



UNIVERSITÀ
DEGLI STUDI
DI FERRARA
- EX LABORE FRUCTUS -



CAPITALE E LAVORO NELL'ERA DIGITALE WORKSHOP IN ONORE DI GIORGIO LUNGHINI

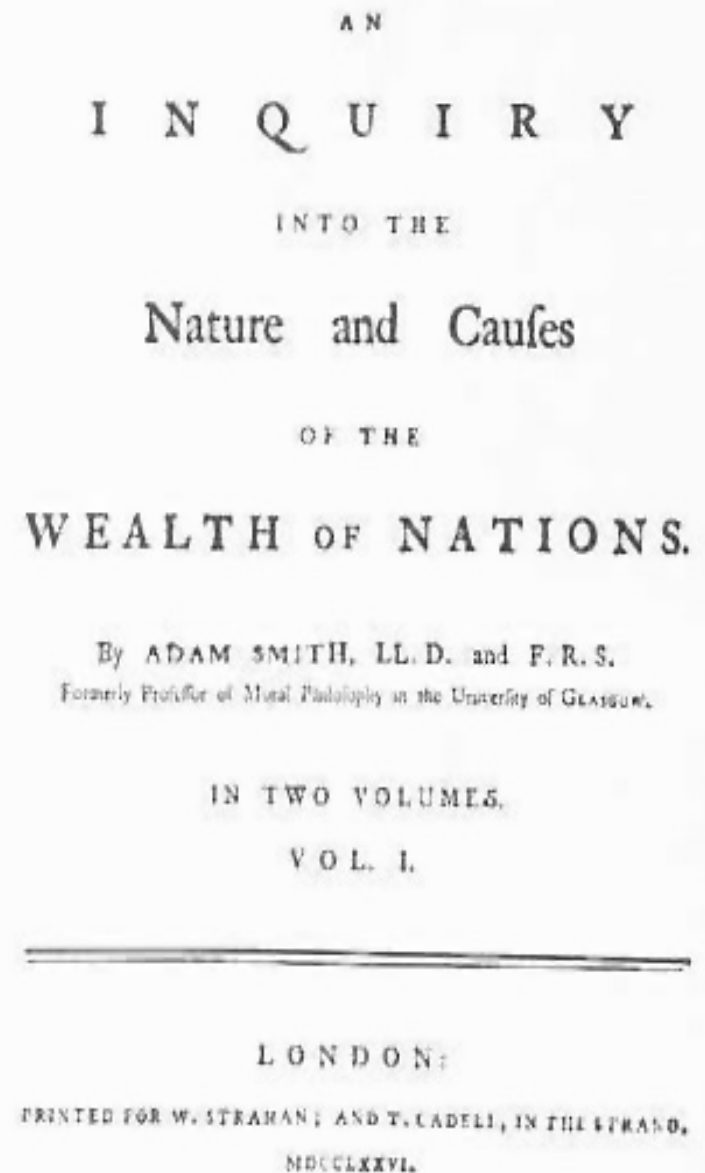
Patrizio Bianchi

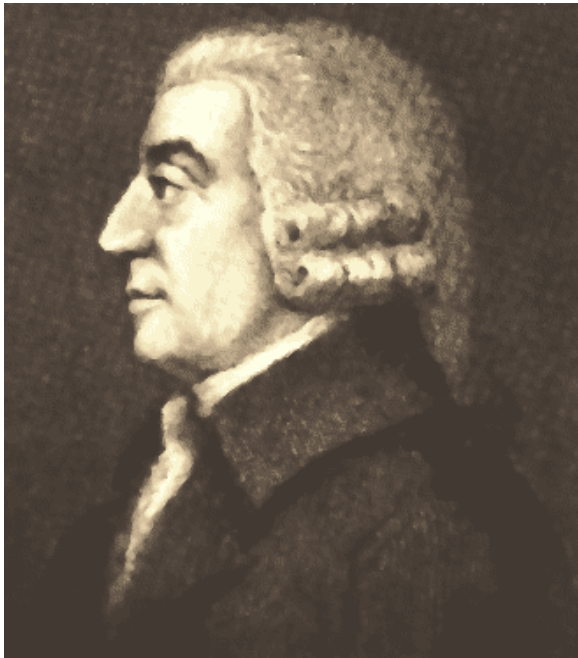
Ferrara, 5 ottobre 2019

GIORGIO LUNGHINI

- GIORGIO LUNGHINI ha dimostrato con il suo lavoro che l'economia è una disciplina delle scienze umane e della società, e quindi non vi è una linearità nel suo sviluppo storico.
- Diversi filoni di pensiero si sono susseguiti ma anche sovrapposti e alternati nel tempo. In particolare Giorgio ha lavorato in profondità sulla economia classica referentesi alla produzione ed al valore-lavoro.
- Alle origini della economia politica si pone fin da subito il tema del rapporto tra learning e sviluppo.

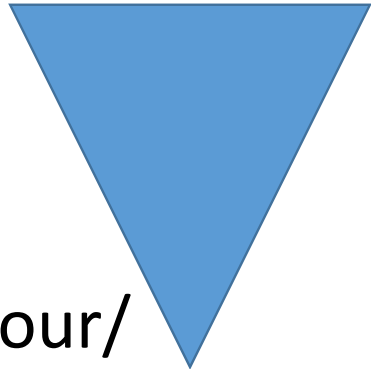
- “The greatest improvement in the **productive powers of labour**, and the greater part of the **skill, dexterity, and judgement**, ...seem to have been the effects of the **division of labour**” (WN, I, I, p.13)





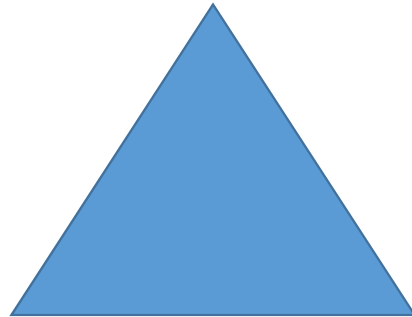
- “As it is the power of exchanging that gives occasion to the division of labour, so the extent of this division must always be limited by the extent of that power, or, in other words, by the **extent of the market**” (WN, I,3, p.40)

Skill, dexterity
and judgements



learning

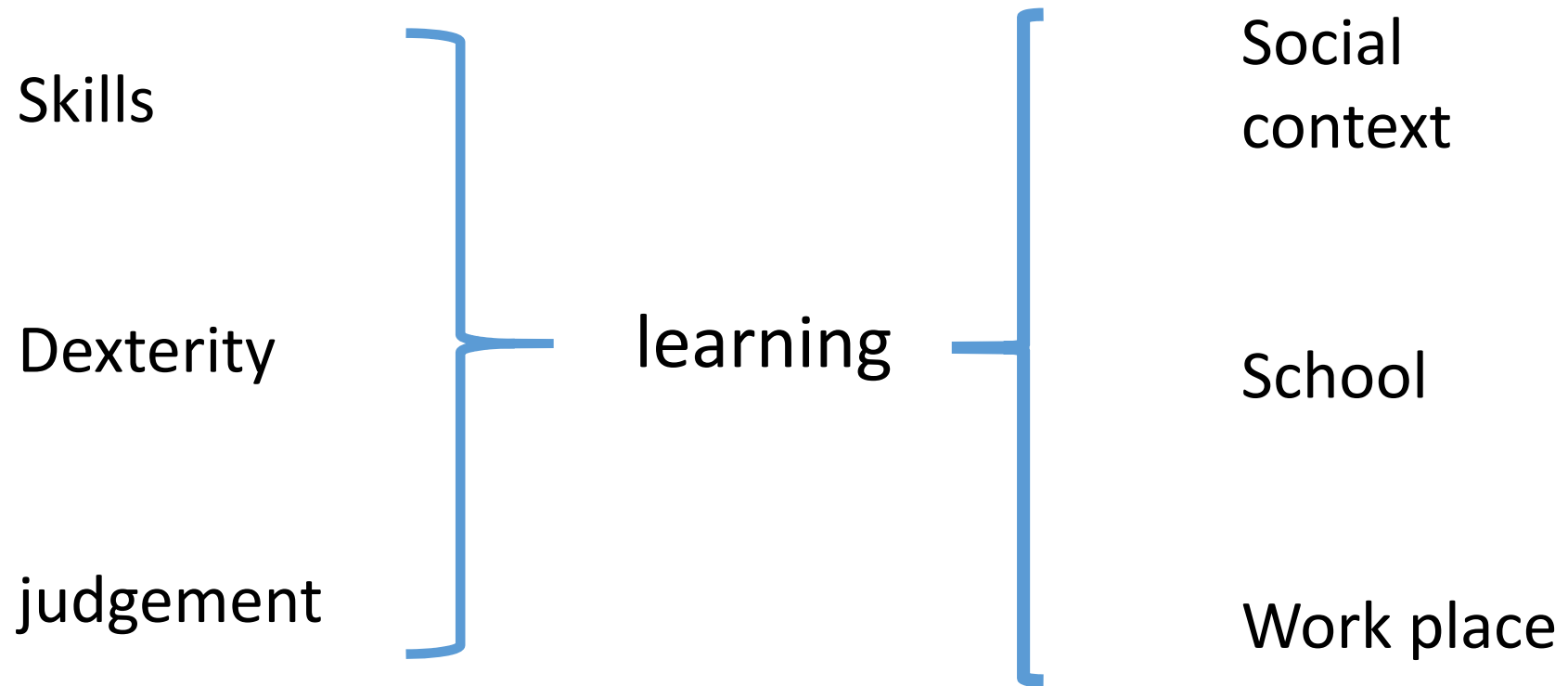
Division of labour/
production organization



Extent of the
market

Market power/
power of exchanging

Learning come rapidità e profondità di acquisire e far propria informazioni e metodi di organizzazione e utilizzo delle informazioni



Learning individuale e collettivo

Product definition

Volumes of
production

high

Fordist
production

Industry
4.0

medium

Flexible
production

low

craft
production

low

medium

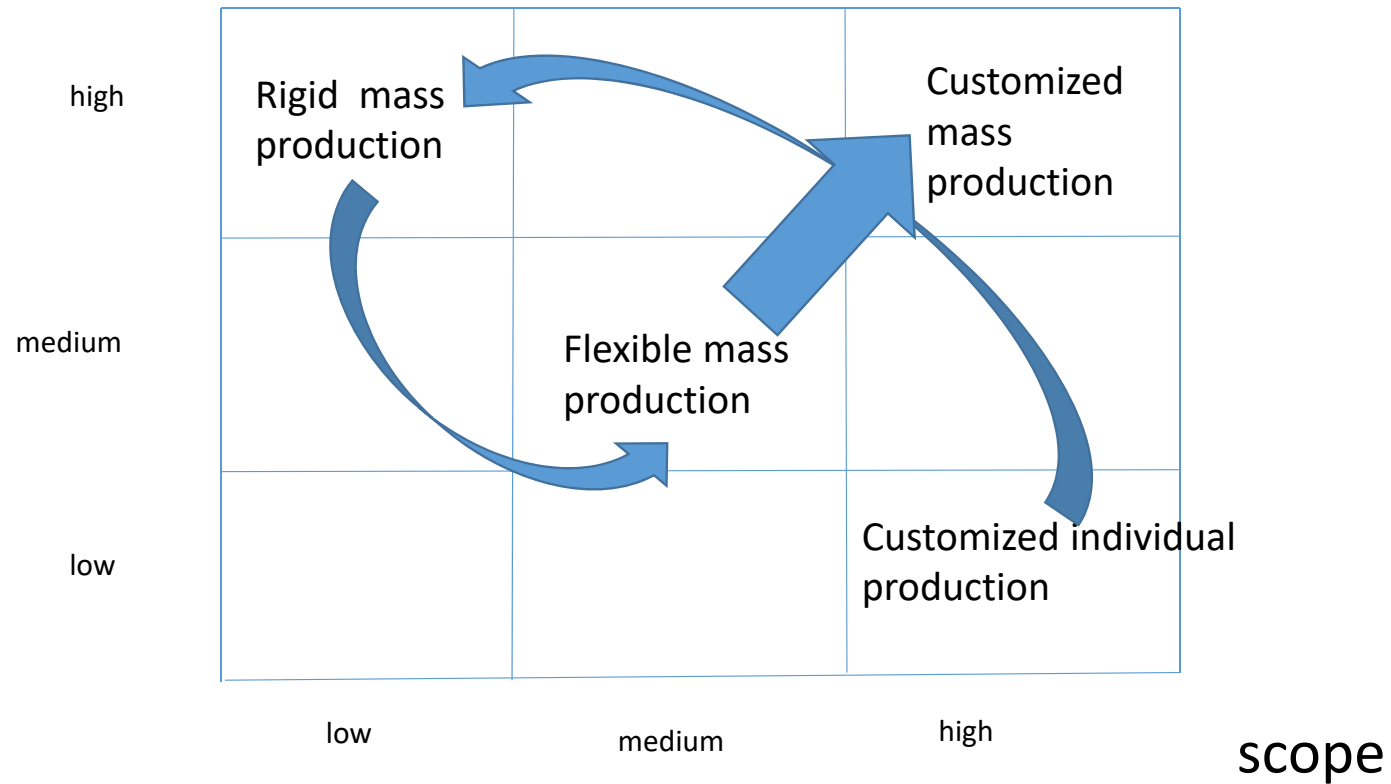
high

Product
Differentiation

| | | | |
|--------|-----------------------|------------------------|---------------------|
| high | Fordist production | | Industry 4.0 |
| medium | | Flexible production | |
| low | | | craft production |

Process organization

scale



1. We can describe the 4 industrial revolutions, by analysing the evolution of industrial automation

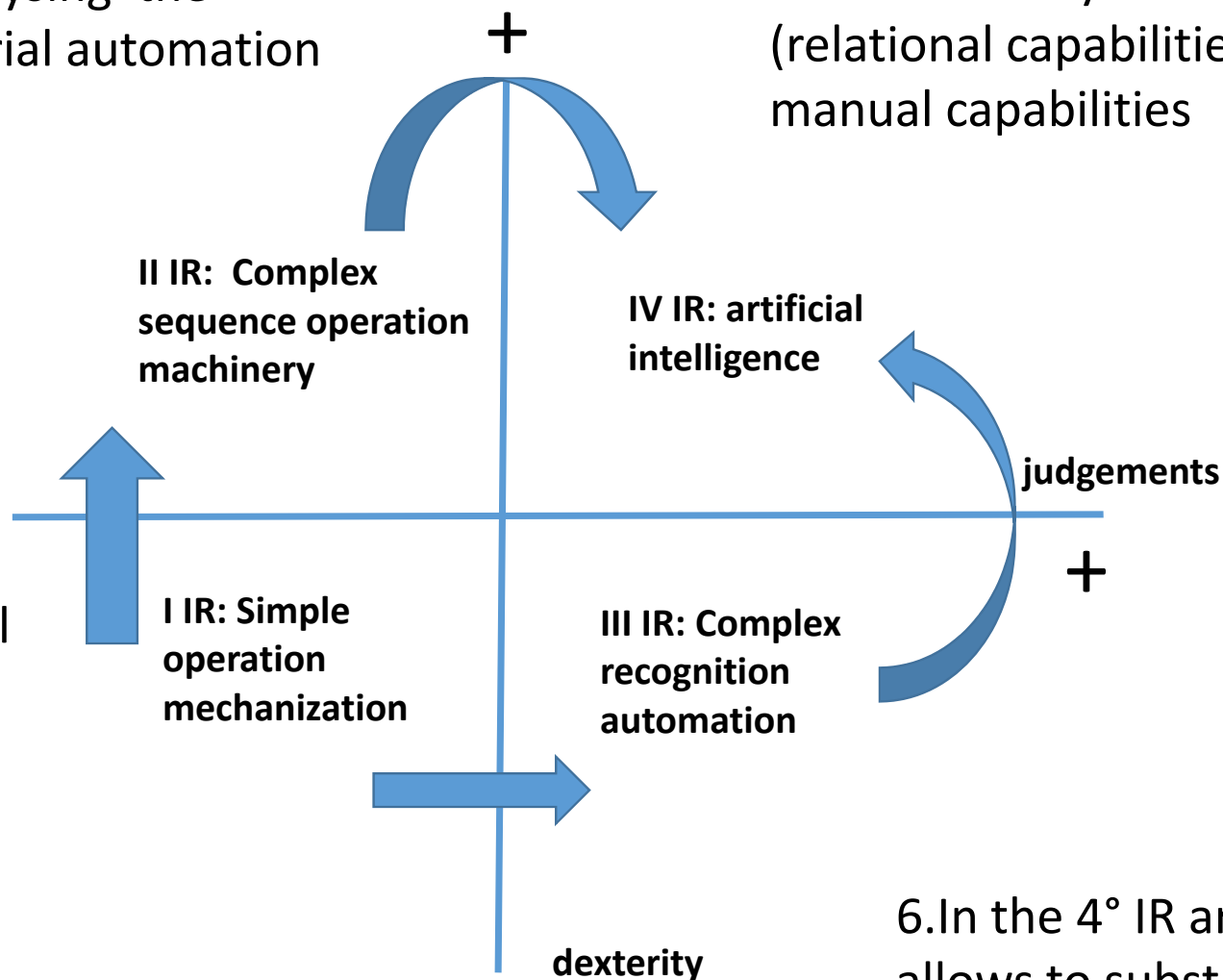
2. We analyse the evolution of automation by considering judgements (relational capabilities) vs. dexterity manual capabilities

3. In the 1° Industrial revolution, automation is given by simple mechanical operations.

4. In the 2° industrial revolution, we have sequence of simple mechanical operation, substituting human dexterity

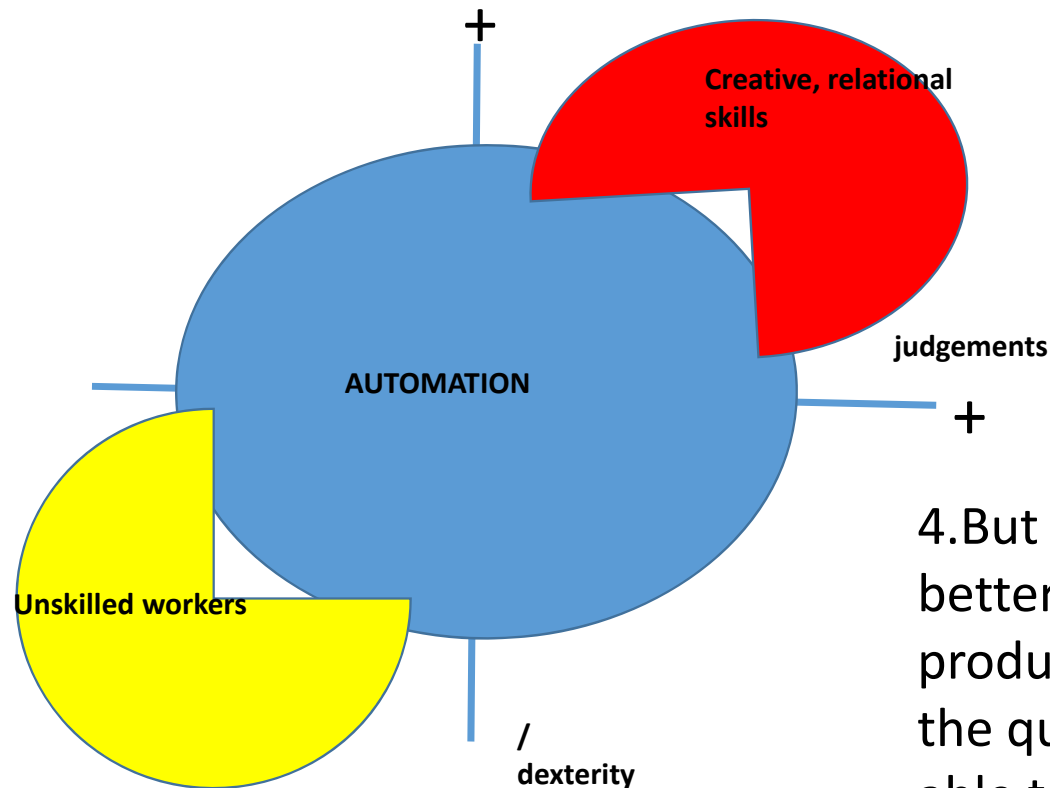
5. In the 3° industrial revolution, machines started to develop relational activities.

6. In the 4° IR artificial intelligence allows to substitute both human capabilities



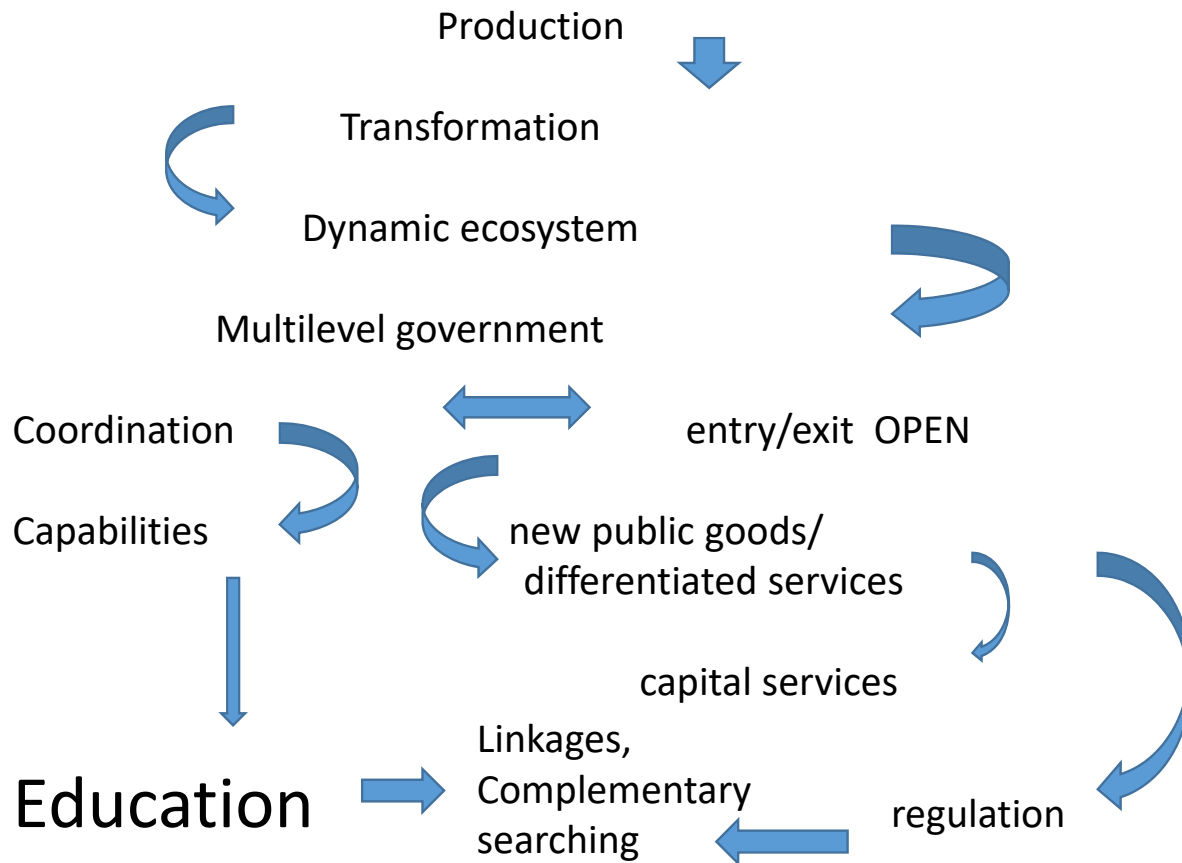
1. We can analyse also the impact of automation by considering judgements (relational capabilities) vs. dexterity manual capabilities.

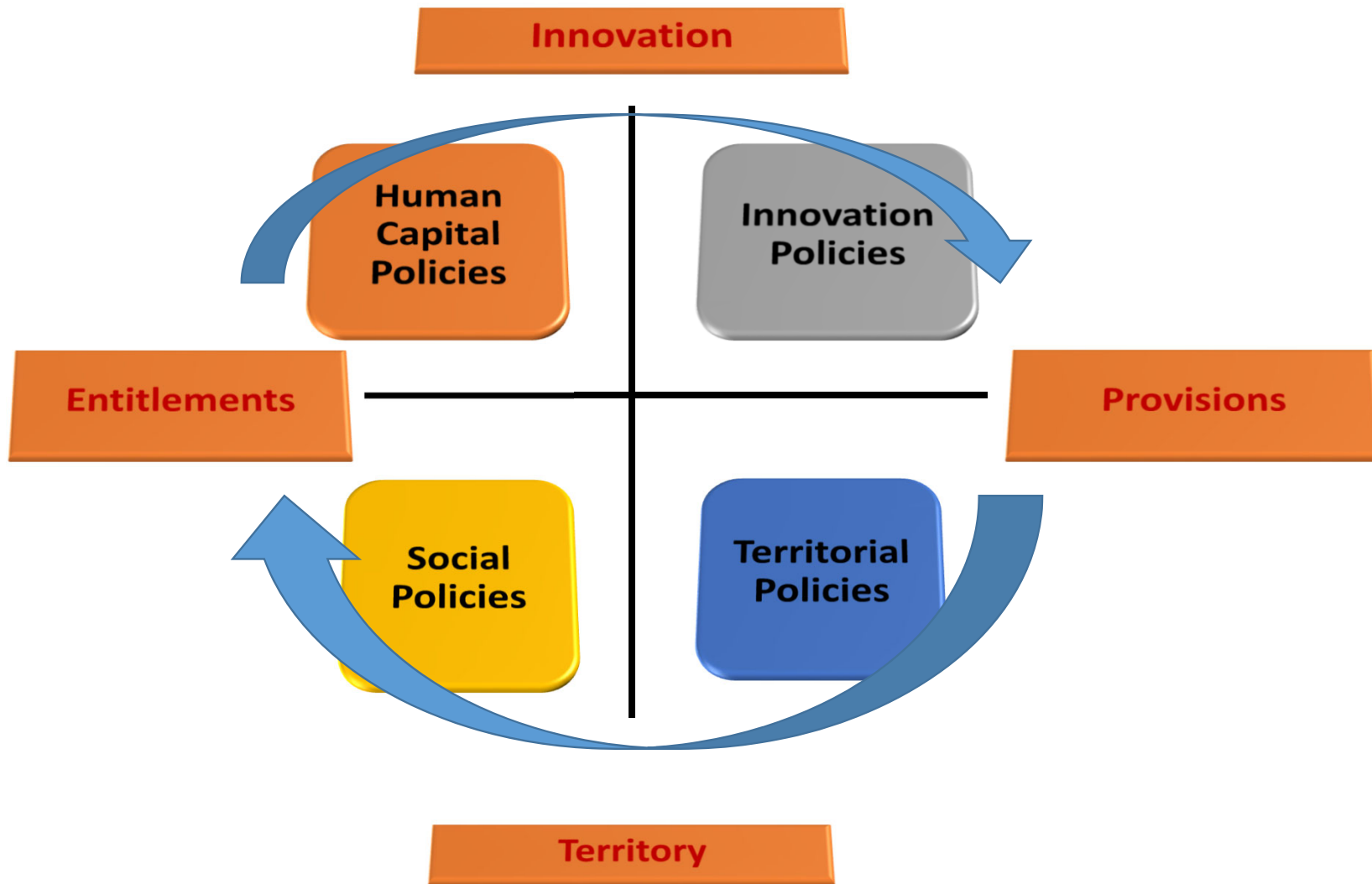
2. We can consider that automation can cover the central range of capabilities, leaving the higher range for creative, relational skilled people, but also an areas for unskilled jobs.



3. This industrial transformation generates risks of increasing social disparities

4. But also opportunities for better jobs and better products, that is to improve the quality of life, if we are able to push up the entire capabilities structure of society





Un nuovo sviluppo per una nuova coesione sociale

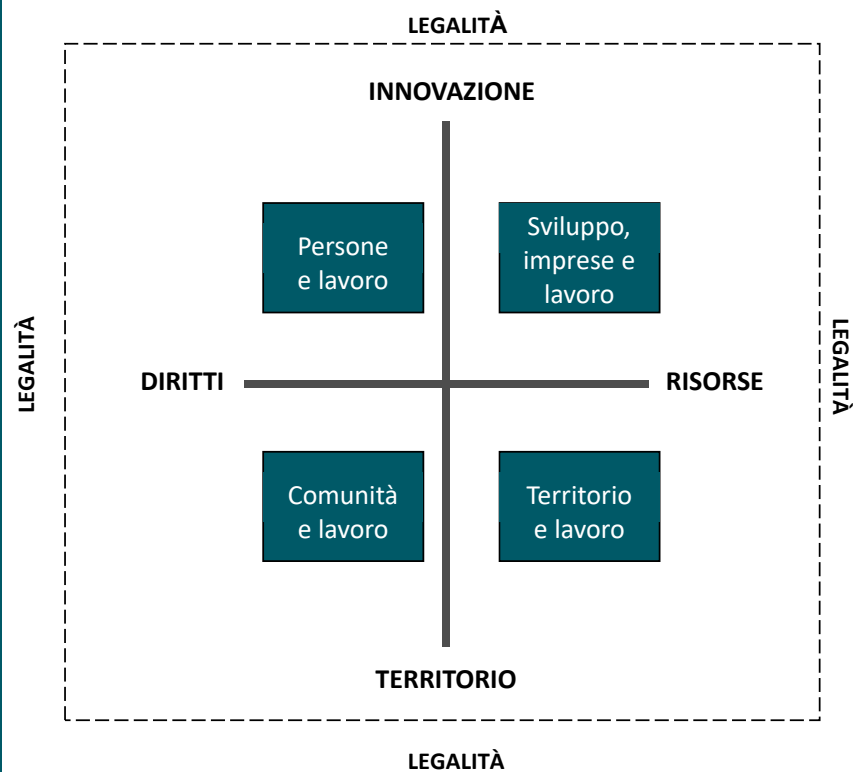
PATTO
PER IL LAVORO

PATTO PER IL LAVORO

Un nuovo sviluppo
per una nuova coesione sociale

Bologna, 20 luglio 2015

 Regione Emilia-Romagna



 Regione Emilia-Romagna



Polytechnic Network

Higher education,
research and
education grants



Education
and Vocational Training

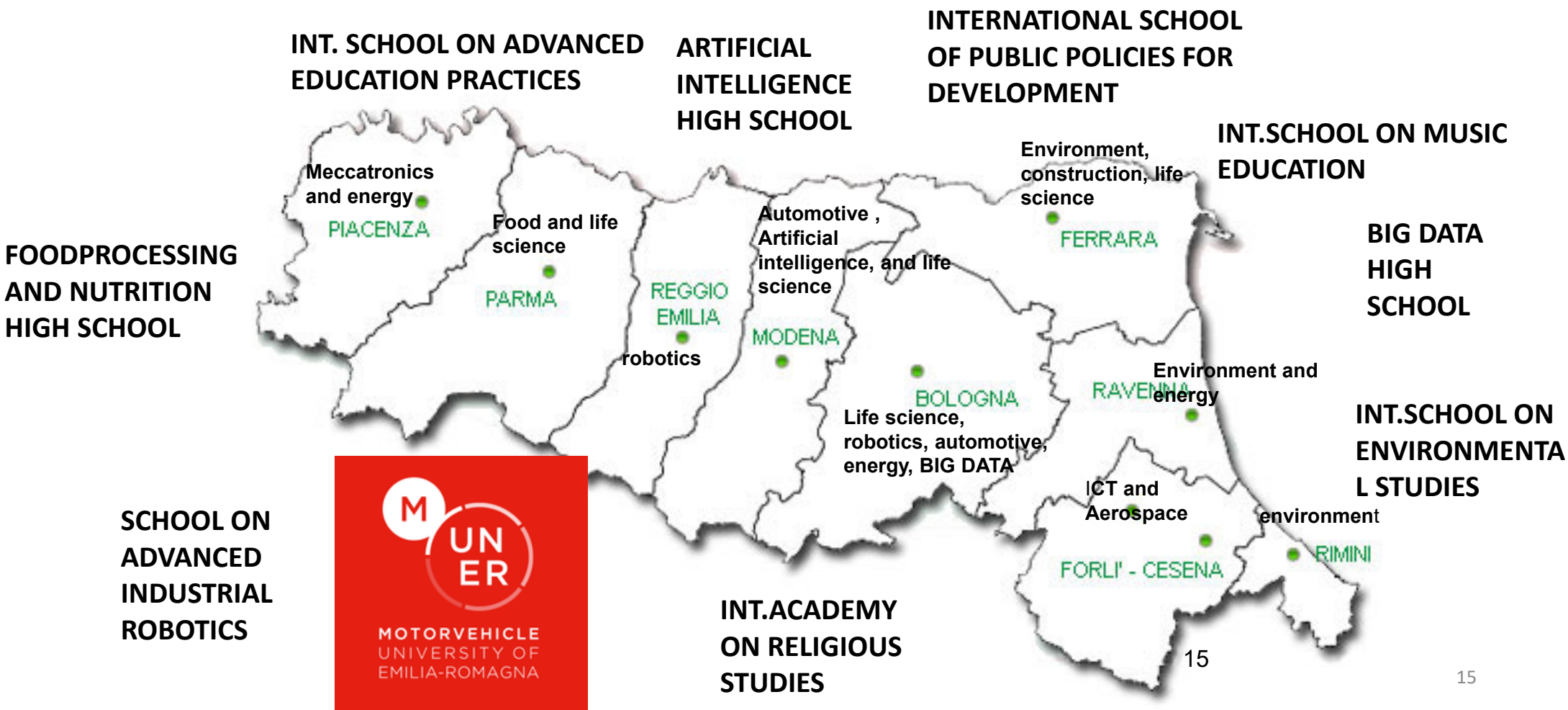
Employment and skills

THE NEW INFRASTRUCTURE OF THE
LEADING TERRITORY



Rendere più denso il territorio: la rete dei tecnopoli e delle scuole di alta formazione

Rete politecnica degli ITS della ER



EMILIA ROMAGNA, ITALY

EMILIA ROMAGNA BIG DATA COMMUNITY

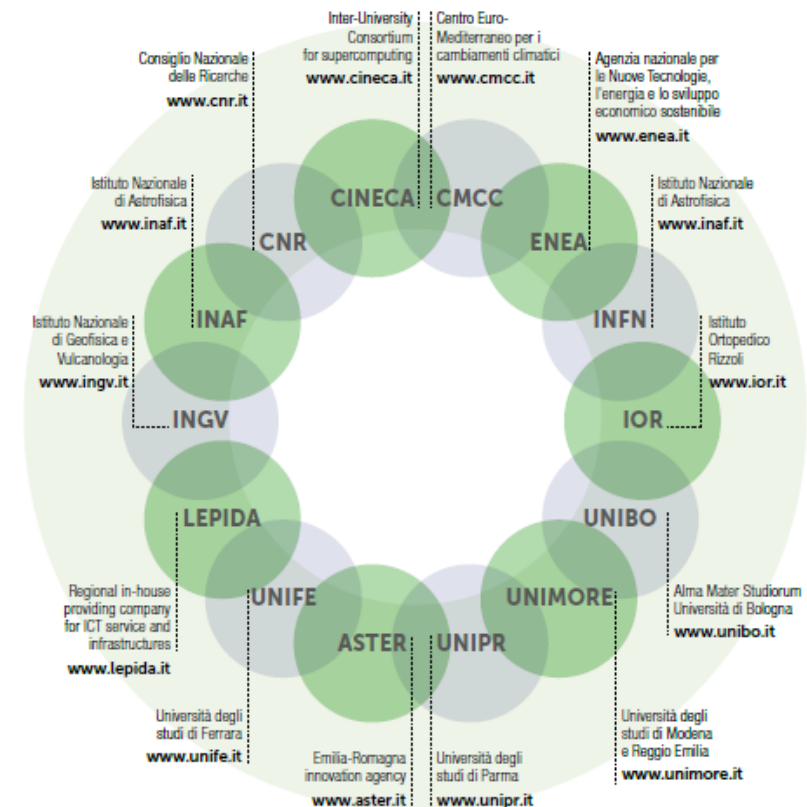
FROM VOLUME TO VALUE



UNIONE EUROPEA

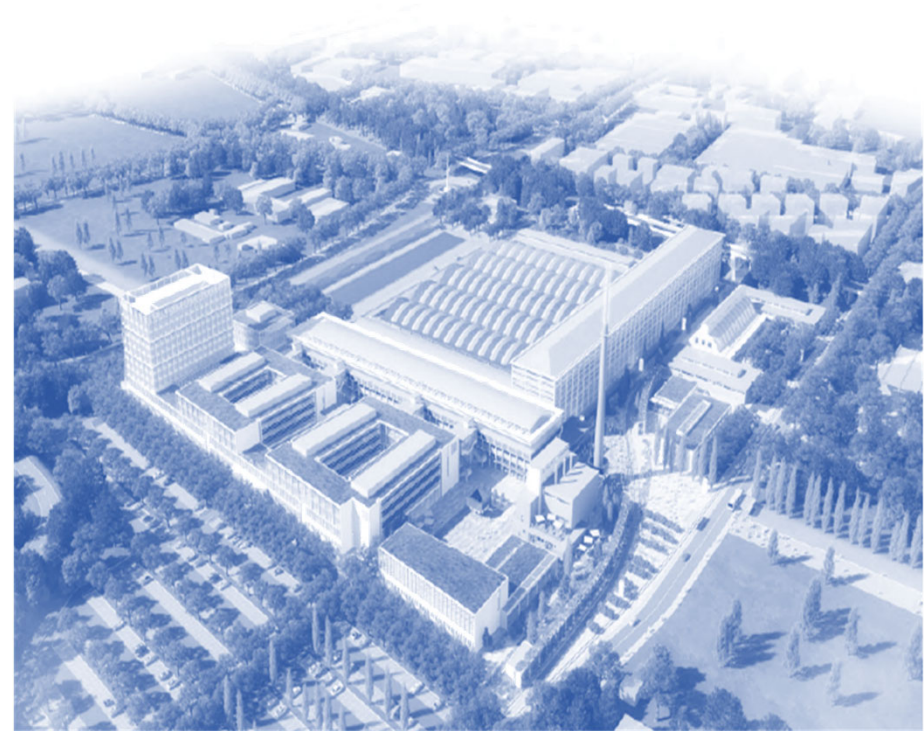
Regione Emilia-Romagna

Networking universities and european research centres, we are building a Big data technopole on research and applications on Global Goals



THE BIG DATA TECHNOPOLE: BOLOGNA HUB

- **The ECMWF data centre and supercomputing facility**
- The CINECA data centre towards exascale computing
- The INFN data centre towards extreme HPTC
- **The European High Performing Computing Centre HPC**
- The National Agency Italia Meteo
- National Competence centre «Big Data for Industry 4.0»
- National Agency for Energy and Environment-ENEA research centre
- IOR (Istituto Ortopedico Rizzoli) biobank centre
- «Ballette» industrial research incubator for companies and start-ups
- **INAF CHERENKOV TELESCOPE ARRAY CENTER**
- Regional Agency for Development and Innovation
- University research and education centres
- IBM CENTRE BIG DATA AND AI FOR AGING
- Software Heritage Mirror Archive



Academic courseware in the Region

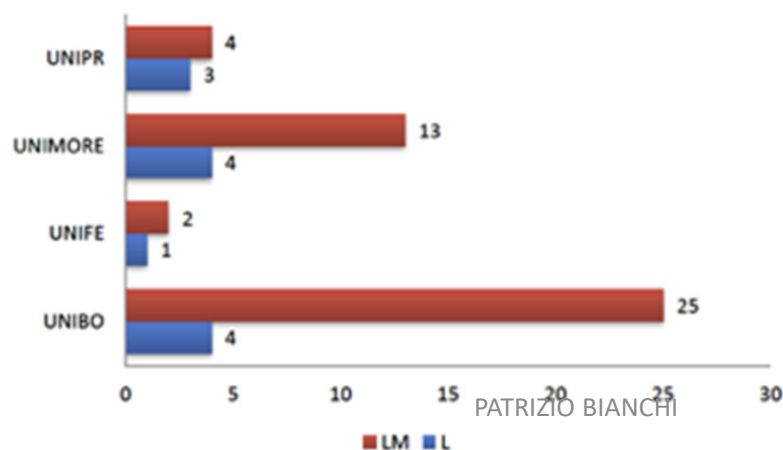
- PhD Courses
 - 22 doctorates in Data Science
 - 12 doctorates in BD and AI
- Research fellowship
 - 35 approved
- Master
 - 47 approved
 - Entry level for graduates (2 editions)

8) OFFERTA FORMATIVA SU DATA SCIENCE

130 BORSE DI DOTTORATO
148 ASSEGNI FORMATIVI
181 ASSEGNI DI RICERCA DI CUI
34 BORSE TRIENNALI
47 ASSEGNI FORMATIVI
35 ASSEGNI DI RICERCA
PER DATA SCIENCE

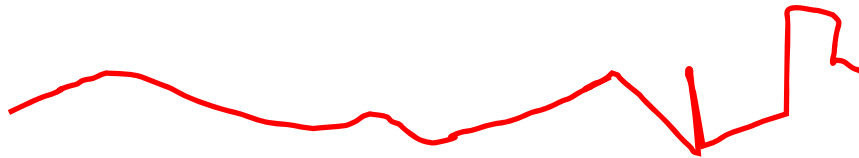
2018

- University Degree
- Master's degree



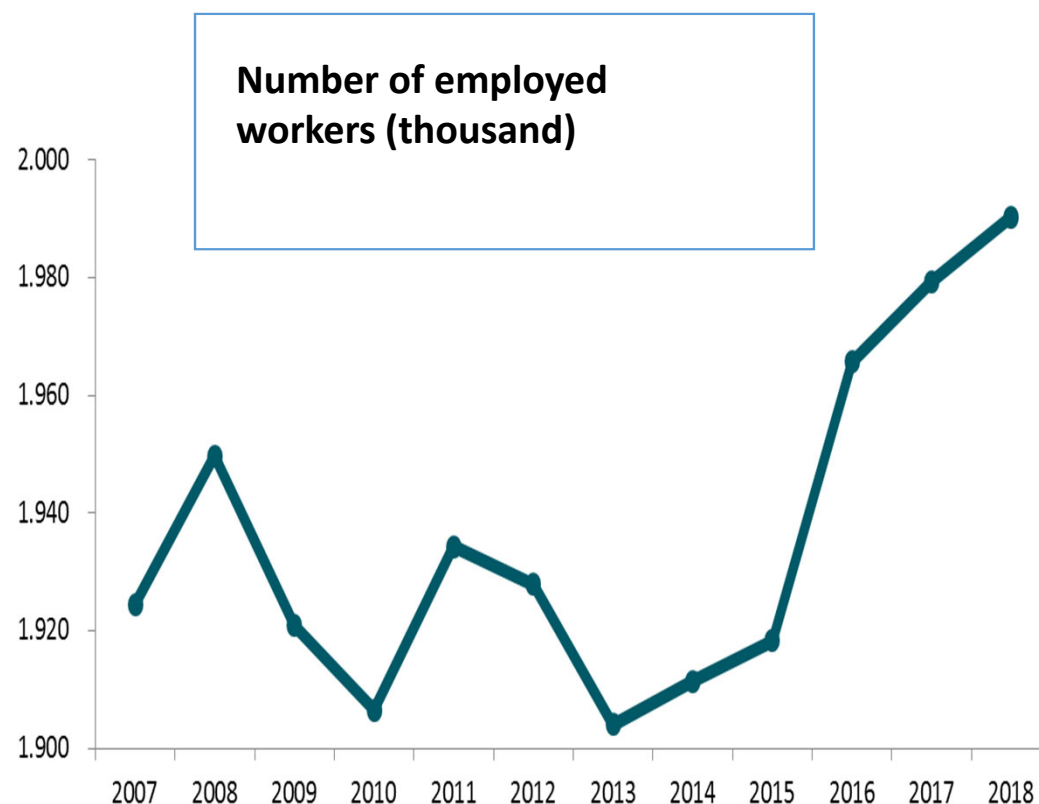
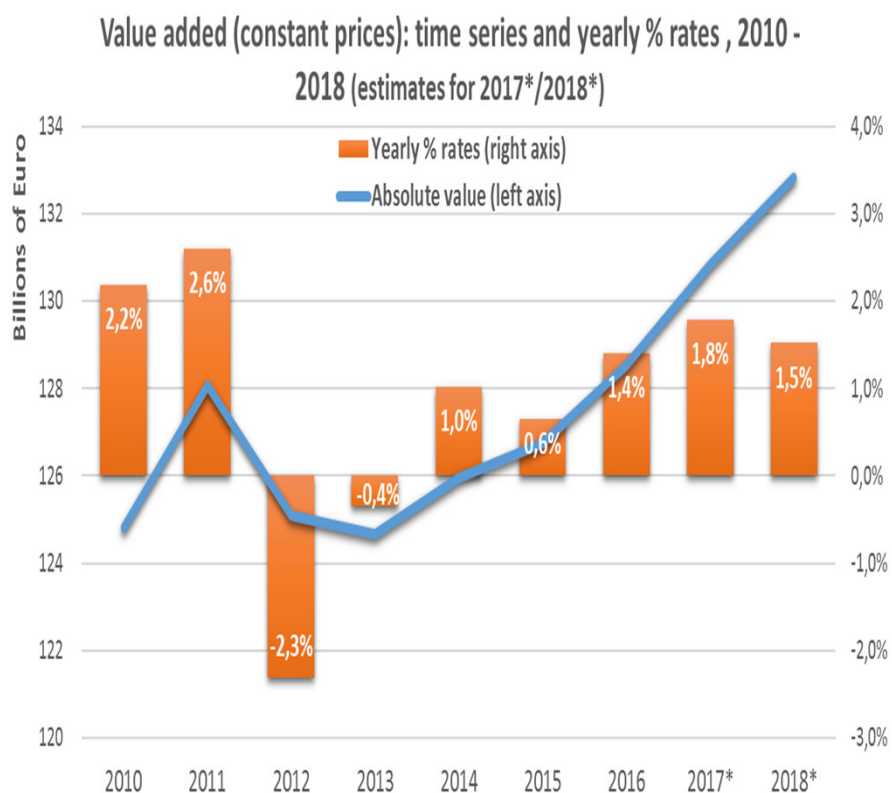
DATA LAB 71 PERCORSI DI FORMAZIONE IN DATA SCIENCE PER LAUREATI IN PERCORSI UMANISTICI, ECONOMICI, GIURIDICI E SCIENTIFICI

THE ROLE OF POLICIES FOR EDUCATION- TRAINING AND RETRAINING MANPOWER AND THE IMPORTANCE TO FILL THE SKILL GAP IN THE CONTEXT OF INDUSTRY 4.0



- Adopting the most **relevant technologies** for our country in our times
- Understanding the **complexity of present** world and the relation between the needs of our country and the dynamics of world economy
- Consolidation of the **social intangible capital**

Economic and social results in Emilia-Romagna:



2 joint PROPOSAL for the future development

**FOUNDATION
BIG DATA
for human
development**

the “sandbox” in which to try out new ideas and push boundaries in research, education, and entrepreneurship for a new sustainable development



**UNESCO CHAIR ON
EDUCATION, GROWTH
AND EQUALITY**

A global network of universities to explore the new needs of education for coupling growth and equality

I rischi per la scuola

La necessità di ripensare l'intera struttura
educativa

Il rapporto tra imprese, scuola, sviluppo

Grazie, patrizio

5 novembre 2019