

ISIGrowth and the IV Industrial Revolution projects

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A twofold goal

- ▶ We will provide novel and comprehensive **diagnostics** of the relationships between innovation, employment dynamics and growth in an increasingly globalized and financialized world economy.
- ▶ We will elaborate **policy scenarios** and we will deliver a coherent policy toolkit to achieve the Europe 2020 objectives of smart, sustainable and inclusive growth.



Diagnostic – Long terms Patterns and Structural Change

WP1 – Analysis of the long-term dynamics of European economies, in comparison with the United States, Japan and some major emerging economies, with respect to:

1. Degrees of innovativeness
2. Patterns of structural transformation
3. Sectoral and regional shifts in innovation, productivity and employment
4. Growth performances



Diagnostic – Globalization and Financialization

WP2 – Identification of the varying degrees according to which European economies are displaying:

- ▶ A significant tendency toward deindustrialisation
- ▶ The relative consequences in terms of income distribution and employment.

WP3 – Analysis of European macroeconomic, sectoral and micro dynamics in the context of a world economy characterised by:

1. Increasing globalisation of production
2. Increasing degree of financialization



Diagnostic – Inequality

WP4 – Disentangle purported effects of

1. Skill biases technical change
2. Globalisation
3. Financialisation
4. Broader institutional causes



Diagnostic – Transmission mechanisms between the financial sector and the real economy

WP4 – Address the multiple links between the financial sector and the real economy and their impacts on

1. Rates of innovation
2. Growth
3. Income distribution



WP5 – The dual role of innovation and its firm and sectoral level effects

1. Driver of income and employment growth
2. Labour-saving effects
3. The ensuing patterns of job creation and destruction flows

Diagnostic – Schumpeter meeting Keynes

WP6 – Study of the links between

1. Schumpeterian patterns of innovation
2. Keynesian mechanisms of demand generation
3. Conditions under which their combination can drive socially inclusive and environmentally sustainable growth



Policy Scenarios

WP7 – Ensemble of policies

1. Innovation
2. Industrial
3. Fiscal
4. Monetary

Agenda of structural and institutional reforms that can help unlock European economies from the current crisis and put them on solid, socially-inclusive growth paths



Methodologies and approaches

1. Data-driven analysis
2. Complex evolving nature of the economy
3. Agent-Based Evolutionary models



The IV Industrial Revolution project

Research domains

- ▶ The technological nature of the IV Industrial Revolution
- ▶ Industry Dynamics and Diffusion
- ▶ Occupational dynamics
- ▶ The effects of the IV Industrial Revolution on labour organization
- ▶ Social and Political Scenarios



A Blade Runner scenario?

- ▶ A blossoming debate on the effects of robotization upon both employment and inequality is now spurring among scholars in the economic discipline.
- ▶ Should we expect an age of medieval techno-feudalism governed by a plutocracy which owns machines and robots, which will enjoy high standard of living, together with the most part of the population deprived of the benefits of technology?



Is this time really different?

- ▶ The Industrial Revolution was no marriage party for the working classes: it was largely an era of degradation of social conditions and it took decades for productivity growth to trickle down to the working classes.
- ▶ Today there are worrying factors which hint that it might not be so in near future. And they have to do with both the impact of the new technologies and, even more so, with the ways the old socio-economic regime, call it “Fordist”, progressively exhausted its driving force.



Some long term patterns

1. De-industrialization
2. Stagnant wages and divergence between productivity growth and wage growth
3. Declining labour share and related
4. Massive surge in corporate profits, especially financial ones
5. Declining labour force participation
6. Declining business dynamism and net job creation
7. Soaring inequality
8. Polarization and growing number of part-time jobs (gig-economy)



The consistency conditions among:

1. The nature of the fundamental technological paradigms
2. The modes of production and labour processes associated with them
3. The patterns of interaction between the major social groups
4. The baskets of consumption, which are a function of income levels, income distribution, and given the latter, of the ways societies organize the use of non-working time, the provision of services, etc.



The main question

The emergence of a new techno-economic paradigm?

The massive introduction of robotized work certainly characterizes the industrial sectors, with robotic arms able to substitute for repetitive and routinized activities.

But, artificial intelligence, algorithms and software developments become increasingly relevant also in the service sectors, which nowadays employs the largest labour share.

As a direct consequence, robotization and AI do not represent a threat only for blue-collars workers, but for the white-collars as well.



Coexistence of Old Taylorism and Digital Taylorism but without Fordism!

Two archetypes of labour relations:

- ▶ Old Taylorism: clear control and subordinate working activity, vertical industrial relation
- ▶ Digital Taylorism: soft-power, fictitious independence, myth of creativity and self-organization



Old Taylorism in the ICT era

The Foxconn archetype: Source: Pun Ngai, "Nella fabbrica globale", 2015

Among the biggest worldwide employers and the first Chinese exporter.

- ▶ Massive migration from agricultural areas of young workers (born after 1980s)
- ▶ Factory-cum-dormitory: *Dormitory Labour Regime*
- ▶ Every factory building and dormitory has security checkpoints with guards standing by 24 hours a day
- ▶ All employees, whether they are going to the toilet or going to eat, must be checked
- ▶ Physical and verbal violence is systemic in Foxconn system. Workers are harassed and beaten up without serious cause



Old Taylorism

The iPad case

The global value chain

- ▶ International brand-name corporations (Apple) who squeeze their suppliers
- ▶ To secure contracts, Foxconn minimizes costs, and transfers the pressure of low profit margins to frontline workers.
- ▶ Average wage quite close to the province minimum wage
- ▶ Massive reliance upon overtime hours

- ▶ price of the iPad : \$ – 499
- ▶ manufacturing costs: 9\$ equivalent to 1.8% \Rightarrow *Foxconn*
- ▶ costs of components: 250\$ equivalent to 50%

Source: Pun Ngai, "Nella fabbrica globale", 2015



More on workers conditions

In 2010, 18 workers committed a suicide

A worker blog (after the 12 suicide at Foxconn)

To die is the only way to testify that we ever lived.

Perhaps for the Foxconn employees and employees like us – we who are called nongmingong, rural migrant workers, in China – the use of death is simply to testify that we were ever alive at all, and that while we lived, we had only despair. Source: Pun Ngai, “Nella fabbrica globale”, 2015



Digital Taylorism - The Uber-Foodora-Deliveroo archetype

- ▶ Based on cheap, generally educated workers
- ▶ Without a workplace
- ▶ Being “your own boss”
- ▶ Transfer of the entrepreneurial risk from firms to workers
- ▶ Managed not by people but by an algorithm that communicates with workers via smartphones
- ▶ Disappearance of both collective and even individual labour contracts



How the App changes the salary - UberEats

- ▶ Started paying 20 pounds an hour
- ▶ Then it moved to 3.30 pounds a delivery plus 1 pounds a mile, minus a 25 per cent “Uber service fee”, plus a 5 pounds “trip reward”
- ▶ Then the “trip reward” had been cut to 4 pounds for weekday lunch and weekend dinner times, and to 3 pounds for weekday dinner and weekend lunch times.

Algorithmic management - Control

How to instruct, track and evaluate a crowd of casual workers you do not employ, so they deliver a responsive, seamless, standardised service.

- ▶ monitoring of the workers
- ▶ sending productivity evaluation messages (time to accept orders, time to deliver, travel time to restaurant, travel to customers, late orders)
- ▶ but... drivers can't be deemed employees because they have no obligation at all to log on to the app (Uber).



The challenges for labour

- ▶ The treat of mass robotization and AI to both Uber and Foxconn workers
- ▶ Massive increase in labour shedding in both manufacturing and for the first time in services
- ▶ Polarizations in employment opportunities and incomes

