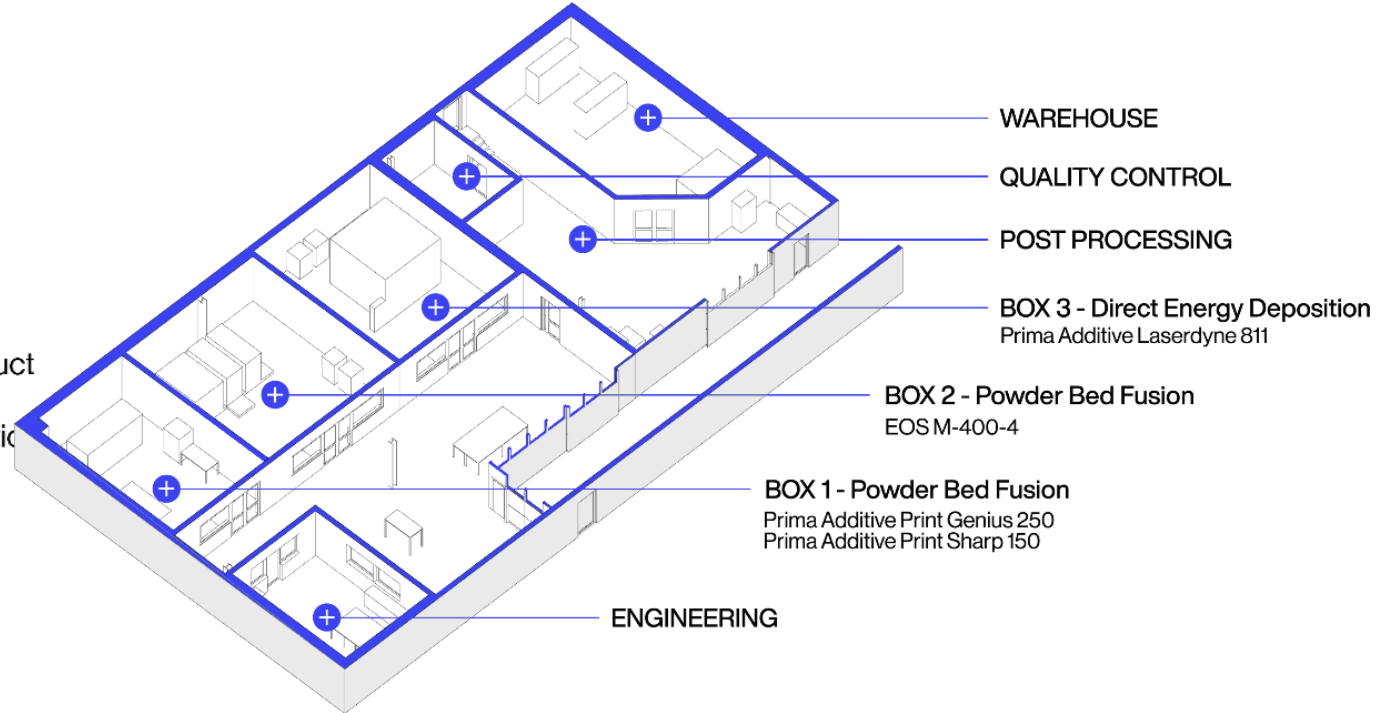
ADDITIVE MANUFACTURING PILOT LINE

COMPETENCES

- + AM Machines
- + AM Processes
- + Powders and materials
- + Design and modelling for AM

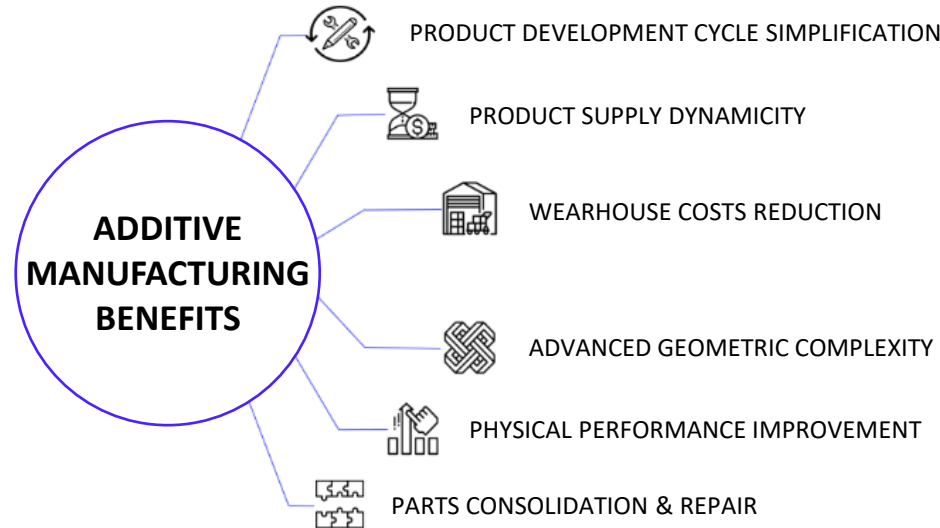
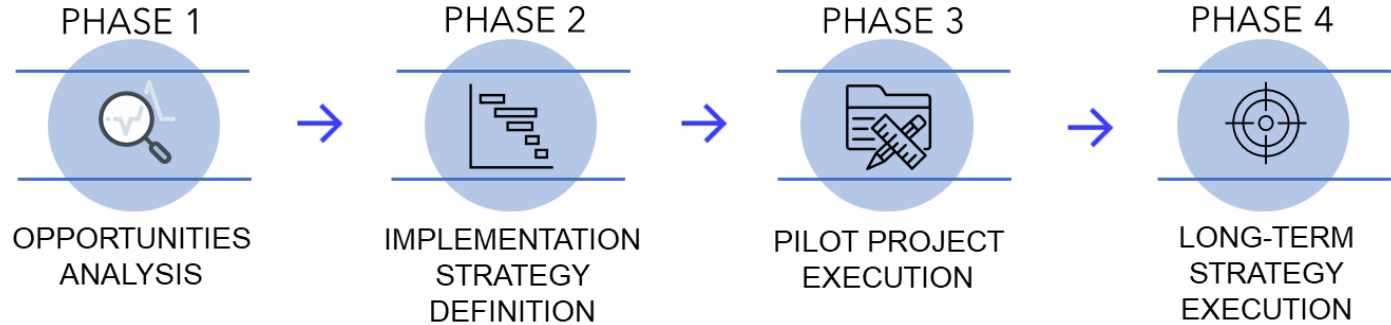
SERVICES

- + Product development
- + Process parameters definition
- + Best practices definition and product certification
- + Prototypes and pre series production
- + Business and cost analysis
- + Training



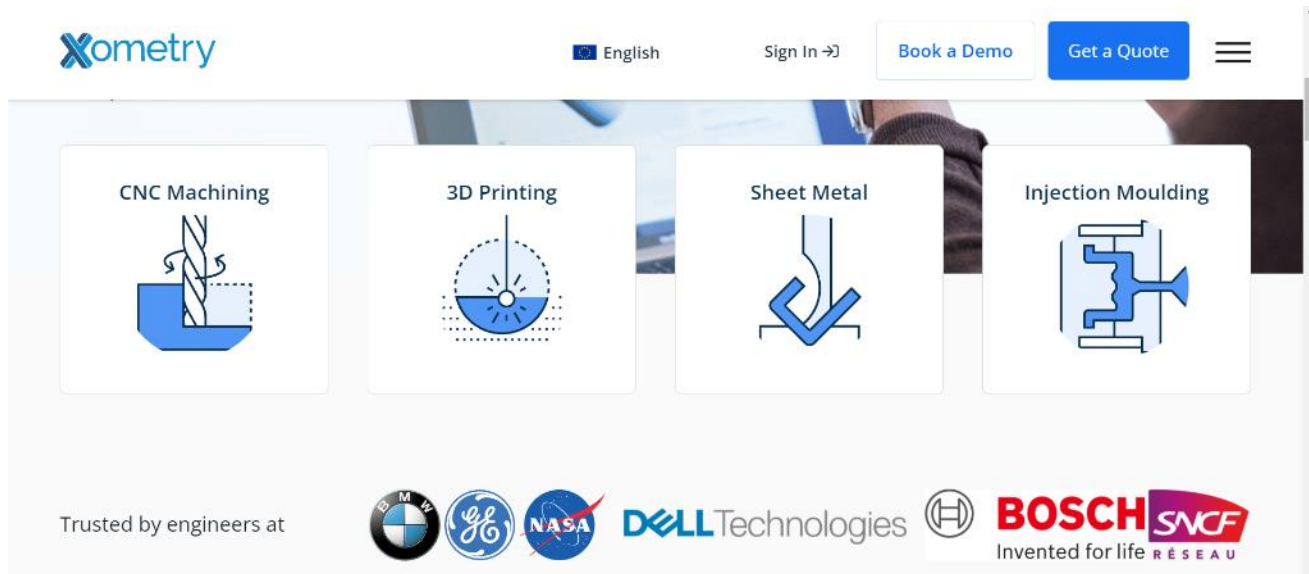
PILOT LINES SPACES
Strada della Manta 22, Torino

AM PROJECTS APPROACH



ADDITIVE MANUFACTURING PILOT LINE ACHIEVEMENT

The German company Xometry Europe (<https://xometry.eu>) has accredited CIM4.0 as a partner for the realization of pieces and samples made in AM: according to their indications, at CIM three samples with different contents and difficulties, the quality of the product was verified through an ad hoc check list, the pieces sent to their headquarters for certification and now, having obtained the positive opinion, we will be able to access their online platform and agree to perform some work for third parties, depending on the price offered, the technology and materials required.



EXAMPLE PROJECT: TORINO FILM FESTIVAL AWARD

CHALLENGE:

CREATION OF UNIQUE AND PUCLIARI OBJECTS



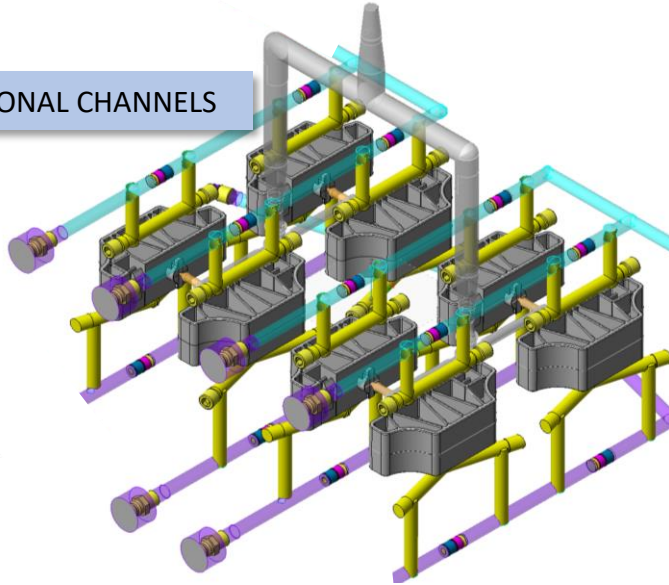
From the collaboration with CIM4.0 and the Politecnico di Torino, the new Torino Film Festival award was born. The award is a tribute to the city of Turin and its symbolic building, the Mole Antonelliana. Through PBF technology, a scale version of the star placed on its top was recreated and a base was designed that recalls its structure.

EXAMPLE PROJECT: CONFORMAL CHANNELS

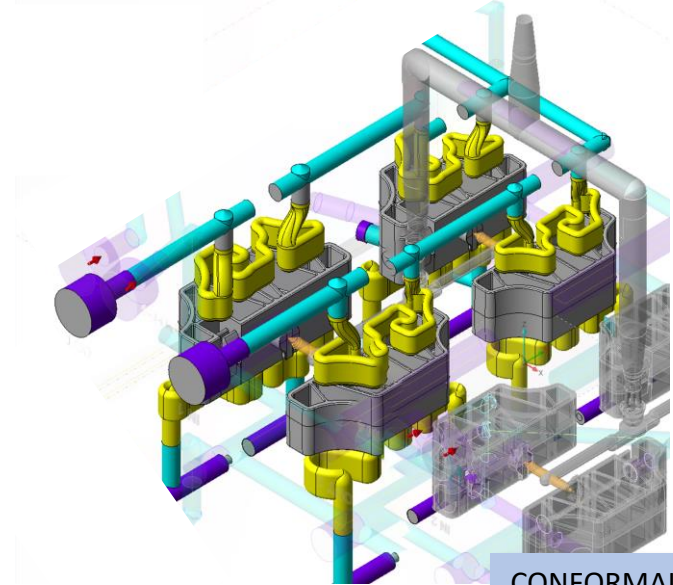
CHALLENGE: ADDITIVE PRODUCTION OF INSERTS FOR TRADITIONAL PRODUCTION

In the field of plastic injection, we are working on the redesign of an insert using the Design for Additive Manufacturing (DfAM) and studying the possible yields and improvements compared to the mold produced with traditional technologies.

TRADITIONAL CHANNELS



CONFORMAL CHANNELS



Involved partner

- Politecnico di Torino – centro IAM
- Reply Protocube

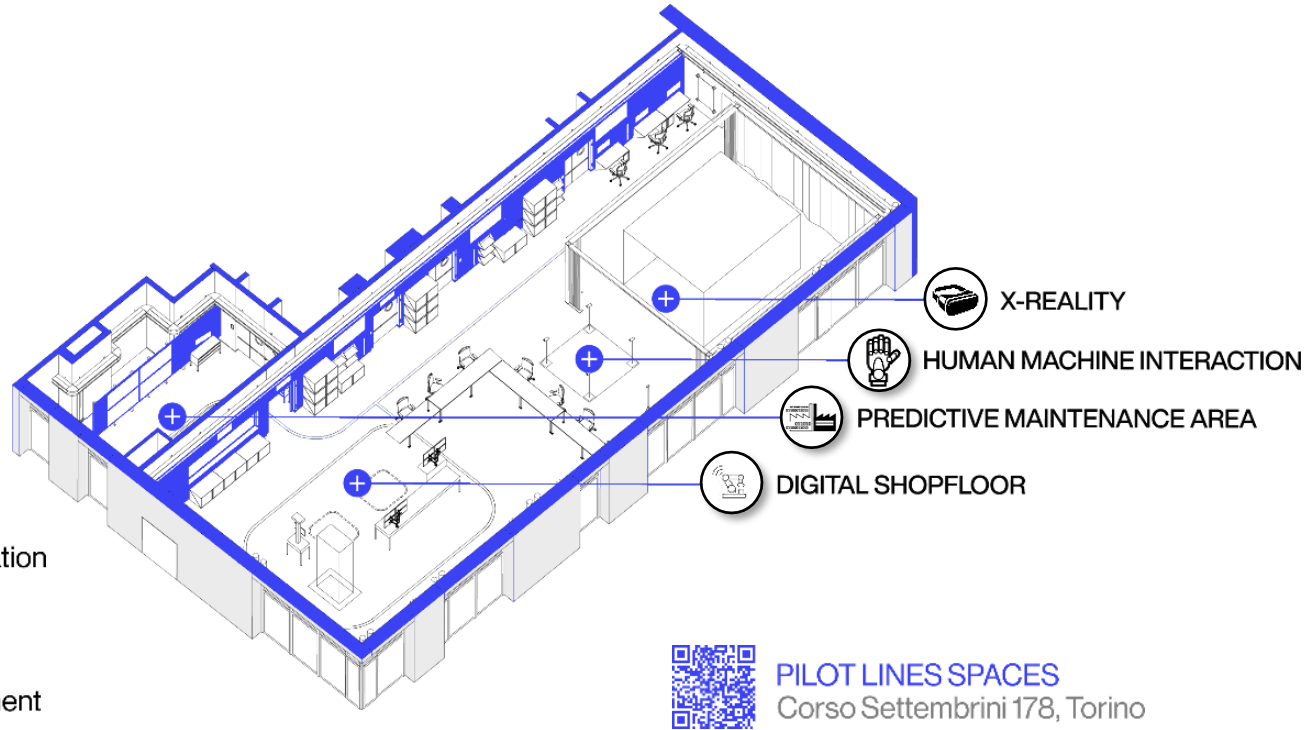
DIGITAL FACTORY PILOT LINE

COMPETENCES

- + Industrial process digitalization
- + Artificial Intelligence
- + Industrial IoT
- + Predictive maintenance
- + Human machine interaction
- + Extended Reality
- + Indoor locating technologies
- + Next Generation Network
- + OT-IT Cybersecurity
- + Digital Retrofitting

SERVICES

- Strategic consulting
- Industrial process analysis and optimization
- Prototyping and POC development
- Field Trial deployment
- System integration
- Virtual experience design and development
- Test before invest



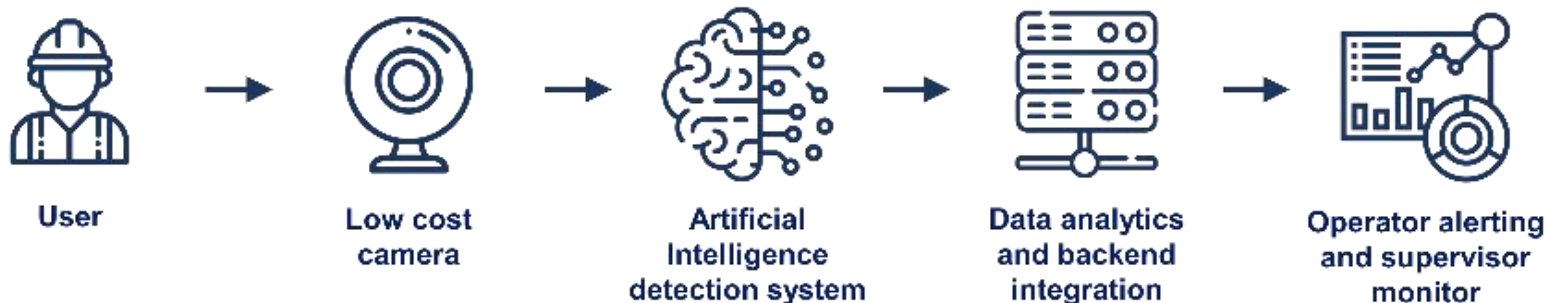
PILOT LINES SPACES

Corso Settembrini 178, Torino

EXAMPLE PROJECT: COLLABORATION WITH A LE ON AI

CHALLENGE:

ACTIVE AND REAL TIME CONTROL SYSTEM TO CHECK ACTUAL PPE USAGE, CONSIDERING REAL PLANT ISSUE TOWARDS A LARGE-SCALE ADOPTION



TERMOLI POWERTRAIN PLANT
MILLIPORE ROOM – ENGINE 2.9 V6
QUALITY CHECK ON MACHINED
CYLINDER HEADS, CRANKSHAFT AND
ENGINE BLOCKS

EXAMPLE PROJECT: PROGETTO POC CORSETTO IOT K1

CHALLENGE:

TO TRANSFORM AN EXISTING PRODUCT INTO SMART CONNECTED ONE

PARTNER:

DUALSAN ITALY, CIM4.0, REPLY CONNECT, STM



Cradle eXpansion SWD connection



Media mobile W = 5 (Y-MA5)



EXAMPLE PROJECT: TO IMPROVE EFFICIENCY THROUGH MACHINE LEARNING

CHALLENGE:

PREDICT THE QUALITY AND MAINTENANCE OF MACHINERY

PARTNER:

CIM40, SKF, ALTEN



Development of a system that, through **machine learning**, can predict the quality and maintenance of machinery, correlating all the production data available continuously with the result of the process. **Today in use in an SKF factory in Italy!**



STRUMENTI CONSOLIDATI DI RACCLTA DATI

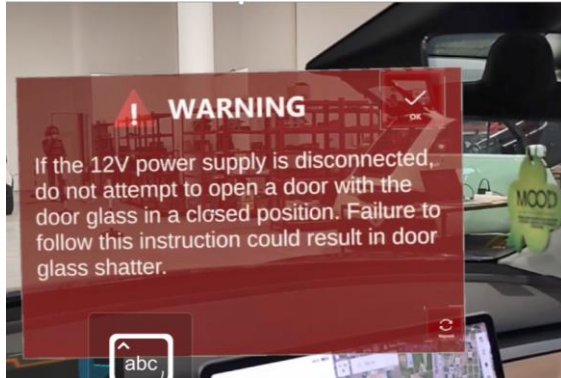


DIAGNOTICA REMOTA

EXAMPLE PROJECT: SMART MAINTENANCE

CHALLENGE:

AUGMENTED REALITY SYSTEMS DEVELOPMENT (AUGMENTED OPERATOR)



Using AI to train algorithm that recognizes objects in the scene



Flexible and easily re-trainable system for maintenance, assembly, training applications with augmented reality

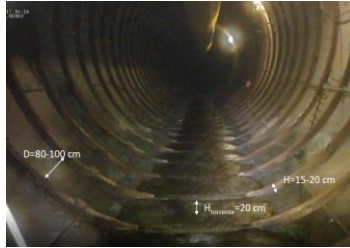
Procedura Tesla Model 3 - AR

EXAMPLE PROJECT: COLLABORATION WITH A LE ON A SPECIAL PROJECT

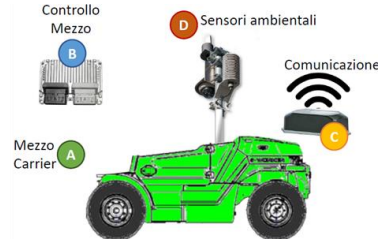
CHALLENGE:

HARSH TUNNEL ENVIRONMENT EXPALORATION TO MEASURE GASSES COMPONENT, TO ENSURE WORKER SAFETY

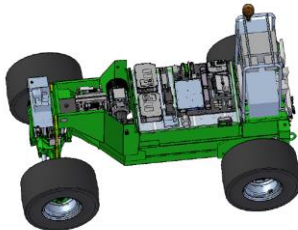
CHALLENGE



VALUE PROPOSITION



DESIGN



CUSTOMER



+ CIM
4.0

TEAM



DEVELOPMENT



PROTOTYPE TESTING



INSPECTION EXCUTION

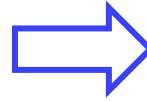


+ CIM
4.0

INNOVATION PROJECT FUNDING

TOTAL ASSAGNIED BUDGET FOR
INNOVATION PROJECTS SUPPORT

3,4 M€



33 projects funded and started

53 companies involved in partnership

100% of the resources allocated through 2 public calls
project activities monitoring ongoing

FIRST ROUND
PMTI4.0 PROGRAM

- FUNDED PROJECT: **16**
- INVOLVED COMPANIES: **18**
- Contribution for admitted projects: **€360.000**

SECOND ROUND
PRIA_I4.0 PROGRAM

FUNDED PROJECT: **17**
INVOLVED COMPANIES: **37**
Contribution for admitted projects: **€3,040.000**
Contribution for eligible but not fundable
projects: **€11.180.000**

EU FUNDED PROJECT



Demonstration Cases



FOOD



AUTOMOTIVE



BEVERAGE



WHITE GOODS



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 958373.



Enabling manufacturing industries to optimize the energy performance of their production systems in line with their relevant production constraints (time and resources)



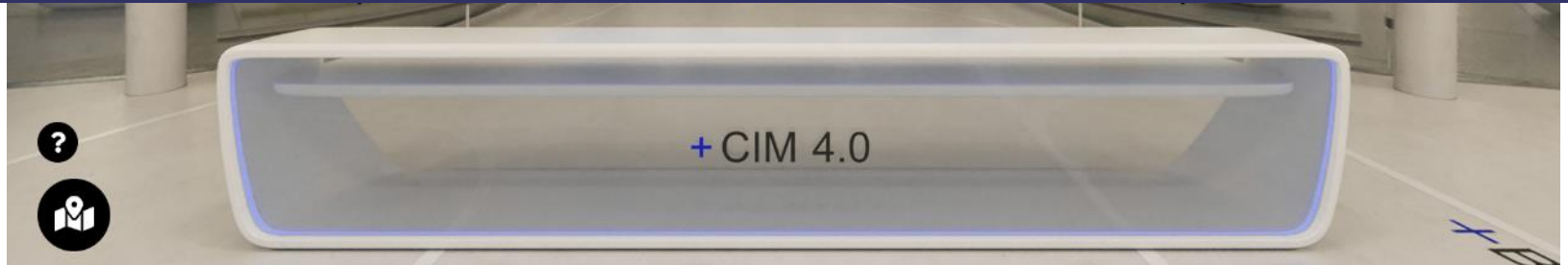
Introducing a novel green marketing approach through the concept of energy and environmental signature of the manufactured products from a life-cycle

+ CIM
4.0

VIRTUAL INTERACTIVE ENVIRONMENT



ENTER



+ COMPETENCE
INDUSTRY
MANUFACTURING
4.0

Thank you!

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POLOICT
JOIN THE INNOVATION



D!H.P DIGITAL
INNOVATION
HUB
PIEMONTE



+ CIM4.0

