

Technology innovation and the aging workforce in the time of Covid

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**(ENG) AGING! – VIRTUAL CONFERENCE ON AGING TECHNOLOGIES FOR ACTIVE AND
INDEPENDENT LIVING IN OLD AGE
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1. Introduction

❖ *In this work, we will present the results of an Inapp qualitative study carried out in the manufacturing and services sector, which explores the relationship between the employability of workers over 50 and technological innovation. A focus will be dedicated to health and social services which, in the face of the increasing average age of the employees, must respond to a greater request for care and assistance from users who have also become older.*

Goals

- analyze the transformations taking place in work organizations resulting from the digitalization of the economy, in particular the implications for the mature workforce;
- verify any interconnections with the geographical and/or socio-economic context of reference

Qualitative methodology

- exploratory analysis through in-depth interview with a grid
- focus group.

Actors interviewed

- institutional referents, social partners and representatives of the productive realities



2. The Context

2.1 Demographic transformations

2.2 Technological transformations

2.3 Technologies and health emergency

Italy is one of the fastest aging countries in the world: the average age of the population went from 41.9 in 2005 to 44.8 in 2019.

Forecasts

average age of the population in 2065: 50.2
(ISTAT, 2020)

Elderly population, 65 years old (ISTAT, 2020)

1960	4,6 millions	(9,3%)
1980	7,4 millions	(13,1%)
2000	10,3 millions	(18,1%)
2019	13,8 millions	(22,8%)

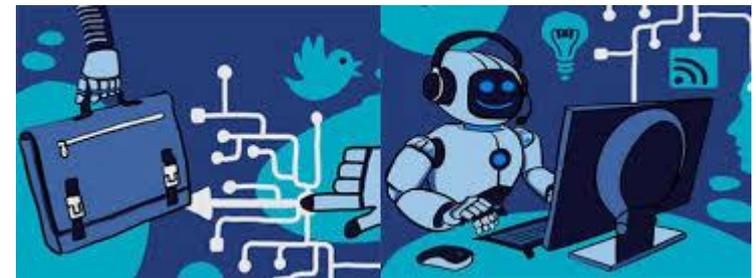
Average age employed

2007	just under 41 years old
2019	44,6

The average age of employed women increased until the difference with men in 2018 was eliminated, which in 2007 was one year of age.

Labor market effects

- Youth entry barriers / turnover block
- Raising the retirement age
 - Less dynamic offer
 - Skills' obsolescence
 - Coexistence of four generations at work



Features and peculiarities:

- ❖ Technological pervasiveness, also in private life
- ❖ Interconnection of products / services
- ❖ Personalization (customer / user profiling)
- ❖ Extension of space-time variables

Change is getting faster especially in the field of robotics and AI.

Technologies' ubiquity

Machines and equipment have the peculiarity of being installed everywhere, even in the human body. Robots become human assistants and can also become co-workers.

Benefits: Improved health, productivity, safety and greater availability of data, information and knowledge useful for people and organizations.

Threats: for the privacy and protection of personal data, as well as in terms of the influence created by the great emphasis given to some developments and increasing technological complexity.

2. 2 The Context - Effects of digitization processes

OECD, 2017

Complementarity/enhancement

- new way of carrying out work activity

Replacement - complete automation/digitization of processes /tasks

Italy is the most exposed European country to the risk of substitution: 58% of workers between 50-64 years of age carry out automatable activities (Mercer, Wyman,2018).

Despite the progresses made in technology, there are skills for which men will still continue to be irreplaceable.

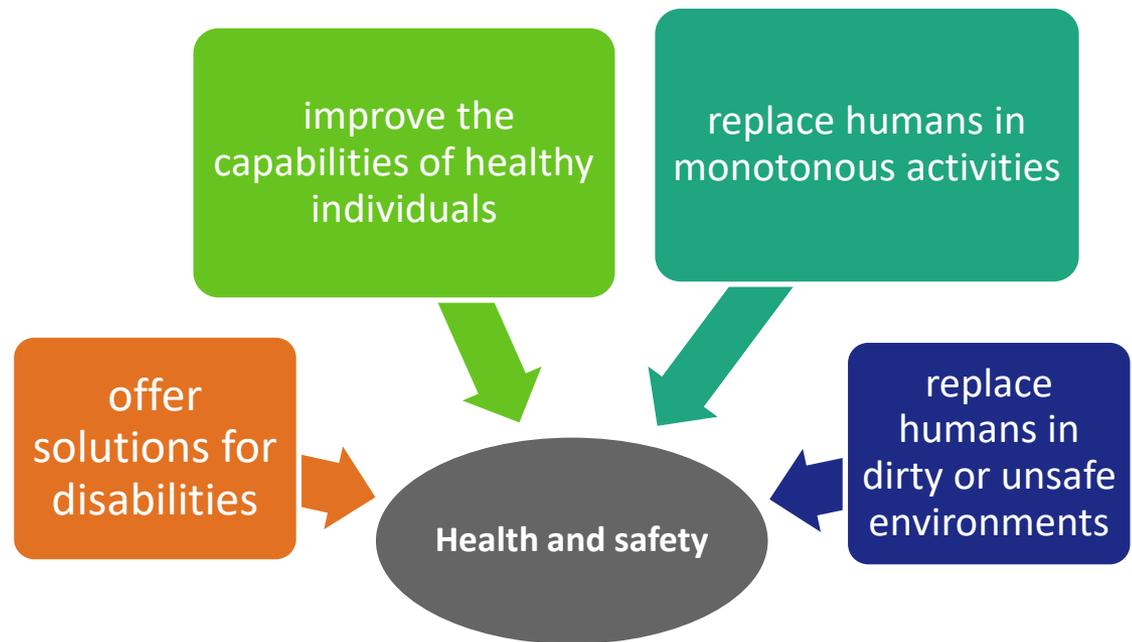


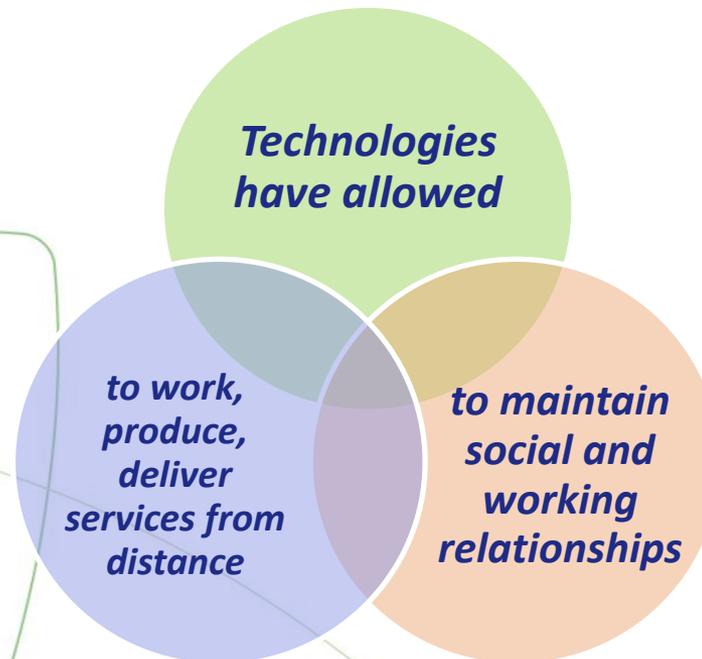
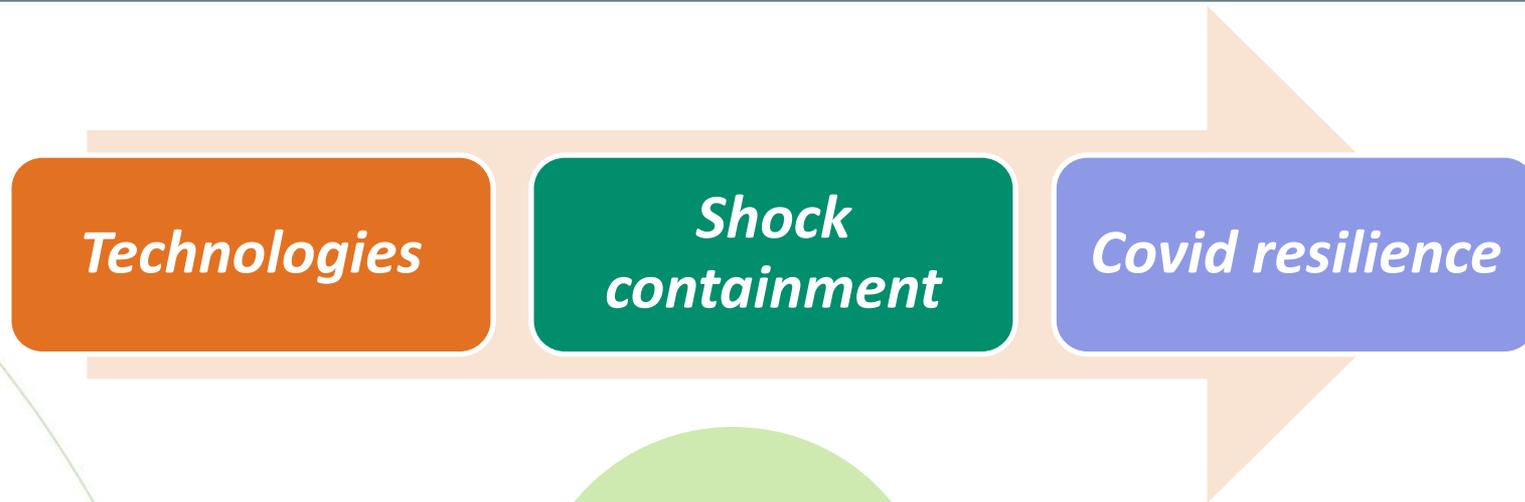
Risk of replacing old-young workers

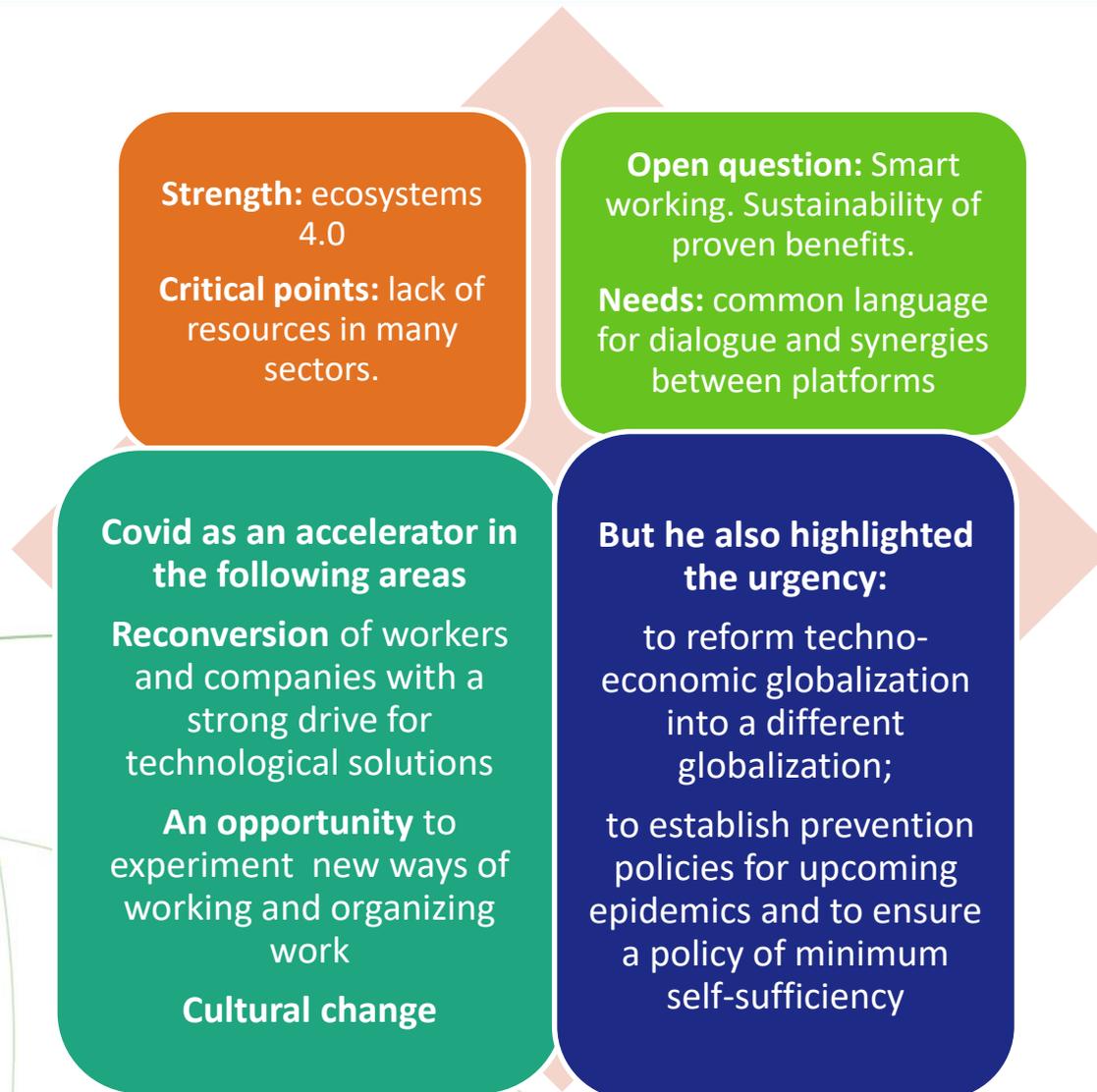
How to get the optimal combination of human skills and robot skills?

Advantages of robots: ability to perform heavy work in a precise and repeatable way.

Advantages of men: creativity, decision-making skills, flexibility and adaptability.









3. Manufacturing sector results

3. Manufacturing sector results – Some manufacturing sector data

Italy is the second most industrialized country in Europe and also the second for export balance.

The Italian manufacturing sector was heavily hit on both the demand side and the supply side due to Covid, recording an average decline of 15% in 2020 (Lanza, Trenti, 2020)

Forecasts for 2021: deflated turnover growth of 5.3%. During the three-year period of 2022-2024, manufacturing activity will continue along a path of gradual recovery at a rate of just under 3% on average per year.

3. Manufacturing sector results

Digitization and centrality of human resources and ecosystems

- Digitization requires a rethinking and an overall redesign of work organization that places human resources at the center, but also ecosystems 4.0 and their connecting and multidimensional capacity.
- New skills are therefore necessary; not only technological, but also cognitive, personal and relational, the so-called soft skills, but also new professional profiles and re-skilling.

Change is associated with specific characteristics

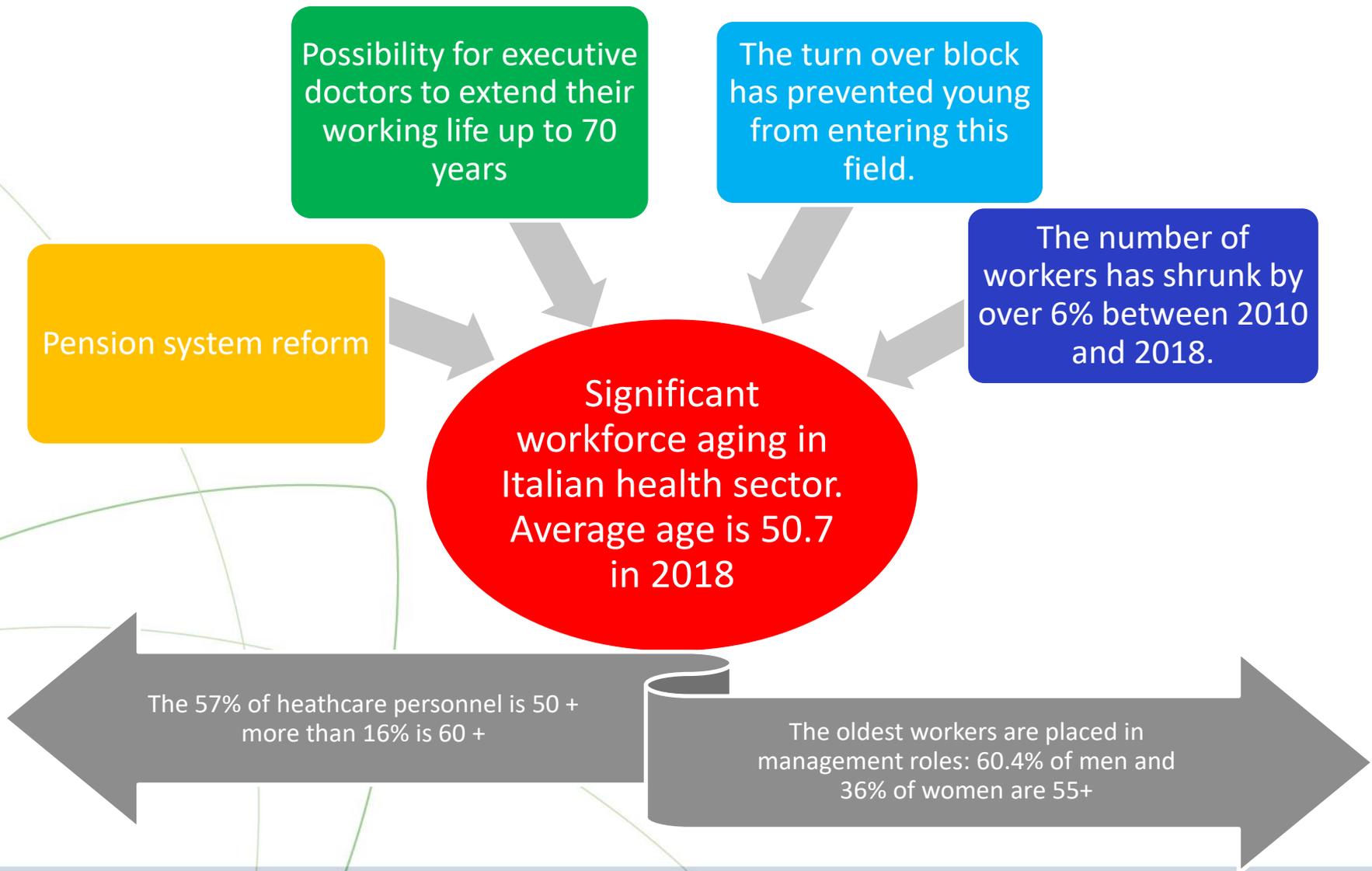
- speed of responses to new needs, flexibility (new times and new workplaces), technology supports smart work through intelligent assistance systems with easily usable multi-modal interfaces; adaptation / acceptance of change; ability to work in a team, multidisciplinary approach; self evaluation.
- Resistance to change
- **Central role of communication in the process of change**
- **Change agent**

Replacement and complementarity/strengthening

- Often in the same company both perspectives coexist and workers are involved in the processes regardless of their age (**neither apocalyptic nor integrated**).
- Technological innovations can potentially make a contribution to the permanence of mature workers and to the protection of their health (see exoskeletons).
- regulatory obstacles
- negotiation with the union



4. Health Sector results



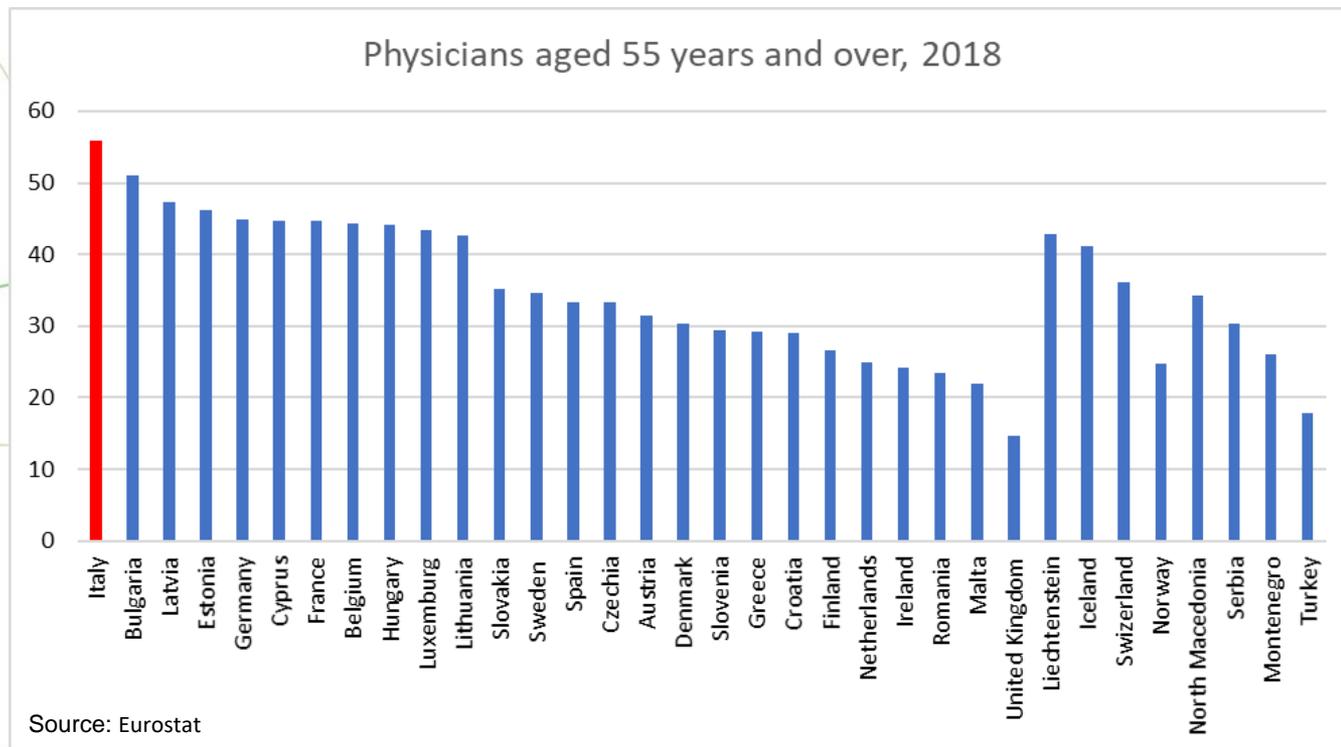
The oldest workers are physicians: the risk of skills shortage

In Europe the percentage of physicians aged 55+ has increased from 32% to 41% in ten years.

In 2018 Italy is the country with the highest incidence (56%).

It is estimated that in the next ten years the Italian health system will lose two doctors a day.

During the first phase of the pandemic emergency it was necessary to call retired physicians back to work and to recruit young graduates and postgraduates



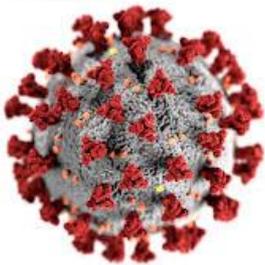
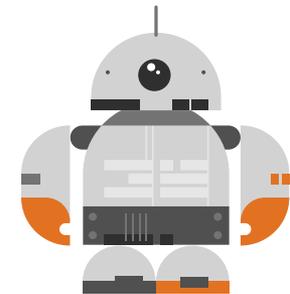
In 2065, 1/3 of the Italian population will be aged 65+, more than 9% will be 85+
The demand for care and assistance services will continue to increase



The introduction of technologies is considered one of the main solutions to make the complex health system more efficient.

But the health services digitization proceeds slowly and encounters many obstacles also linked to the personnel age.

2016 Pact for Digital Health between the Government and the Regions to align Italy with European standards
(Electronic Health Record and Individual Care Plan)



The arrival of Covid19 has struck the weaknesses of the system and expanded its inefficiencies, but it is helping to accelerate the innovation process and overcome the mistrust of new technologies

Technological innovation in Health and benefits for (old) workers and citizens

New technologies can relieve healthcare personnel from the more bureaucratic part of work and restore centrality to the relationship with the patient.

In healthcare there is no real risk of a human-technology substitution effect because the human factor is essential.

Computerization of administrative and patient management procedures

These solutions are already widely adopted in a vast area of the country

- Easier access to services; reduction of waiting times; Rapid sharing of information and patient documentation
- Tools for nursing homes and for home care
- Tools for checking the patient's history and for managing activities during the ward shift

Telehealth

It has had a strong boost in recent years. Covid19 has forced even the most refractory operators to surrender

- Telemedicine, teleconsultation, remote monitoring:
- It requires an excellent quality of the infrastructures

Artificial Intelligence and Big Data

Currently used in Italy for a first and more detailed reading of diagnostic imaging

The most important potential concern:

- health system government to optimize the provision of services throughout the national territory
- Proactive Medicine (or initiative medicine)
- Augmented Medicine

Main obstacles to the diffusion of new technologies in health services

Resistance to cultural change

- Among older staff
- Among physicians, especially general practitioners

Aging concentrated in the ruling class

- Disinterested executives: they do not know the technologies and should delegate
- Interested executives: they start experimental projects, but when it comes to setting up the system they have to retire

Work burden from the new technologies

- Design problem: the designer does not know the physician's work and his needs
- Organizational problem: it is demanded to apply new technologies to old procedures

Innovation speed

- compared to the timing of regulatory adjustments
- with respect to the caution of doctors experimenting with new solutions

Inadequate training courses

- degree courses for the health professions and medical specialization schools
- Continuing Medical Education (CME)

Adapt training courses

Reform degree and specialization courses, adapt CME, specific training for managers

New professional figures

Define training courses and contractual frameworks

Raise awareness and train IT technicians and designers

Friendly solutions that meet the needs of healthcare professionals and are more accessible and easy to use



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