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Digitalisation of the economy and its impact on labour markets

Christophe Degryse

"It is the responsibility of politicians, and also of the social partners, to analyse and anticipate the impending labour market polarisation caused by digitalisation of the economy".

The 4th industrial revolution will cause severe disruption of the world as we know it. This is a revolution able to deliver many good things: a connected world, more opportunities for cooperation, machines to do much of the heavy work, computers able to assist in complex tasks, etc. Yet alongside such technological miracles, labour markets will be thrown headlong into confusion. Of course every revolution brings social change, but the one now underway looks set to create a perfect storm for employment.

This working paper gives an overview of the new possibilities opened up by the 4th industrial revolution and tackles some specific questions in relation to its effects on the labour market, including on the status of employees, on working conditions and on training. It examines the role that trade unions can play in the digital economy and the main initiatives already proposed at European trade union level in this context.

Key findings

- While digitalisation of the economy is not a new phenomenon, it has reached a new tipping point. The marriage between Big Data and robotisation heralds a new economy and, hence, a **new world of work**.
- The wide-ranging impact of the 4th industrial revolution on labour markets can be broken down under four headings:
 1. **Job creation:** the creation of new sectors, new products and new services.
 2. **Job change:** new forms of worker/machine interaction; new forms of jobs – for instance the so-called 'uberisation' – which result in new risks (work intensification, health and safety, increasingly porous private/working life boundary, training mismatches, discrimination, etc.); effects at managerial level (new digital management).
 3. **Job destruction:** the jobs at risk of computerisation, automation and robotisation in the next ten to twenty years are increasing. While there is no consensus on just how many jobs will be lost, what is clear is that the numbers will be very high.
 4. **Job shift:** the development of digital platforms and crowdworking, where workers from countries with high levels of social protection are brought into competition with those from countries with low levels of protection and from developing countries. The relocation of services facilitated by certain platforms of the 'sharing economy' is applicable also to high-skilled jobs, such as accounting, finance, etc.
- These four phenomena, taken together, are likely to create an increasingly polarised society characterised by gaping inequality between the few 'winner-takes-all superstars' and the masses of 'losers'; by a hollowing out of the middle classes with the disappearance of large numbers of medium-skilled jobs and the proliferation of a new class of 'digital galley slaves' who perform the tasks of data sorting-entry-filtering-filing, cleaning up forums, monitoring images, etc.
- It is to avoid a situation in which the industrial revolution of the 21st century plunges the world back into social conditions reminiscent of the 18th century that labour organisations in many European countries are calling for a new social charter to regulate the digital economy.

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Key data

Figure 1 Summary of the main issues examined broken down in a SWOT analysis

Strengths	Opportunities
<ol style="list-style-type: none"> 1. Connected world, open systems, knowledge economy 2. Networks, exchange, sharing and collaboration, with access based on functionality rather than ownership 3. Integration of industries and services: intelligent factories, energy systems, mobility, transport and cities and 'optimised' governance 4. Automation, robotisation, learning machines 5. Productivity, efficiency and profitability gains 6. Zero marginal cost economy 7. Innovative products and services, proliferation of mobile apps to 'make life easier' 8. New autoproduction capacities, micro factories 	<ol style="list-style-type: none"> 1. New jobs (computer engineers and scientists, network experts, etc.) 2. More 'agile' work organisation; new forms of more flexible and more autonomous work 3. Abolition of repetitive and routine tasks 4. Better ergonomics, help in performance of heavy or complex tasks 5. New forms of collaboration and cooperation among workers 6. Reshoring or onshoring (return of industries and new 'smart' factories – and jobs – to their country of origin) 7. Possibility of new ways of distributing productivity gains (working time reduction) 8. Possibilities of social emancipation, change of economic model geared to peer-to-peer and common goods ('post-capitalist' society)
Weaknesses	Threats
<ol style="list-style-type: none"> 1. Jobless growth, jobless future 2. Emergence of super powerful oligopolies, new world data masters 3. Concentration of power and wealth in value chains (equivalent losses for other companies, sectors and countries) 4. Frequent problems of (non)-compliance with regulatory, administrative, labour and taxation standards 5. Protection of personal data exposed to intrinsic risks 6. 'Algorithmisation' of individual behaviour, work and consumer habits, social and cultural preferences; normalisation and standardisation of the individual 7. Hollowing out of the middle classes and polarisation of society between a reduced number of 'top-of-the-scale' workers and a mass of 'bottom-of-the-scale' workers 8. Under-investment and under-utilisation of digital tools for the social emancipation of low-income sections of society 	<ol style="list-style-type: none"> 1. Massive destruction of medium-skilled jobs (computerisation) 2. Intensification of 'anytime, anywhere' work; blurring of the boundary between private life and working life leading to stress and burnout 3. Loss of control by workers of their own expertise and know-how and free will (becoming the tool of a machine) 4. Digital management, policing of workers, risk of mutual loss of trust between employees and management 5. Precarisation of jobs and statuses, total dependence on 'data masters'; 'servification' 6. Weakening of collective action and industrial relations 7. Skills and training/labour demand mismatch 8. Exacerbation of inequality, wage stagnation 9. 'Digital Taylorism' and emergence of a class of digital galley workers (crowd sourcing); world competition among workers for all jobs not requiring face-to-face contact 10. Erosion of tax base and social insurance financing

Source: Christophe Degryse (ETUI 2016)

Figure 2 Jobs in the digital economy

Jobs at greatest risk of automation/digitalisation	Jobs at least risk of automation/digitalisation	New jobs
<ul style="list-style-type: none"> Office work and clerical tasks Sales and commerce Transport, logistics Manufacturing industry Construction Some aspects of financial services Some types of services (translation, tax consultancy, etc.) 	<ul style="list-style-type: none"> Education, arts and media Legal services Management, human resources management Business Some aspects of financial services Health service providers Computer workers, engineers and scientists Some types of services (social work, hairdressing, beauty care, etc.) 	<p>'Top of the scale'</p> <ul style="list-style-type: none"> Data analysts, data miners, data architects Software and application developers Specialists in networking, artificial intelligence, etc. Designers and producers of new intelligent machines, robots and 3D printers Digital marketing and e-commerce specialists <p>'Bottom of the scale'</p> <ul style="list-style-type: none"> Digital 'galley slaves' (data entry or filter workers) and other 'mechanical Turks' working on the digital platforms (see below) Uber drivers, casual odd-jobbing (repairs, home improvement, pet care, etc.) in the 'collaborative' economy

Source: Christophe Degryse (ETUI 2016) on the basis of data from Frey & Osborne, Ford, Valsamis, Irani, Head, Babinet

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