THE DIGITAL ECONOMY AND THE CHANGING WORKPLACE

conducted by:
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for Aspen Institute Italia
Agenda

Session 1 – Artificial Intelligence, Gig-economy, blockchain: the system is changing

Session 2 – The future of work: work and society, decent jobs for all, organization of work and production, and the governance of work
Gig-economy & digital platforms: threat or opportunity?

• Corporate HR shall adapt to growing demand for job flexibility/autonomy

• Digital platforms can support the comeback of local small/micro businesses

• Gig-economy for the third age
**Digital platforms enabling the *Gig-economy***

<table>
<thead>
<tr>
<th>Examples of digital platforms enabling the <em>Gig-economy</em></th>
<th>Characteristics of the <em>Gig-economy</em> employment model</th>
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<td>UBER, airbnb, lyft, deliveroo, TaskRabbit, Udemy</td>
<td>• Lack of social protection mechanisms</td>
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<td>• High variability of income</td>
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<td>• No job security</td>
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<td>• Lack of trade union protection</td>
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<td>• Quasi-monopolistic position of digital platforms</td>
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<td>• “Uberization” of traditional models (e.g. employers moving towards freelance contracts)</td>
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**Gig-economy**: A way of working that is based on people having temporary jobs or doing separate pieces of work, each paid separately, rather than working for an employer.

Italian medium/large companies shall re-think their organizational model, riding the macro-trend underpinning the *Gig-economy*

The *Gig-economy* work is often driven by personal choice, rather than lack of jobs... ...therefore companies must equip themselves to adapt to a growing demand for job autonomy

“...there was a sense that people were choosing self-employment because there were no jobs available. [...] But, actually, as the economy has improved, self-employment has not fallen. It is **continuing to rise**.

We are seeing more people who **simply want more autonomy and flexibility** in their lives. [...] And then these platforms come along and facilitate that; they **make it easier for people** to work in exactly the way they want.

Matthew Taylor, **CEO Royal Society for the encouragement of Arts, Manufactures and Commerce (UK)**

“One of the things we’re discussing as a leadership team is the *gig economy* [...]”

How we can make use of the **talent that wants to be independent**? How can we bring in people who normally we would hire as officers, but bring them in to do specific jobs, because **some people want to work that way**?

**We’re retooling ourselves** [...] We want to provide the space and technology that they’ll need

Deanna Mulligan, **CEO Guardian Life Insurance (US)**

The digital platforms can support the comeback of local small/micro businesses

The informal shopping on social platforms is exploding (Asia/Thailand example)*

Facebook makes available advanced tools like geo-localization to small businesses

Importance of providing internet access and digital alphabetization to local small businesses

* More than 50% of Thais buy via social commerce; Mom2babyshop, a Facebook page selling goods for mothers and infants, has reached 7 million mothers and has created 100 jobs. Part of Facebook’s investment in Thailand this year is in local partnerships and skills training to help social enterprises in Thailand gain critical skills to expand their operations (Sources: Facebook Thailand, Bangkok Post, May 2018)
“More than 10 per cent of all gig workers questioned said they only expect to stop working after the age of 75 – almost ten years after passing state pension age”

“The gig economy is a 19th century welfare system trying to navigate a 21st century employment model”
Blockchain: not only Bitcoin bubble

- Potential to disrupt “trust businesses”
- Possible negative net balance between jobs destroyed and created

One of the world’s largest bitcoin mines, located in the San Shang Liang industrial park in China (Quartz, Aug 2017)
Blockchain: From cryptocurrencies to real business disruption

Until 2017, blockchain technology has been mostly a synonym for “Bitcoin-like” digital currencies...  

...yet digital leaders start to recognize the potential of the blockchain technology

- David Marcus, one of Facebook’s top executives, the head of its Messenger platform and a former CEO of PayPal, said he's leaving Messenger and "setting up a small group to explore how to best leverage blockchain across Facebook”

- Messaging app Telegram, which has grown to 200 million users without advertising or any other business model, has raised close to $2 billion from private investors to build a blockchain-based network

Mass media interest in blockchain has mostly been linked to the Bitcoin “price bubble”

Source: Coinmarketcap.com; CNBC 9 May 2018;
Blockchain has innovation potential in several areas

The key components of Blockchain technology, according to IBM

- **Shared ledger** – An append-only distributed system of records shared across the business network that provides transaction visibility to all involved participants
- **Smart contract** – Business terms embedded in the transaction database and executed with transactions so that the appropriate contracts are executed when a transaction occurs
- **Privacy** – Transactions are reliable, authenticated and verifiable
- **Trust** – Transactions are endorsed by relevant participants
- **Transparency** – All participants in the network are aware of all transactions that impact them

Possible applications of blockchain

- **Digital payments** (e.g. on Facebook, Telegram)
- Smart contracts for **revenue sharing in creative industries** (e.g. Music and other entertainment)
- **Government record digitalization**: citizen and identity management, land registries, corporate record-keeping, etc. (Delaware, Estonia)
- **Land registry** and real estate transactions (Sweden)
- **Food chain** tracking (IBM, Walmart)
- Blockchain for **insurance**

Blockchain and job occupation: our first hypothesis, yet not quantified, suggests a possible negative balance

<table>
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<th>The actors</th>
<th>Possible impact on job occupation</th>
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<tr>
<td>Traditional companies</td>
<td>• Embrace blockchain technology, reducing employees as a result</td>
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<tr>
<td>Government</td>
<td>• Embrace blockchain technology, making administrative jobs redundant</td>
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<tr>
<td>Startups</td>
<td>• Disrupt the “trust businesses”, making several professions obsolete (e.g. administration, notary,...)</td>
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<tr>
<td>Individuals</td>
<td>• Join new professions (startups if highly skilled, “miners” if not)</td>
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Session 1 – Artificial Intelligence, Gig-economy, blockchain: the system is changing

Session 2 – The future of work: work and society, decent jobs for all, organization of work and production, and the governance of work
Technology revolution and skill gaps to be filled

- AI, robotics, digitization, Deep Learning, IOT, Hypercomputing, Big Data: fast changing paradigms
- Digitization is everywhere, and rapid, not backed by education-training-retraining

A nursing robot, the Robear, has been developed in Japan to assist with the constant lifting of elderly patients (The Guardian)
Phase transition determined by the technological revolution

AI, robotics, digitization, Deep Learning, IOT, Hyper-computing, Big Data: fast changing paradigms

- **Evolving Paradigms** – The availability of new technologies is changing the paradigms for employment, modifying existing fields and creating new applications, in turn providing new employment opportunities. The loss of obsolete and not qualified jobs will be eventually overtaken by a larger number of new positions.

- **Driving forces** – Progress with machine-learning methods, exponentially increase in computing power, large data sets to train machine learning (from IoT, mobiles, social networks, ...), capillary diffusion of robotics.

- **Impact** – So far the EU has profited of new AI & IT technologies only at the 10% level. ~50% of current jobs could be automatized. Pushing digitization could allow gaining additional ~2000 billion of GDP by 2025. For Italy, there are big opportunities for automotive, tourism, textile, aerospace, health care, chemistry, ...
Phase transition determined by the technological revolution

AI, robotics, digitization, Deep Learning, IOT, Hyper-computing, Big Data: fast changing paradigms

• **Top-down** – *e.g.* EU investments in AI (20 billion euro in the next 10 years). Expected millions of new jobs by connecting AI+IT to EU industry: ~2 million already created, ~300000 vacant due to lack of skilled personnel. Dominance of US and China w.r.t. to Europe (*e.g.* for AI $20 billion invested in 2016 against 2.5).

• **Bottom-up** – Digitization is everywhere, even beyond Big Data and IoT: smartphones, e-commerce, Cloud. Continuous birth of new applications. Specific sectors, crucial and promising for Italy, are still behind: manufacturing, tourism, health care.

• **Impact on employment** – Rapid phase transition (much faster than analogous past events) re-profiling of conventional jobs, not adequately backed a prompt evolution of the education-training-retraining systems and by the required change of mentality when approaching the labor market → skill gaps
Skill gaps: basic education and training

Basic education, Science-Technology-Engineering-Maths (STEM), technical schools

- **Basic education** – Promote scientific-technological education (STEM) already at the primary school level: scientific method as background. Rethink primary educational programs. The latter is instrumental to future economics-humanistic studies, as well: trans-disciplinary knowledge and attitude to creativity, innovation and problem solving.

- **High School** – Already now 100-200 thousand high-tech vacant positions in Italy. Secondary technical school (*Istituti Tecnici*) is the weak element of the chain: no man’s land. ~100 thousand less students in 10 years, only 50% success rate in finding a job mostly not corresponding to the (very often rather obsolete) qualification.

- **ITS (*Istituti Tecnici Superiori*)** – Virtuous element of the training system: post high-school institutes. Increase investments on ITSs: programs, teachers, infrastructure, apprenticeship (institutionalize co-operation with industry and private stakeholders). Presently jointly supported by State, Regions, EU and private investors. Higher than 80% success rate in finding a qualified job. Keep the pace and flexibly adapt programs and methods to the development of new technologies. Foster creativity and application of digitization to the creation of new professional figures.

- **Italy vs Europe** – About 10000 students in the ~100 ITCs to be compared to 1 million students in the German *Fachhochschulen*. For the Swiss *Fachhochschulen* there is an effective (compulsory) connection of apprentices with industry/private employers.
Skill gaps: high level education and research

University programs, teachers and research

• **University education** – The negative features of technical high-schools (poor training) impact to the university STEM education. Critical: limited skills level for students from generalist universities (top-down push to bring any students to a degree).

• **High-level training** – MS/PhD and Post Doc education should pay more attention to the technological revolution. The delay between new developments and high-level specialized education is generally short but there is the risk of not having enough up-to-date teachers and professors.

• **Research** – Basic science & technology public research must be promoted as a fundamental tool to create innovation also for emerging fields. However, most of the recent worldwide developments and breakthroughs in AI, IT and related digital technologies do not come from university and public research (big companies, specialized industry,...). A peculiar feature of advanced research in Italy is the lack of support from private investors and companies.
Skill gaps: improve human capital development

Retraining and reconversion

- **Qualified manpower** – Aging of population, falling natality and brain drain will progressively reduce the availability of qualified technological manpower in Italy. Envision the possibility of qualified immigration/return from emigration to sustain the development of AI, IT and robotics applications to strategic fields.

- **Worker transition** – Train workers on creativity and critical thinking. Effective retraining is critical for mid-career employees who will be required to move to new occupations and to different (new) types of automatized work.

- **Work dynamics** – Crucial assets will be mobility, better match job-skills, new forms of contracts.

- **Support to workers** – Strong interlink between worker welfare and new jobs: as a general guidance, retraining should become an integral and fully recognized aspect of future positions.

- **Achieve retraining** – A critical issue for rapidly evolving (and novel emerging) technologies is who is going to provide retraining and decide about suitable reconversion strategies. The latter cannot be naively defined and put in place by the employees or by public/private companies. One possibility is creating new professional figures acting under control/management of state labor authorities and organizations.
The future of work

- Policy discourse
- Impact of technology on the quality and quantity of jobs
- New directions for the governance of work
- Situation and aspirations of youth
Global conversations shaping the policy discourse around the future of work

**Work and society**
- What is the socializing function of work?
- How does the changing nature of work affect the coherence of our societies?
- Visible and invisible work. What consequences and what kind of impact on societies?
- Utopia (more inclusive, free time, culture) vs Dystopia (high unemployment, inequalities, less welfare)

**Nature and creation of jobs**
- How will the meaning of work evolve with technological changes?
- How will working time be affected by technological changes and other drivers?
- Where does this fear that from technological advance will mean fewer jobs stem from?

**The organization of work and production**
- The employer – employee relationship. What will be the new normal?
- Labour relationship vs commercialized relationship. Will labour become a commodity?
- Is the algorithmic boss a reality?

**The governance of work**
- What challenges at global, national and transnational levels?
- Are existing institutions and tools fit for purpose?
- What role will voluntary private forms of self-regulation play?
The impact of technology on the quality and quantity of jobs

**Facts**

- Effects of technological change are likely to be context-specific, differing among countries, sectors and occupations
- Fewer jobs overall → high and low quality with little in between
- Competition between humans and machines is likely to increase

**Policy dilemmas**

- What policies are critical for sharing technological dividends broadly avoiding increased labour market polarization and income inequality?
- What measures need to be taken to mitigate the consequences of job destruction?
New directions for the governance of work

Facts

• Legal regulation of the employment relationship challenged by informality, labour migration and proliferation of non-standard forms of employment

• Collective regulation of work is also challenged by stagnant or falling membership of trade unions

• Transnational labour governance - Private governance – New governance

Policy dilemmas

• How can private and public governance best be combined so as to reinforce each other?

• Would proliferation of normative regimes lead to normative inconsistency?
Addressing the situation and aspirations of youth

**Facts**

- Transition from school to work is increasingly difficult. Level of educational attainment are raising. Young people remaining longer in education. Work-study combination increasing

- Poor quality jobs, low degree of job and income security, limited access to training and career development, restricted opportunities for collective representation.

- Widespread sense of uncertainty. Importance of flexible working schedules gradually replacing traditional employment characteristics

**Policy dilemmas**

- How to link educational institutions with firms and labour market intermediaries

- How best to facilitate intergenerational mobility?