

SCIENZA E INDUSTRIA: SINERGIE E VALORIZZAZIONE DELLE PMI.

Ciclo di 6 incontri, febbraio - aprile 2021

CIM 4.0: IL RIFERIMENTO NAZIONALE SULLA MANIFATTURA ADDITIVA E SULLA DIGITAL FACTORY PER PMI E START-UP INNOVATIVE.

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CEO Competence Industry Manufacturing 4.0

partecipa: Danisi Engineering Srl

8
APRILE
2021

modalità on line
ore 17.30 - 19.00

modera:
Filomena Greco
Il Sole 24 Ore

COMPETENCE CENTERS within the Italian strategy

The National Industry 4.0 Plan launched by Italian government in 2017 led to the creation of three entities, which constitute the Italian national network for Industry 4.0



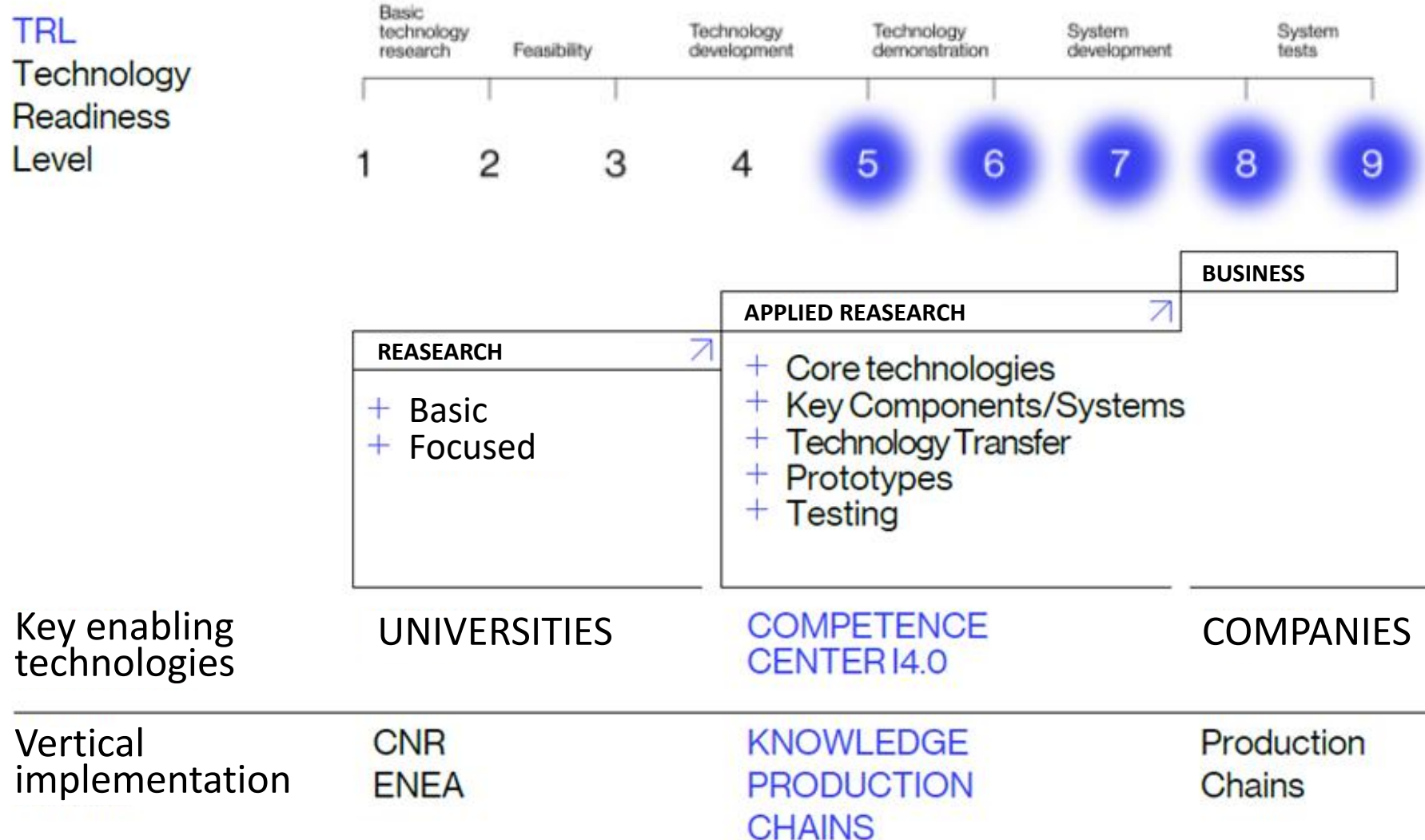
1. **PUNTI IMPRESA DIGITALE (PID)**: service structures located at the various Italian Chamber of Commerce, whose main aim is spreading basic knowledge about Industry 4.0 technologies and **give an evaluation of technological maturity level** (TRL) of Factories
2. **DIGITAL INNOVATION HUBS (DIH)**: entities led by networked organizations (CONFINDUSTRIA, CONFARTIGIANATO). They operate at regional level with the main aim of **orienting SMEs into digital innovation**
3. **COMPETENCE CENTERS (CC)**: **8 centers** of excellence for Industry 4.0, that operate at national level. They are distinguished by specialization areas and deal with **training, orientation and project development**

The 8 Italian COMPETENCE CENTER

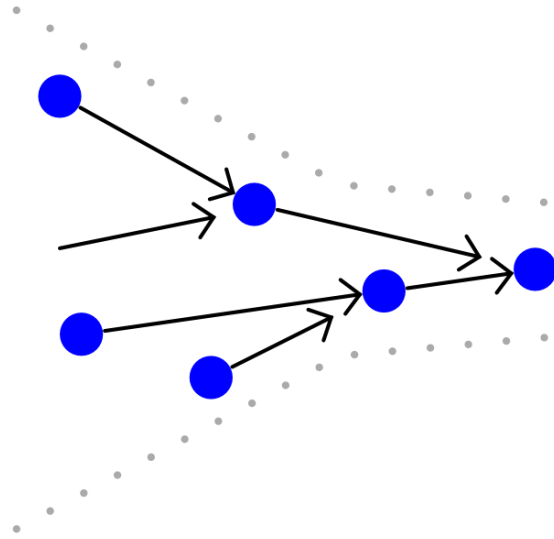


Competence Center	Reference Research Centers	Investigation Areas
CIM4.0	Politecnico of Turin University of Turin	<ul style="list-style-type: none"> Aerospace/Automotive Digital Factory Additive Manufacturing
MADE	Politecnico of Milan	<ul style="list-style-type: none"> Enabling technologies Cyber-physics systems
BI-Rex	University of Bologna	<ul style="list-style-type: none"> Smart city & Logistics Big data
Artes 4.0	Scuola Superiore Sant'Anna of Pisa	<ul style="list-style-type: none"> Advanced Robotics AI
Smact	University of Padova and al.	<ul style="list-style-type: none"> Agribusiness Clothing & Furniture Automation
Start 4.0	University of Genova and al.	<ul style="list-style-type: none"> Cybersecurity Safety (freight transport and infrastructure)
Cyber 4.0	University "La Sapienza" of Rome	Cybersecurity
MedITech	University "Federico II" of Napoli and al.	Integration 4.0: Horizontal and Vertical

Technology development focus

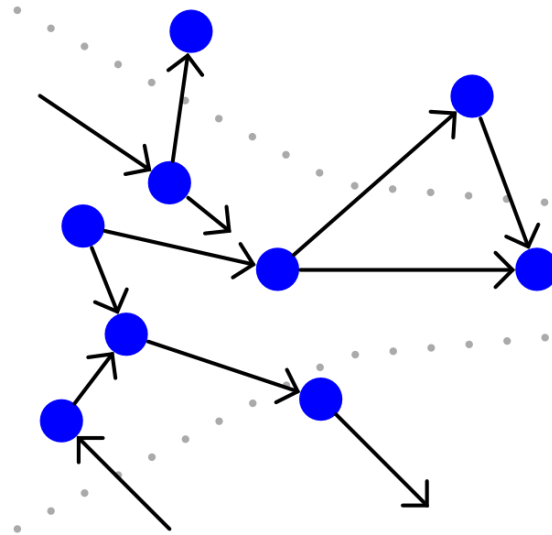


Innovation approach



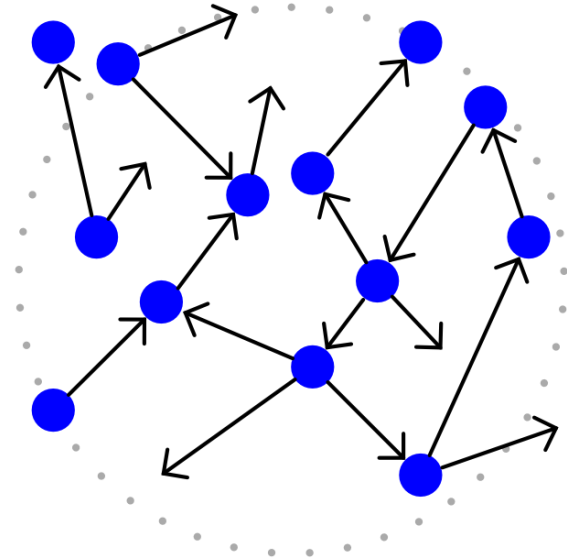
Centralized
inward looking
innovation

**CLOSED
INNOVATION**



Externally focused,
collaborative
innovation

**OPEN
INNOVATION**

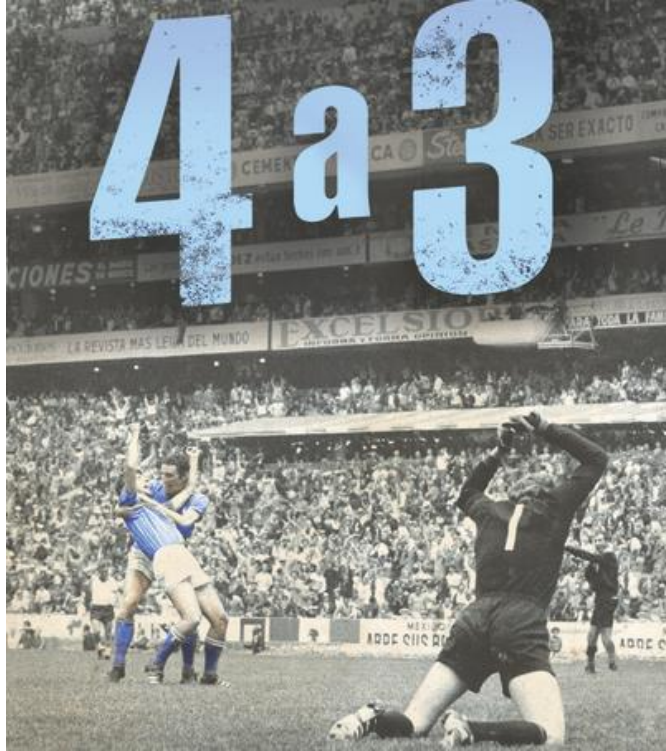


Ecosystem centric,
cross-organizational
innovation

**INNOVATION
NETWORKS
ECOSYSTEMS**

Competitive context

1970

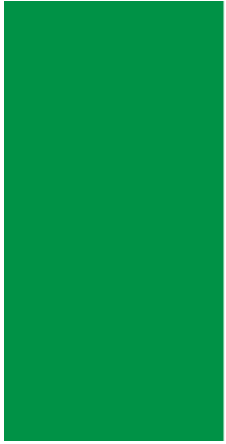


1982



NELLO STESSO PERIODO -la maggior casa produttrice del continente europeo e terza a livello mondiale, dopo le statunitensi General Motors Co. e Ford Motor Co., per un ventennio, fino all'esplosione della crisi dell'industria automobilistica torinese iniziata alla fine degli anni ottanta.....

Competitive context (Automotive)



1

:

10

Competitive context (Automotive)

Direct automotive manufacturing jobs

BY COUNTRY
2018

Austria	39,569	France	229,422	Poland	213,708
Belgium	28,768	Germany	882,046	Portugal	42,358
Bulgaria	23,777	Greece	1,737	Romania	190,848
Croatia	2,919	Hungary	101,865	Slovakia	81,273
Cyprus	168	Ireland	3,000	Slovenia	15,887
Czech Republic	181,415	Italy	176,303	Spain	162,634
Denmark	4,317	Latvia	2,317	Sweden	90,473
Estonia	2,880	Lithuania	6,163	United Kingdom	166,228
Finland	10,199	Netherlands	25,204		



ACEA

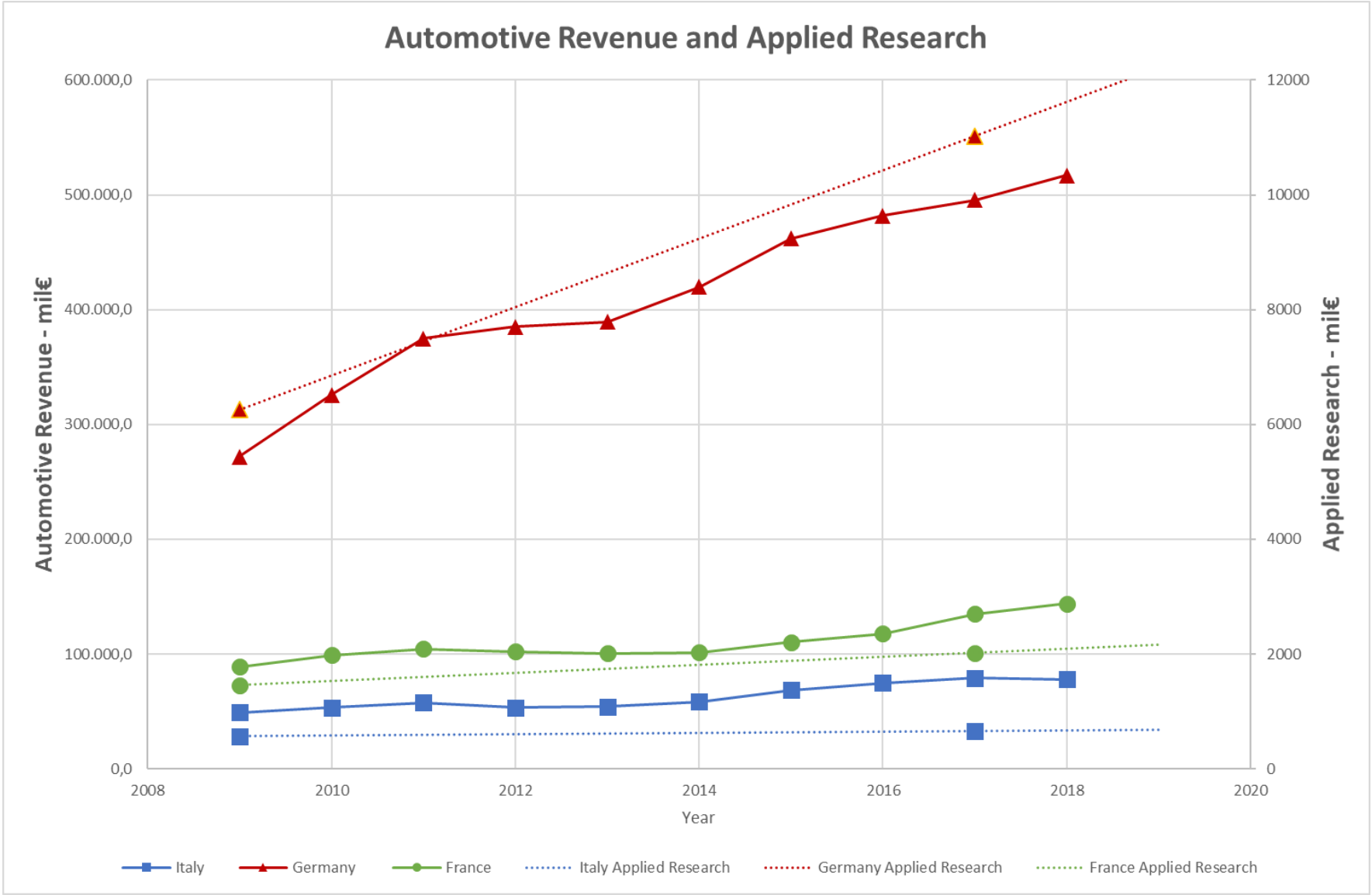


EUROPEAN UNION 2,685,478

Top 5 🏆 European countries with the most [#automotive](#) manufacturing [#jobs](#) 🧑

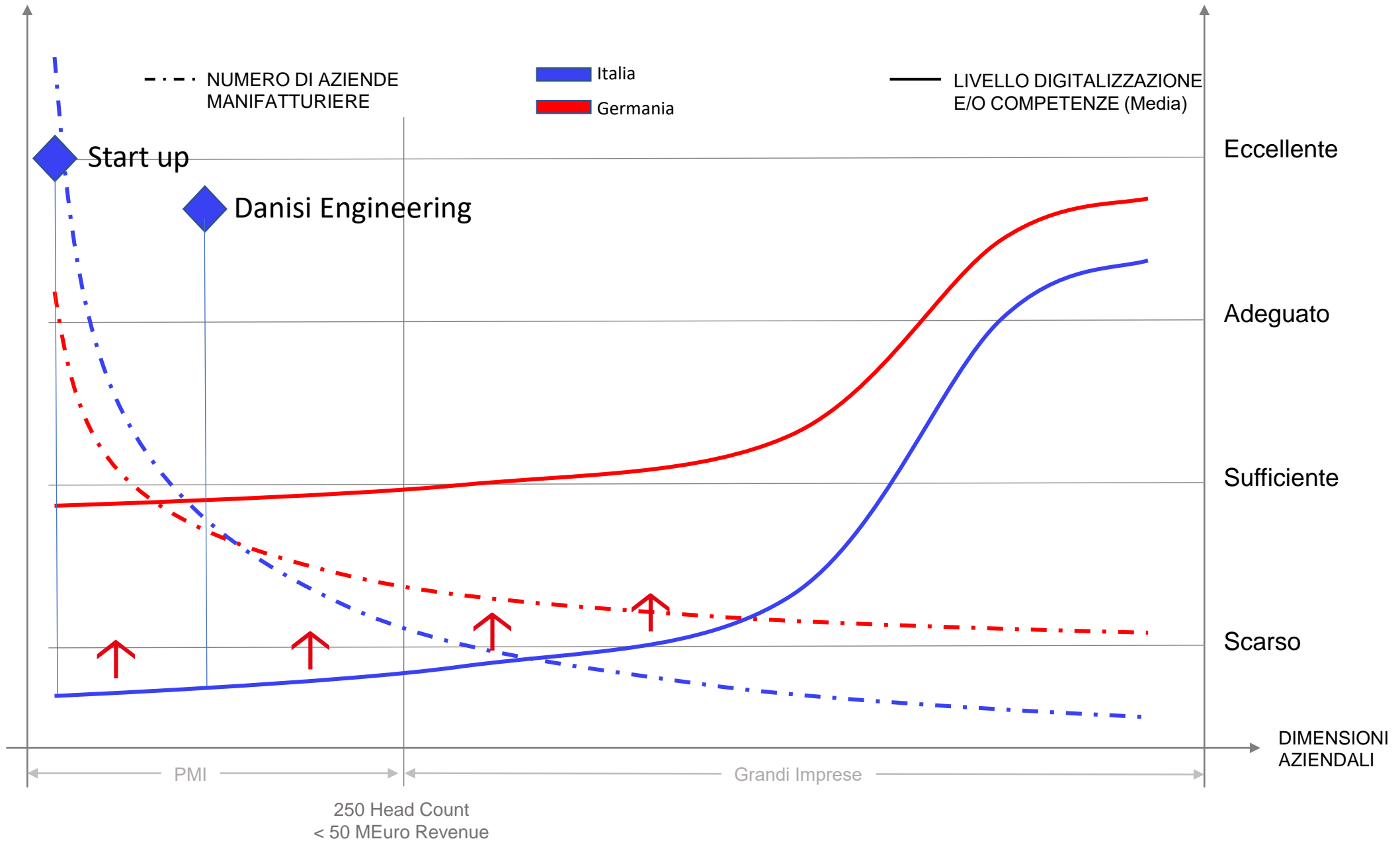
- 1 Germany = 882,046 >30%
- 2 France = 229,422
- 3 Poland = 213,708
- 4 Romania = 190,848
- 5 Czech Republic = 181,415

Competitive context



Dati OCSE

Competitive context





Consortium Partner



+2 universities

- Politecnico di Torino

- Università di Torino



+23 enterprises

+ CIM
4.0

Consortium value chain

- + Software Technology Providers
- + Hardware Technology Providers
- + Service Providers
- + Automotive Technology Chain Leader
- + Aerospace Technology Chain Leader
- + End Users

Resources, competencies & assets



PEOPLE

- + **#15 CIM4.0 specialised personnel**
- + **#138 professional employees** of the Consortium members involved in the activities
 - 82 senior resources
 - 34 junior resources
 - 7 associate professors
 - 15 full professors

COMPETENCIES

- + **DIGITAL FACTORY**
- + **ADDITIVE MANUFACTURING**

ASSETS

- + 2 open spaces / 30 PdL / 20 workstations
- + 2 equipped areas dedicated to training
- + Possibility to access the learning centers our consortium
- + **2 Pilot Lines: cutting-edge technologies and machinery**

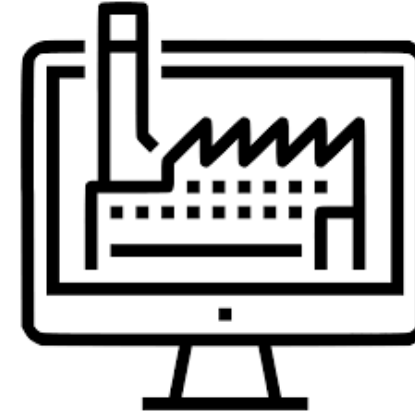
CIM4.0 focus technologies

ADDITIVE MANUFACTURING



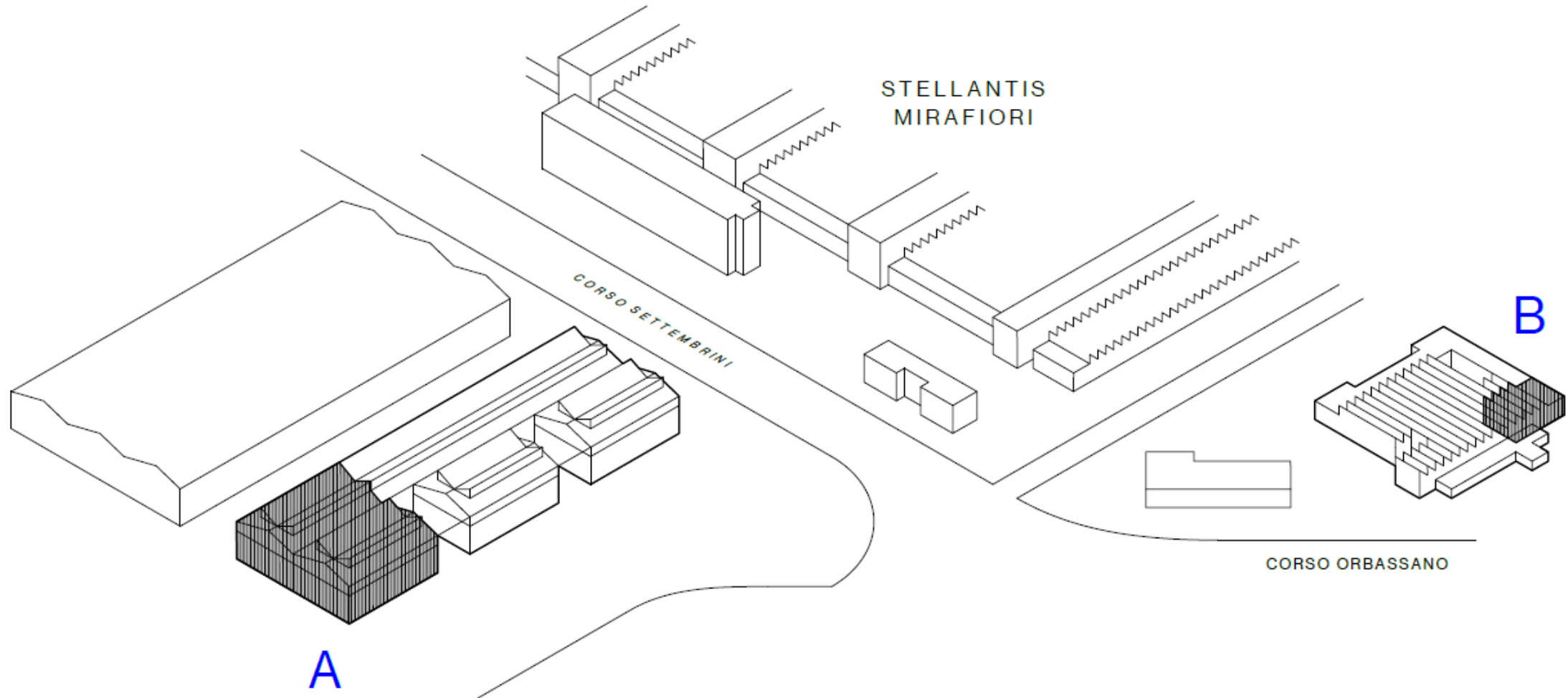
- + Product development
- + Process development
- + Business and cost analysis
- + Materials
- + Quality and certifications

DIGITAL FACTORY



- + Artificial intelligence, Data Analytics, Predictive Maintenance
- + Ergonomic & WCM
- + Industrial IoT, Platforms HW/SW
- + Cyber Security and data protection
- + X-Reality
- + Next generation network

CIM4.0 Location



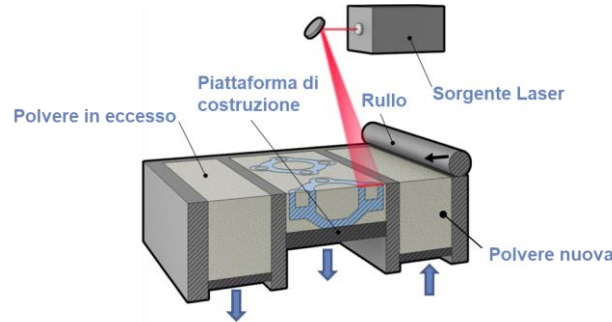
A — Sede centrale CIM4.0, corso Settembrini 178

B — Additive Manufacturing Pilot Line, strada della Manta 22

ADDITIVE MANUFACTURING

Additive Manufacturing Technologies

SLM SELECTIVE LASER MELTING



Realization and production of components with complex geometries of small and medium dimensions that cannot be achieved with traditional manufacturing

Process development: productivity, industrialization, controls on the entire production chain, standardization and automation, validations and certifications

Product development: product validation and product production, cost reduction

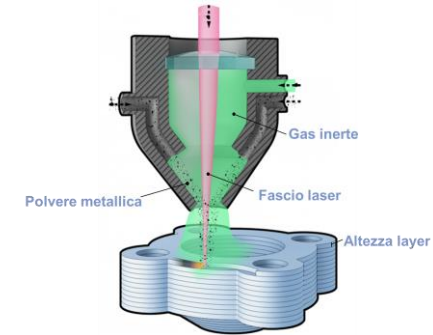
Application development: maturation in the use of technology in SMEs, guides to DFAM and application

TECHNOLOGIES

CONTEXT

OBJECTIVE

DED DIRECT ENERGY DEPOSITION



Repair, coatings, addition of custom details, construction of components with a not complex but large geometry

Process development: deposition quality, accuracy, new materials, productivity and controls during deposition

Application development: identification in application terms of the needs of OEMs and large companies, application maturation and technology transfer

Additive Manufacturing Pilot Line



Location:
Tecnocad, Str. della Manta, 22,
10137 Torino TO

Area:
About 1000 square meter space
available



Print Genius 250



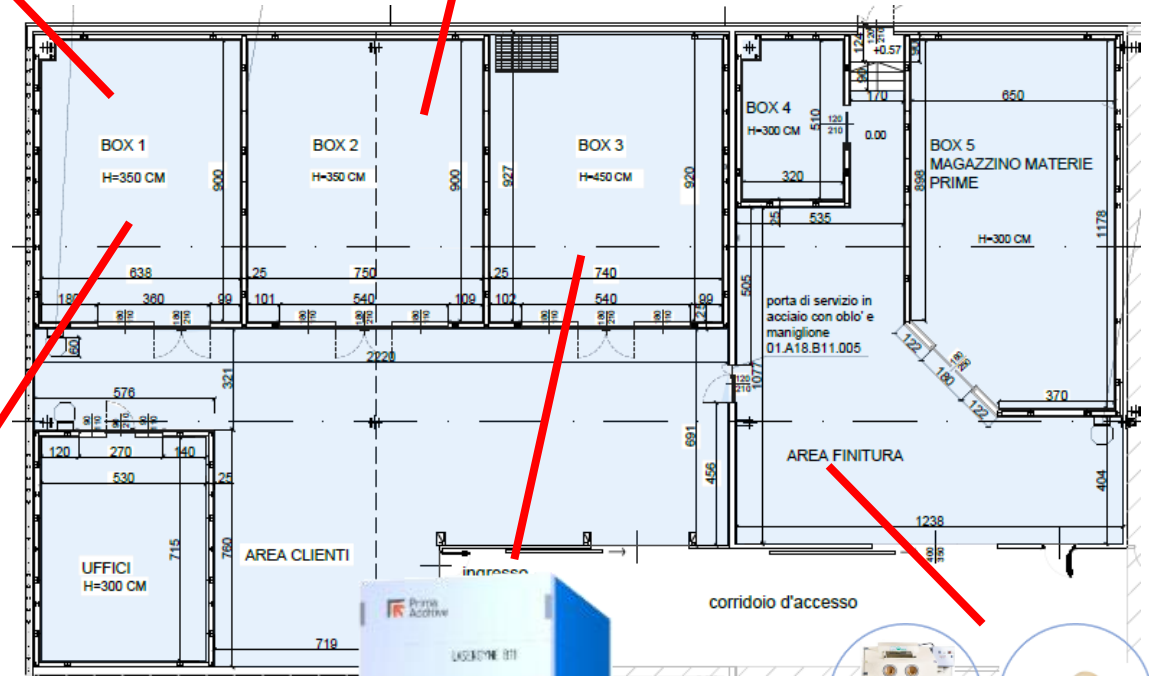
M400-4



Print Sharp 150



Laserdyne 811



Post processing +
metallographic analysis

Additive Manufacturing Pilot Line







Additive Manufacturing services

PRE-PRODUCTION



DESIGN

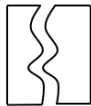
- + Acceleration and simplification of product innovation
- + Customization
- + Increase of design complexity
- + Topological optimization
- + Parts integration



ENGINEERING

- + Prototypes
- + Fast pre-series
- + Development flexibility

PRODUCTION



TOOLING

- + Additive tools to improve performances



PRODUCTION

- + Less scrap and fewer raw materials required
- + Low volumes production
- + Reduction of assembly work

AFTER-SALES



MARKETING

- + Low energy consumptions (green economy)

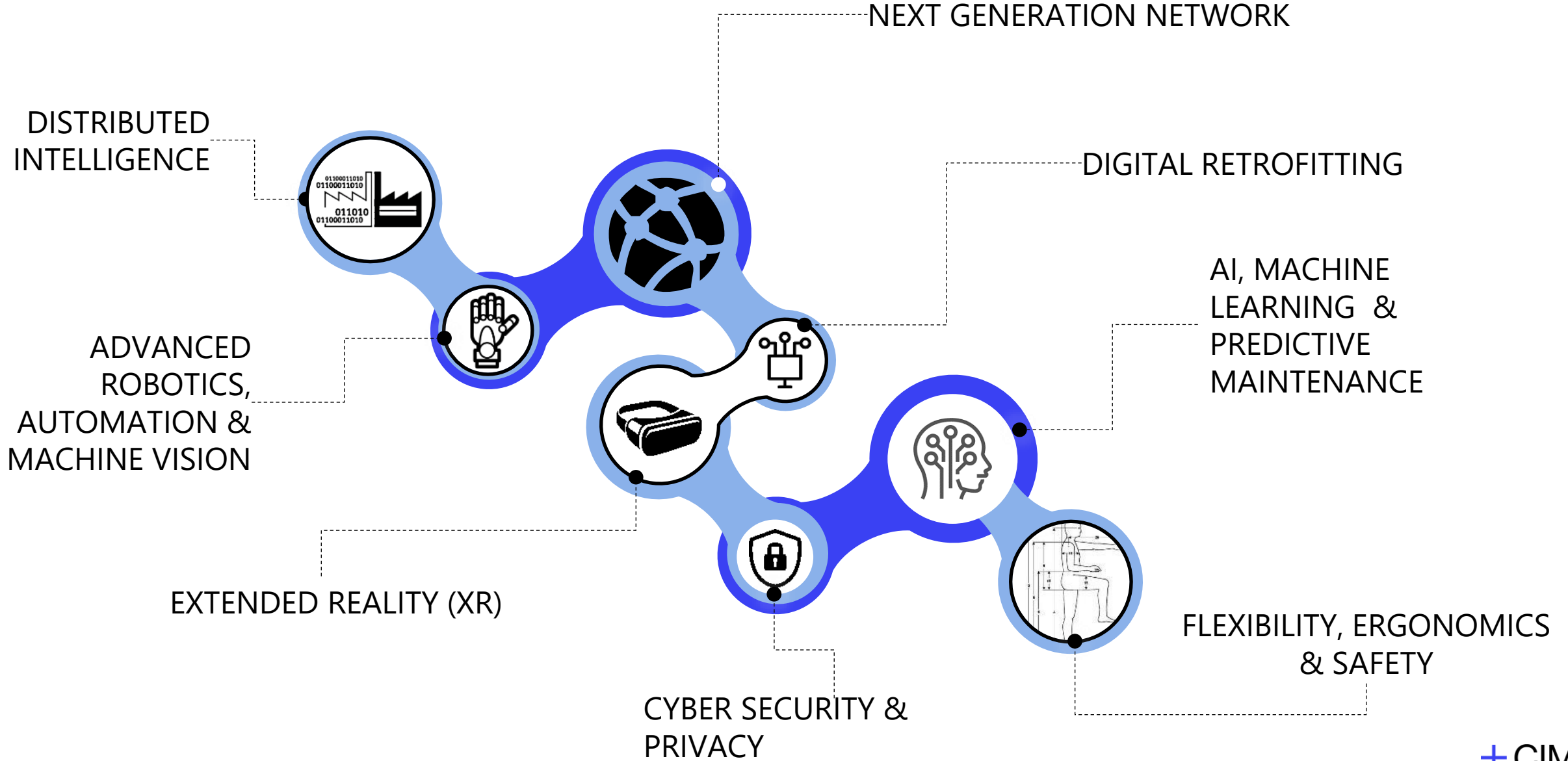


SPARE PARTS

- + Local production enabled
- + Warehouse cost reduction

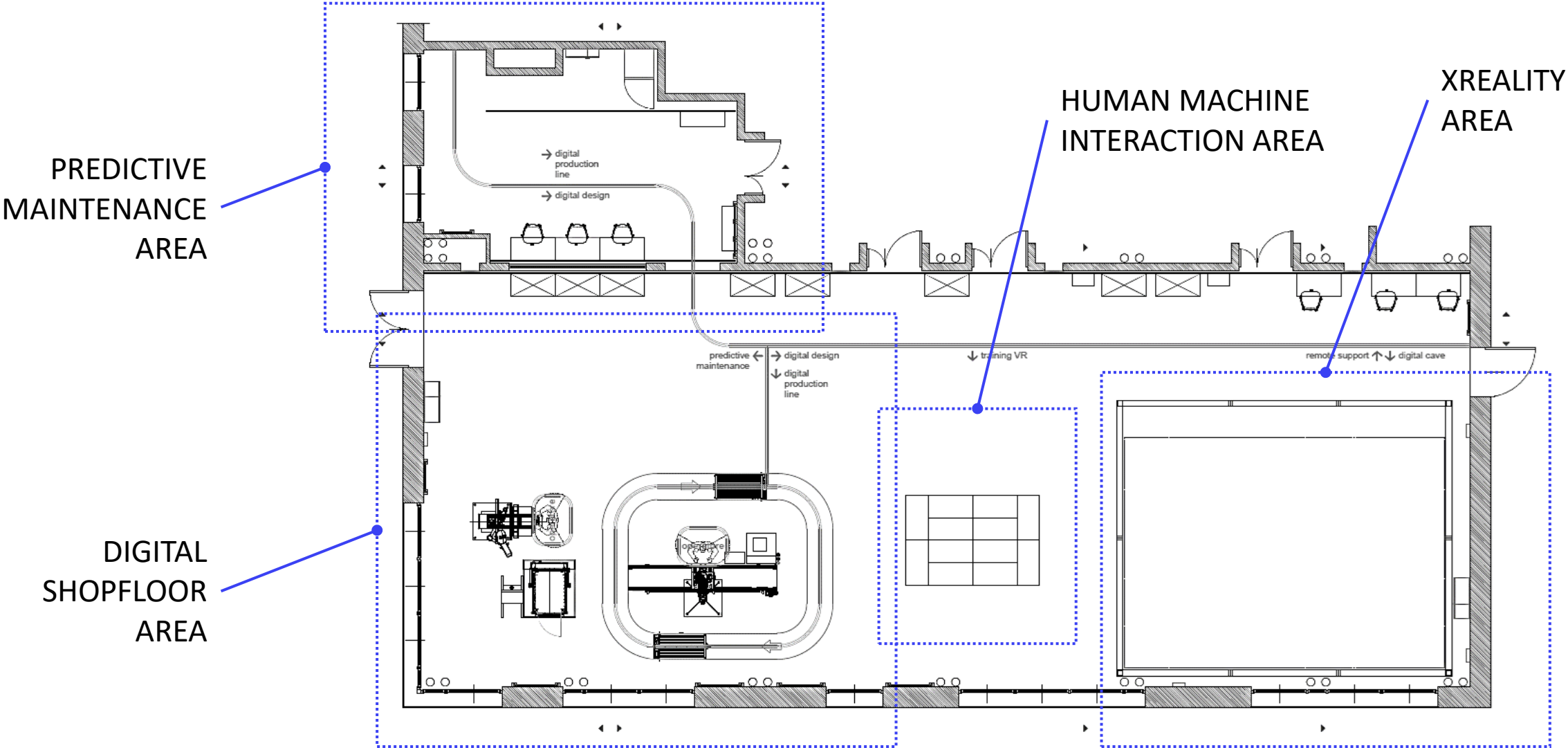
DIGITAL FACTORY

Digital Factory focuses

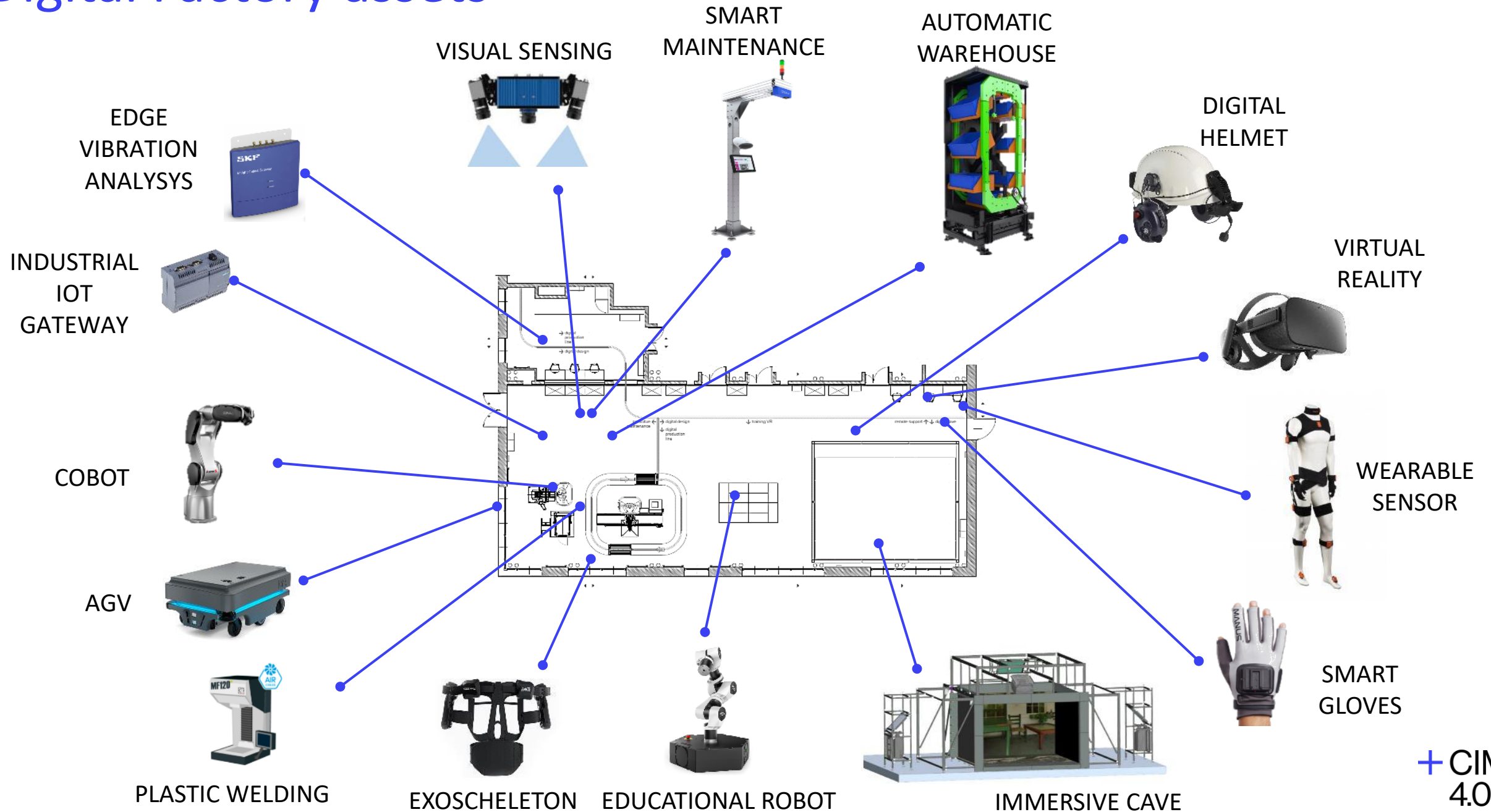


Digital Factory Pilot Line

OVERVIEW



Digital Factory assets





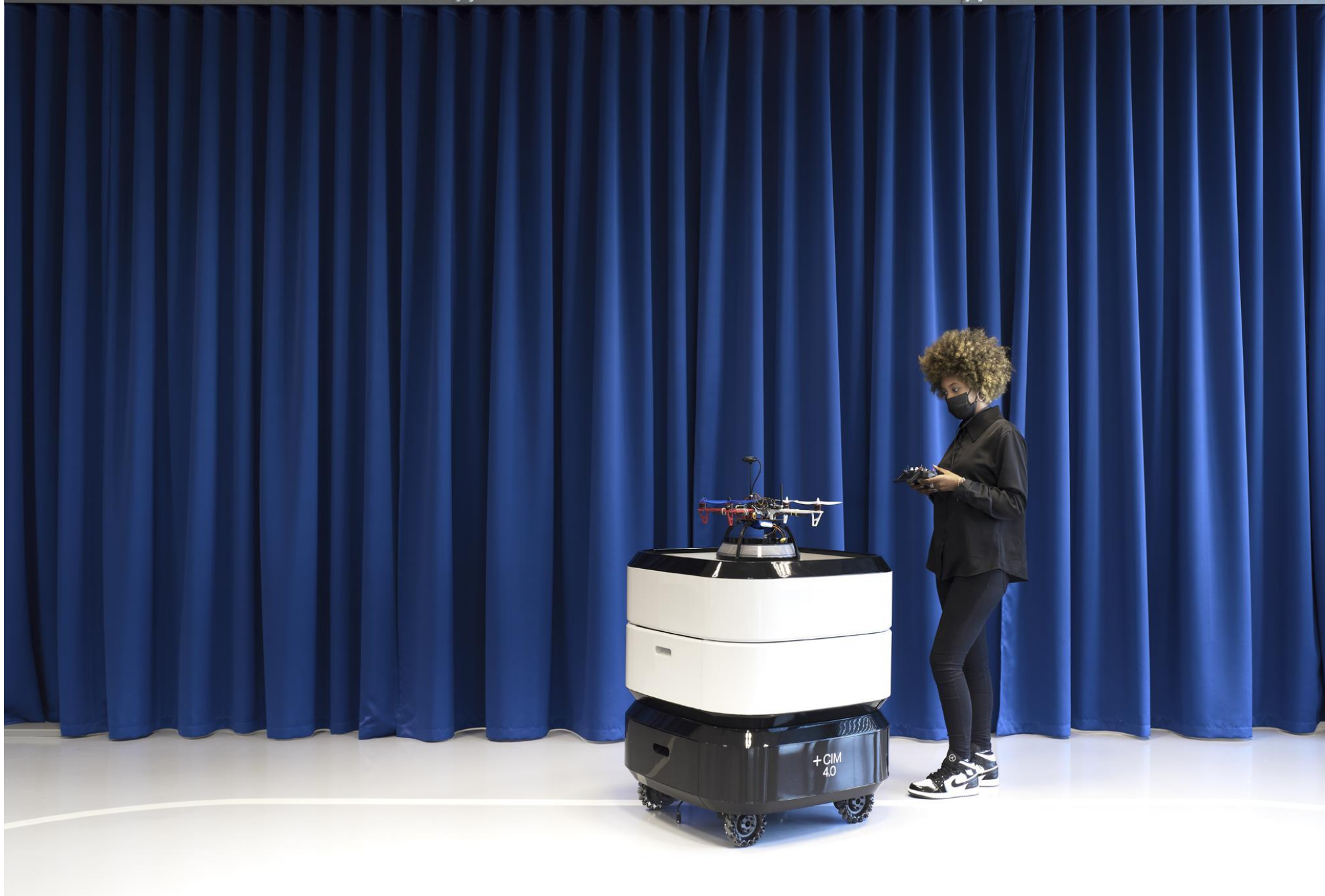




















“In quasi tutti i lavori,
e soprattutto
nello sviluppo
dell'innovazione,
non basta la
conoscenza, ma
ci vuole la
competenza, devi
cioè sapere e
sapere applicare
quanto sai”

GIANCARLO MICHELLONE

EDUCATION – Reskilling / Upskilling

Learning hub

Permanent training center for *skills transfer* toward the digitalization of industrial and business processes.

The training offer (+80 advanced courses) is structured on the basis of skills and assets of the 23 Industrial Consortium Members and of the 2 Academies, which play the role of scientific coordination and carry out the courses



GOALS

- > UPSKILLING
- > RESKILLING



OVERVIEW & EDUCATION

CIM4.0 Learning Hub

- + 80 corsi disponibili
- + 20 corsi realizzati nell'ultimo anno
- + 2.500 partecipanti

CATALOGO CORSI

- + Additive Manufacturing
- + Cyber Security
- + Data Science
- + Metodi e strumenti per la trasformazione digitale
- + Predictive Maintenance
- + WCM
- + Virtual & Augmented Reality

<https://cim40.com/corsi/>

OVERVIEW & EDUCATION

CIM4.0 Learning Hub



+ COMPETENCE
INDUSTRY
MANUFACTURING
4.0

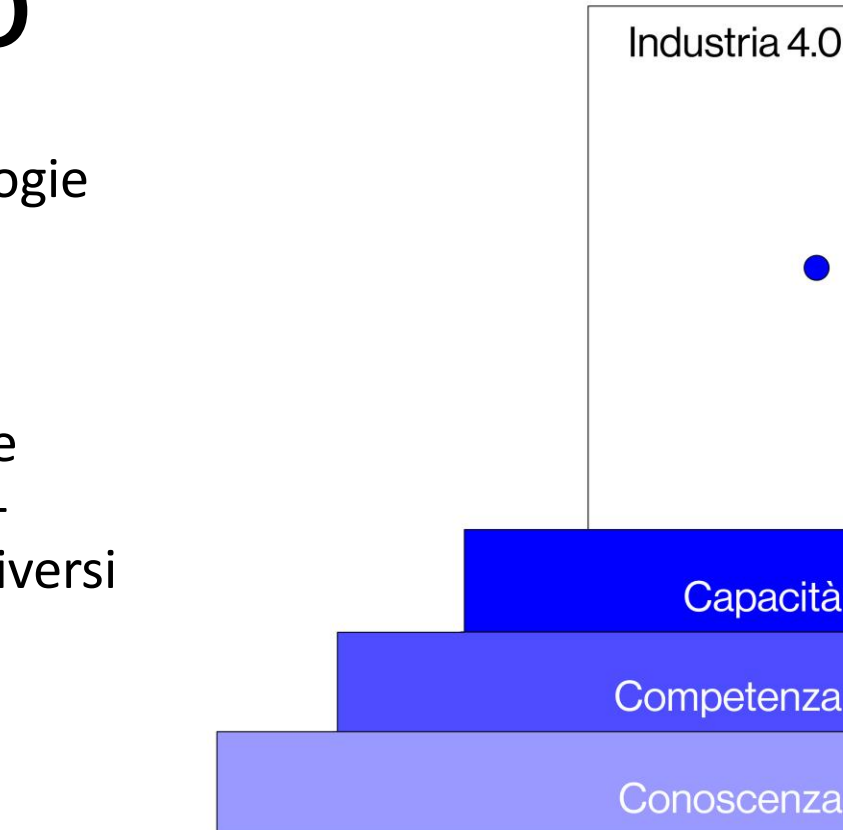
+ CIM4.0 ACADEMY

Enhancing capacity, empowering business

Obiettivo formativo

Formare alle competenze trasversali sulle tecnologie e sui modelli operativi da queste abilitati.

Concretizzare le competenze, attraverso sfide aziendali reali, in capacità di indirizzare, guidare e gestire la trasformazione digitale ed il relativo re-engineering dei processi di aziende operanti in diversi settori industriali e manifatturieri.



Creazione di valore



PARTECIPANTE	IMPRESA	TERRITORIO
Tangibilità dell'acquisizione di capacità tramite applicazione concreta e collaborativa delle competenze	Creazione assets e miglioramento processi per un efficace posizionamento competitivo tramite potenziamento rapido delle capacità delle risorse con applicazione trasversale delle competenze	Miglior qualificazione del mercato del lavoro e attrattività per investimenti in industria e servizi
Gestione consapevole del percorso di crescita professionale, coadiuvato da partecipazione al network di managers di altri settori	Definizione ed implementazione nuovi modelli di business trasversali	Creazione di opportunità nuovi modelli di business sistemici con utilizzo risorse presenti

PROGRAMMA CIM4.0 ACADEMY

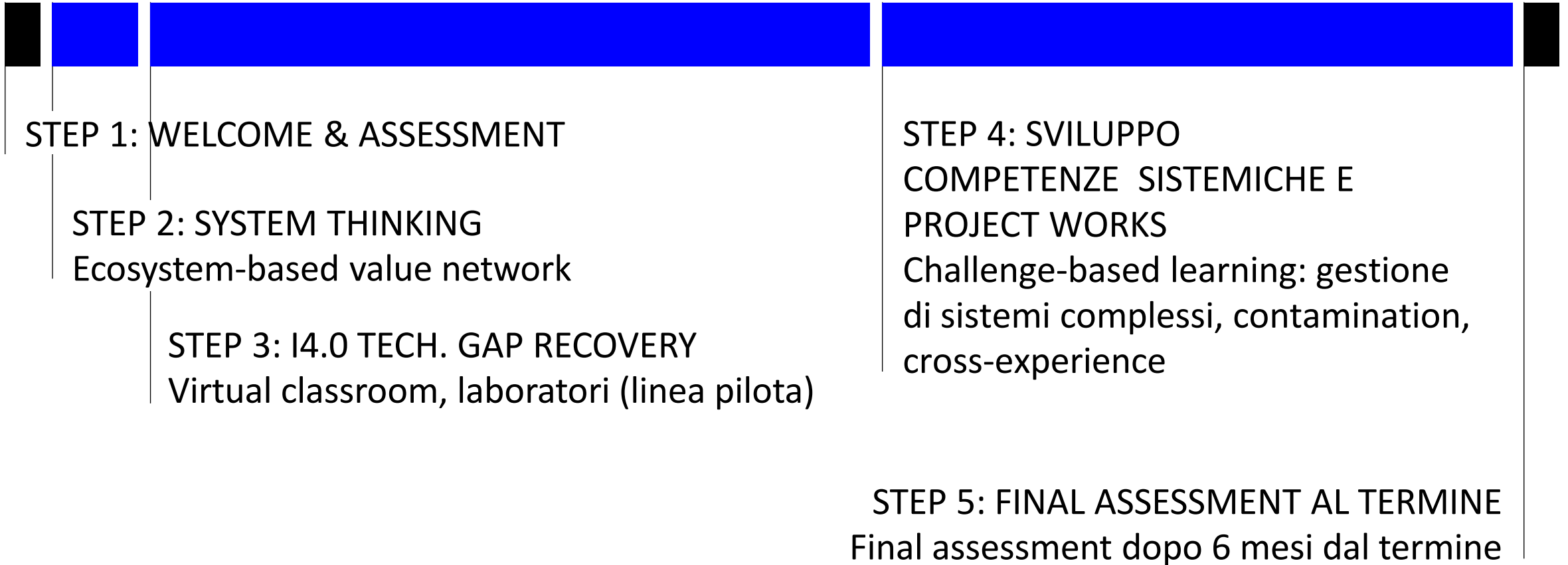
Durata full-time: 2 mesi TOTALE 350 ore

Durata part-time: 5 mesi TOTALE 350 ore

8H 24H 160H

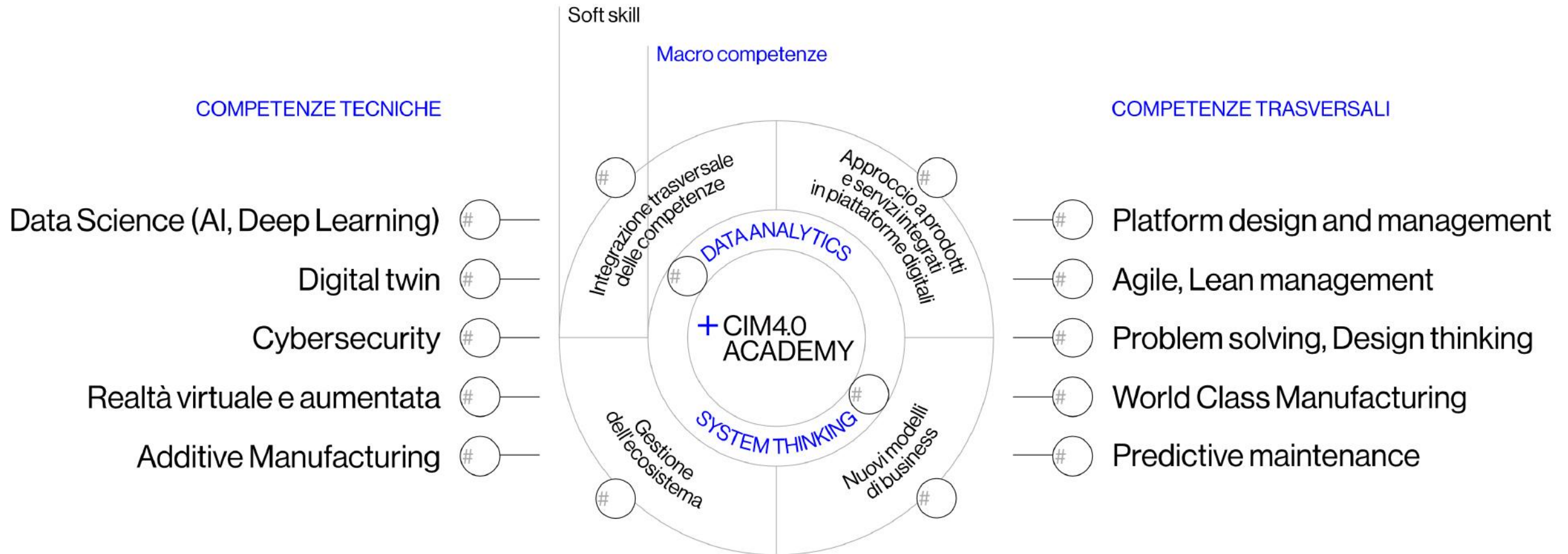
150H

8H

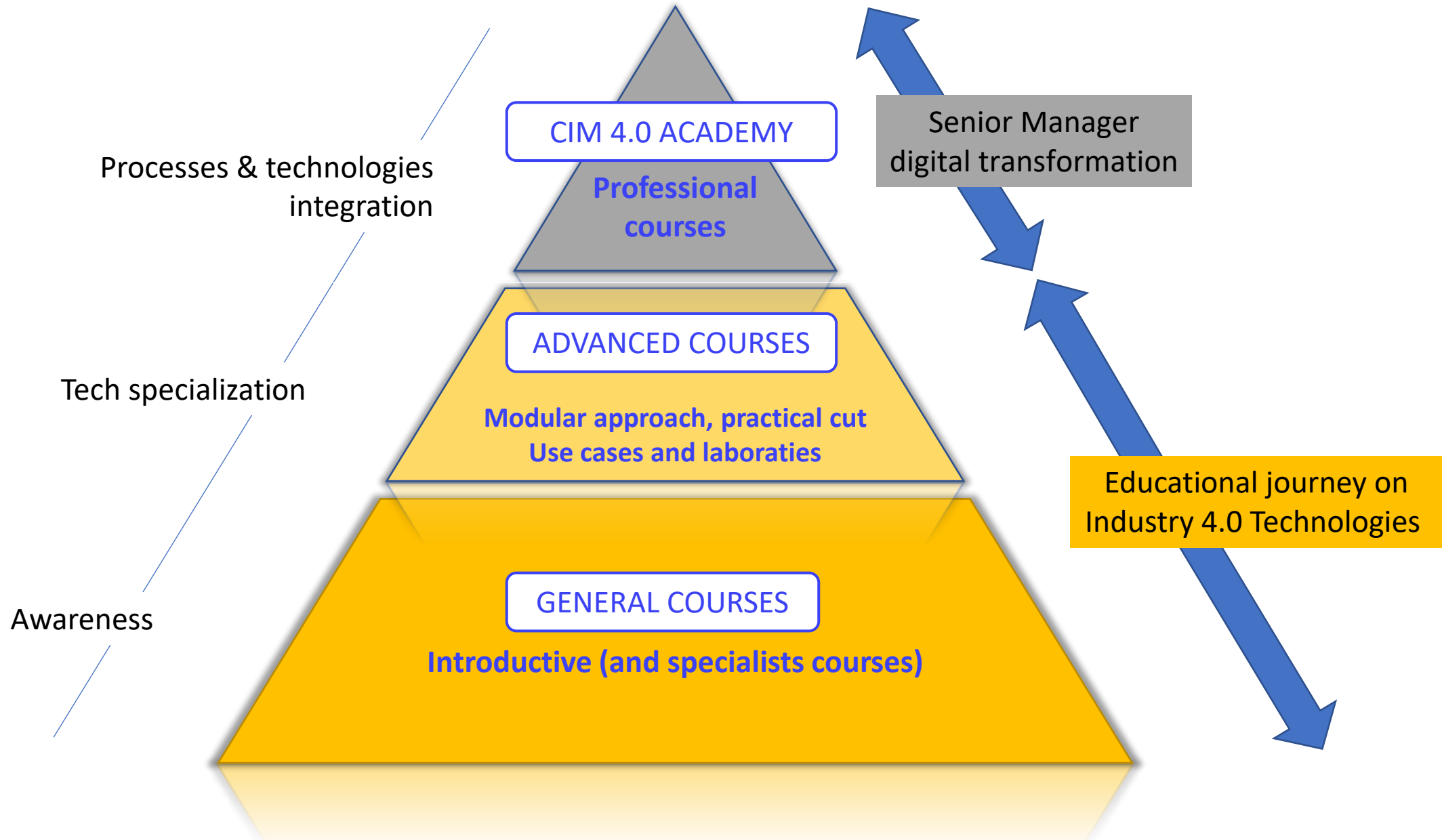


PROGRAMMA CIM4.0 ACADEMY

Valutazione Know-How e competenze per l'Industria 4.0



Educational offering



Thanks for your attention!

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