THE DIGITAL ECONOMY AND THE SINGLE MARKET

EMPLOYMENT PROSPECTS AND WORKING CONDITIONS IN EUROPE

Pubished by:
FEPS - Foundation for European Progressive Studies
Rue Montoyer 40 - 1000 Brussels, Belgium

Edited by: Werner Wobbe, Elva Bova,
and Catalin Dragomirescu-Gaina

Page layout: Triptyque – Belgium

ISBN: 978-2-930769-17-2

This book is produced with
the financial support of the European Parliament

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FOREWORD

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ERNST STETTER

Digital economy has been a rapidly expanding topic of discussion in the European policy arena, especially after the European Commission put forward the Digital Single Market Agenda in May 2015. Promoting a digital strategy could potentially bring substantial economic benefits for Europe as a whole, improve consumers' access to goods and services, increase productivity and create new employment opportunities. While there are very good reasons to believe that some of these economic fruits will be picked and cherished, these advantages may most likely benefit the same individuals and companies leading the technological race. There is a risk thus that some other parts of the society and the economy might not benefit at all, or might suffer losses from digital change, and this could translate into a waste of human and economic potential.

Despite its inherent merits, the Digital Single Market initiative might hence fail to properly address some highly relevant employment and social consequences. In the meantime, some other global actors such as the OECD, ILO and the World Economic Forum, seem to adopt a more comprehensive approach by actively expanding their knowledge base, undertaking surveys coupled with in-depth analyses, and genuinely promoting discussions and communications with a more balanced view on employment and social consequences of digitalization.

Within this context, the present book tries to challenge this European narrative by providing food-for-thought from leading academics, policy-makers and other important stakeholders. The book discusses some of the rapidly emerging trends that define the digital economy and its interaction with the more traditional

economic sectors, despite the increasingly blurry division line between the two. More importantly, the book addresses the wider consequences expected to influence the policy discourse with respect to working conditions, employment and social protection, regulatory environment, digital skills and qualifications, and many other related aspects. In doing so, it tries to bring insights into the complex web of interactions between technology, employment and social security, and how these interactions might be affected by current or future policies and regulations. There are many good examples and even initiatives highlighted in the book on how some of these challenges might be addressed through better monitoring and control mechanisms, credible and responsible institutions etc.

The book is divided into four main chapters, each containing three separate articles on some highly topical aspects related to digitalisation and employment. It is a joint effort of its many authors and contributors, with the Foundation for European Progressive Studies mainly providing the opportunity for these ideas to flourish and then feed back into the public policy debate.

The time for action is now and there seems to be some good momentum for all policy stakeholders to lead and be pro-active in building a coherent understanding and an adequate policy response to the challenges.

Acknowledgements: This book would not have been possible without the contribution and support from our partner, UNI-Europa and its secretary general, Oliver Roethig. Special thanks go also to former FEPS Senior Economist, Elva Bova, who coordinated the project. Last but not least, all the contributing authors of this book deserve a separate mentioning for their great effort and support along the entire project.

IN MEMORIAM

DR. WERNER WOBBE
1948-2016

Member of the FEPS Scientific Council,
the initiator and one of the main contributors to the book.

We deeply regret that Dr. Werner Wobbe
could not see this book finalised.

Massimo D'Alema, President of FEPS

Bruno Liebhaberg, Chair of FEPS Scientific Council

Ernst Stetter, Secretary General of FEPS

INTRO
DUCTION

DIGITALISATION OF WORK AND THE SOCIAL IMPACT OF THE PLATFORM ECONOMY

WERNER WOBBE

Abstract

Digitalisation will have repercussions on the European labour market in the years to come. The European Commission has identified a high positive potential of the digital economy while other institutions or authors warn about high replacement effects. The structural change across business sectors, world regions, and in Europe between core and peripheral nations will be dramatic. The impact of the digital revolution will be less in terms of the technical replacement of jobs, but more in terms of the emergence of new forms of business organisation and their effect on the work organisation.

Firms will expand their business activities over national borders by crowdsourcing via digital platforms. On one side, core employees control well-defined services and tasks, and on the other side crowdworkers compete for small tasks or jobs offered via digital platforms. This new global platform economy replaces protected and insured employees with self-employed contractors or insourced freelancers. Such development is eroding the traditional form of workers' organisations as trade unions are no longer able to organise workers in factories or offices.

This volume reflects social and political issues on working conditions caused by the digital revolution. It assesses options for regulation and potential action at the European level.

Introduction

The European Commission has launched the "Digital Single Market Strategy" as one of the priorities of the Juncker Commission[1]. The communication announces:

- Better access for consumers and businesses to online goods and services across Europe;
- Creating the right conditions for digital networks and services to flourish;
- Maximising the growth potential of our European Digital Economy.

The Action Programme shall overcome the fragmentation of the European digital single market. It envisages a contribution of up to €415 billion to the European economy, boosting jobs, growth, competition, investment and innovation. It shall foster better services at lower prices, and create opportunities for new start-ups as well as allowing existing companies to grow. A completed Digital Single Market shall maintain Europe's world position in the digital economy.

Under any circumstances the digital economy will heavily impact our lives and our working conditions. The European debate is about which regions will be able to take up the opportunities and profit in the Single European Market the most, given that digital advancement may be uneven and benefits may not equally dis-

tributed. Also, questions arise on how to overcome the economic divide in Europe and how the infrastructure, institutions and the skill potential could best be mobilised.

A particular characteristic of the digital revolution is that individual roles of private people, consumers, or workers are becoming blurred. We as private consumers enjoy the technological capabilities of free online services like mobile GPS data, Google information capacity, the Wikipedia online encyclopaedia, social media like Facebook, WhatsApp or online banking, travel, hotel or taxi bookings. The success of online shopping and fast delivery practiced by Amazon tells us something about consumer choice and the appreciation of convenience. The dark side of consumers' choices is the loss of privacy. Transparency through online business means giving up the secret of private life styles to a large extent. Privacy protection can be easily breached by criminal practices, be they by private individuals or by secret public activities. Parallel to the impacts of digitalisation on private and consumer life are the impacts on the working life and work places. Studies reveal that jobs which require average qualiications disappear like those of bank employees or vendors in department stores, while simple jobs have emerged in delivery and warehouse employment. Workers have become used to computers and e-mail and, as a consequence, secretarial posts have largely disappeared. The mobile phone might ring all day and SMSs may pop up requiring a response if the superior wishes a reaction. More fundamentally, however, it seems that employment with normal working conditions is decreasing, while atypical work, freelance contracts, and digital self-employed are on the rise and facilitated by digital equipment.

Important institutions have put digitalisation on their agenda. The World Economic Forum in Davos has selected the "4th industrial

revolution" for its January 2016 conference. The topic is about interconnected machines, communicating to each other and acting autonomously[2]. At the EU level, the Digital Single Market Agenda of the Junker Commission has elicited a reaction in the European Parliament (EP), raising questions about the social implications of technologies. The EP EMPL Committee will assess if, and what kind of, regulations may be required.[3] At the international level, the Trade Union Advisory Committee (TUAC) to the OECD has called on Labour and Employment Ministers to revise the OECD Jobs Strategy by including an "Action Plan for Decent Work in the Digital Economy"[4].

UNI Europa, the European services workers' union, and ÖGB, the Austrian trade union federation, have joined for a declaration on "Digitalisation, Work and Employment in the EU"[5] by demanding:

- A digital world requires high standards for the protection of personal employee data;Digital technology must serve to empower workers and enrich work;
- Workers' rights and social protection for all in the digital age;
- Education and training systems have to fit for the digital age;
- Reinforcing the European social model in the face of digital change.

German trade unions ver.di and IG Metall have taken action to organise crowdworkers or the self-employed in the digital economy.

While workers have increasingly experienced the implementation of robot technology at the shop floor level, the service sector has been concerned by computers and internet for over a quarter of a century. Intermediaries, such as travel agents or bank employees, are particular affected by the internet. These intermediary functions are facilitated by so-called platforms. The platforms are run by start-ups or even by ICT global leading firms. The platforms have grown quickly and make up their own economy. Salaried work in the service economy is mediated by these platforms. A plumber or a household aid, and even a prostitute, may not only offer services by an advertisement either in print or online but also by an internet platform that is controlled by a service provider that sets the standards for the service to the consumer/client as well as to the worker.

These segments of the labour market represent a small but rapidly growing part of the workforce. Currently, taxi drivers or taxi companies are concerned with Uber or Lyft. Also, delivery services offered by platforms are a growing business sponsoring ride-sharing and food-delivery. These new emerging sectors provide opportunities for workers and customers but raise serious challenges to the administration of existing employment, labour, and tax law. Individuals who search for gainful work utilise platforms such as car rides. However, they do not neatly fit into existing legal work or employment categories of "independent contractors" or of "employees". An independent contractor delivers a contracted service and he/she is paid by an all-inclusive fee. In most countries civil law regulates the contract. On the contrary, the employee is protected by labour law that guarantees social protection, social benefits and insurances and their costs are mainly born by the employer.

Crowdsourcing as an enterprise strategy

A particular aspect of the digital economy is crowdsourcing[6]. Firms

have always bought material, components, and services to finish and sell a product or complex service. The traditional economy buys or sources pre-products or pre-services from well identified suppliers. The digital economy addresses the undefined crowd of individuals located anywhere in the world. Addressees are the crowdworkers. The digital platform is the instrument for public calls to the crowd. Examples of such platforms are "Amazon Mechanical Turk", "Clickworker", "oDesk", "Freelancer.com", "InnoCentive"," TopCoder", and Testbird". A platform indicates the task to perform, delivery date, and the fee. Crowdworkers then apply and compete for tasks which may range from micro-tasks to complex concept solutions. Tasks formerly performed by in-house employees are now carried out by freelance crowdworkers. The replacement of employees by freelancers is a change in the organisation of the enterprise. The enterprise opens up to a global pool of talents of independent contractors.

Crowdsourcing offers the enterprise a large pool of talent as well as potential low costs, efficiency and few legal restrictions. The enterprise shrinks its workforce to a core while irregular or less relevant tasks are insourced on demand. This management strategy reduces personnel-related social security costs, employee-related fixed costs like those for vacation, health, pensions, offices and other social insurances.

Amazon's Mechanical Turk as an example

Amazon's Mechanical Turk is probably the best known example of a crowdsourcing internet marketplace that calls for individuals to perform tasks that computers are currently unable to do. This platform offers a range of tasks, from simple computer online tasks to more complex and demanding jobs to be executed for job seekers around the world. Mechanical Turk addresses half a million

individuals around the world[7]. The jobs offered could be yes/no decisions (click work) or it could be choosing the best among several photographs of a storefront, writing product descriptions, or identifying performers on music CDs. Workers, also called Turkers, can then browse existing jobs and complete them for a fee set by the employer. In the meantime a range of platforms or intermediaries have been established with a range of specialisations in certain skills like those of easy click jobs, testing, programming, or of competition platforms searching and competing for the best solution to a problem.

The IBM example and it external cloud contributors

Andreas Boest[8] characterises the IBM's enterprise strategy called "Generation Open" (GenO) as an industrialisation of knowledge work. The strategy is an effort to embed crowdsourcing into a concept of production, combining work from outside the enterprise with the reorganisation of work inside the enterprise by internet connection or by cloud working. IBM nowadays understands itself as a "globally integrated enterprise" without employing its entire workforce in the enterprise. IBM, based on traditional organisational structures, has aged over time and the new business model will lead the enterprise into the digital future. The strategy enables IBM to access workforce resources outside the sphere of wage labour. Thereby it reaches potential innovations beyond its own borders on its new portal "Liquid" as well as with the crowd sourcing platform "TopCoder". "Liquid" does not address the crowd as a whole but only a group of identified freelancers. They are at IBM's disposal for carrying out compartmentalised work packages. Crowdworkers only receive payment if the work done is submitted and accepted within the appointed time. The concept allows recruiting and integrating a software developer into the internal production processes on a world-wide scale without

an employment contract. The model for this concept is the Open Source Community. The community develops software by globally distributed teams. These teams are inspired by a special culture of communication and collaboration. However, standardised work procedures also go along with new control mechanisms. A “Blue Card” registers “Blue Points” to build up a digital reputation of outside and inside developers. Analytics tools eventually monitor the performance.

Boes concludes that the new “space for production” allows for a distributed, standardised, and globally-synchronised work which is permanently monitored. This so-called new industrialisation of high-skilled knowledge work turns work activities into exchangeable labour. An enterprise therefore can reduce its highly skilled and highly paid labour force into a globally insourced contractor-based labour force. In a nutshell, external and internal labour is glued together in the digital cloud.

New dimensions of control

IBM practices could be understood as a new dimension of communication and collaboration in a positive light. However, they exercise a new dimension of control on coordinating the work processes. They can insource well-defined pieces of service work and are able to pay only for these pieces of work. The systems are able to track progress on more complex work packages and to integrate them timely into the timeline of output.

Contrary to employees, private consumers may enjoy the features smart phones offer in view of mobility. A cell phone could offer navigation or contain a ticket, a car key, or a purse. All the services offered require a centralised control on the users. The private consumer has the choice of agreeing to the storage of his private data

and its surveillance. He/she might be worried about data protection and possible misuse or fraud of personal data but disclosure of privacy is the price for convenience.

At work however, a digital employee is controlled more forcefully than probably assumed. Mass services are under digital supervision. Delivery services of firms like UPS or DPD are tracked on their progress. Car drivers of Uber are tracked by definition as a client knows in advance which route a driver should take. The car driver is paid for that standard route. In a warehouse Amazon pursues its warehouseman. In view of the simple work to pick and deliver items, the tracking software can precisely calculate the required time to perform a task. The consequence for Amazon workers or for Mechanical Turkers is that tasks are precisely calculated. The work performance can be rated and pay will in consequence only be issued for tasks executed. Slots of free time between two tasks are eliminated. The implicit digital surveillance offers employers high transparency on time required to execute a task and on work performance. In cold economic terms, this part of the digital economy is called productivity increase.

The quantitative dimension of digital technology on work and employment

What consequences will these developments of digitalisation have on the labour market and on work places? Frey and Osborne came out with some alarming research results in 2013. Their econometric study on the future of employment and computerization[9] says that 47% of jobs in the US – by implication a similar percentage across Europe – are at risk due to digitalisation. Digitalisation has two contradictory effects: on the one hand it will reduce the demand for labour in aggregate and on the other

hand it will increase the demand for high skilled labour - particularly those skills that complement technology.

Jeremy Bowles from LSE presented his view on the computerisation of European jobs[10] at the Bruegel think tank. He made US figures comparable to European ones. (He translated the Standard Occupational Classification (SOC) used by Frey and Osborne into European employment data broken up according to ISCO-defined occupations.) The outcome was: Northern countries, meaning Netherlands, Belgium, Germany, France, UK, Ireland, and Sweden, have computerisation risk levels similar to the US figure mentioned above. The further away from this core of countries, the higher the risk of job automation, with countries on the periphery of the EU most at risk. They go up to well over 60%.

In September 2015 the Boston Consulting Group (BCG) presented a study on the German labour market[11] and on how technology will transform the industrial workforce by 2025. BCG is looking positively at the change, saying that while 610.000 jobs will be lost, 1 million could emerge. However 120,000 information technology specialists will be lacking. The main challenge would be to enhance skills by further education and by reskilling. The authors call on private enterprises to engage. However, eventually it may fall back to the public to take action in upskilling and education.

The World Economic Forum in Davos forecasts a global net employment balance of the digital economy with more than 5.1 million jobs lost in total to disruptive labour market changes over the period 2015–2020. In more detail, there are gains and losses calculated. A total loss of 7.1 million jobs and a total gain of 2 million jobs are forecasted in several smaller job families. The job losses are about two thirds concentrated in the office and administrative job family.[12]

The research department of the International Labour Organisation (ILO) observes that non-routine cognitive skills are on the rise at global scale. Contrary, non-routine manual skills (trained workers) fall as well as manual routine skills. High income jobs had increasingly more income. Full time patterns erode and temporary, on demand, on own account, and unpaid work are on the rise. Inequality is rising rapidly and a growing divide between capital and labour income is continuing. Underlying factors for these developments are new technologies that have facilitated a complex “creative destruction process” and a fragmentation of production. Boundaries of enterprises have changed due to e-business and crowd work. The management of global value chains foster new ways of enterprise organisation, coordination, and outsourcing[13].

A study by Harris and Krueger (2015) on working of online intermediaries in the “gig economy” identifies about 600,000 "independent workers" in the USA, which is about 0.4% of US employment[14]. This number is estimated to be growing rapidly. Another study that Hall and Krueger did in conjunction with Uber’s research chief was on the income of crowd workers in the US[15]. The study reveals that an Uber driver’s gross income is $17.50 an hour on average. That study of gross earnings was based on October 2014 data, before Uber further lowered fares in 48 cities. But after subtracting the cost of gasoline, insurance, and auto maintenance, many drivers say they earn net just $10, $11, or $12 an hour.

Blohm discloses the average income of crowdwork in Germany in his contribution to this volume. The income evidently varies by tasks performed. On micro-task platforms, crowd workers earn about 144 euro while those in the field of design earn 662 euro monthly. However, most of the individuals of their sample perform

crowdwork as a second occupation, meaning that crowdworking income has to be added to the main income.

Outsourcing or insourcing - crowdsourcing

Outsourcing of tasks or jobs erodes protected employment in enterprises. Outsourcing allows the employer to pay only for clearly defined tasks. The worker may be free to accept carrying out the tasks offered by a platform and they may be free to choose different platforms to look for jobs. They may choose certain tasks they are able to perform due to their skills or by the timescale that suits them. However, a crowdworker has to face stiff competition to get the desired task. Such competition can lower the pay of the task. The crowd worker's status is that of an independent contractor or freelance worker and not that of an employee. Therefore, the employee will not receive social protection and insurance.

Taking the working conditions into account, a debate is currently being held to discuss the fact that this type of worker should not be classified as an independent contractor. On the contrary, crowd workers should be classed as a kind of employee because they need protection as they cannot live from piece-meal task pay. At the least, a new employment status should be established to combat the poor working conditions and improve their labour market standing by reducing legal uncertainty.

Employee or independent contractor

Independent contractors, in contrast to employees, do not abandon control over their economic lives to others. Generally speaking, they are independent businesses working with multiple other businesses or clients without significant limitations, except

those to which they may agree by contract or laws that may belong to businesses in their sector. Typically, these relationships are not expected to last beyond the completion of a particular task, activity, or deadline.

Harris and Krueger point out that the current legal standard for distinguishing between "employees" and "independent contractors" mainly involves nine different distinctions[16]:

- “Role of work: Is the work performed integral to the employer’s business?
- Skills involved: Is the work not necessarily dependent on particular skills?
- Investment: Does the employer provide the necessary tools and/or equipment and bear the risk of loss from those investments?
- Independent business judgment: Has the worker withdrawn from the competitive market to work for the employer?
- Duration: Does the worker have a permanent or indefinite relationship with the employer?
- Control: Does the employer set the pay, working hours, and the manner in which the work is performed?
- Benefits: Does the worker receive insurance, pension plan, sick days, or other benefits that suggest an employment relationship?

- Method of payment: Does the worker receive a guaranteed wage or salary as opposed to a fee per task?

- Intent: Do the parties believe they have created an employer-employee relationship?"

One of the fundamental social protections in labour law is to protect workers and later employees from hardship due to health issues. The German worker's compensation law of 1884 was the first of its kind in the world followed by Austria, Norway, and Finland before the turn of the century. The law paid indemnity to all private wage earners and apprentices with work-related injuries for up to 13 weeks. The totally disabled received continued benefits paid by an accident fund financed by employers. The German compensation system has been taken as a model for many nations.

However such a scheme is not in place all over Europe. It does not exist in the UK. An employee can pay for permanent health insurance or private medical plans but the UK government does not recognise the need for a rigid insurance scheme of the sort prevalent in Germany and other European countries and across the USA. Work-related safety issues in the UK are controlled by the Health & Safety Executive (HSE) who provides the framework by which employers and employees are able to comply with statutory rules and regulations.

Party positions so far

The Group of the Progressive Alliance of Socialists & Democrats in the European Parliament established a “Working Group Digital Europe”. It is chaired by Joseph Weidenholzer, S&D Vice-President, in order to monitor and shape the Digital Single Market Agenda of the European Commission. The Group issued a paper

"Toward a Digital Union" in May 2015[17] targeting a large array of aspects of the Digital Single Market. In a chapter on "Digital jobs for all" it calls on the Commission and Member States to:

- Provide ongoing assessments of the qualitative and quantitative effects of the digital economy on employment to ensure a fair productivity distribution;
- Support and prepare the workforce, through financing training, retraining and life-long learning;
- Undertake more research on new forms of employment arrangements and how to safeguard job quality in such processes of change;
- Encourage social partners to become a bridge in this digital transformation of the economy and the workplace;
- Ensure that a transition towards a digital working environment does not undermine European working and employment standards;
- Discuss, along with social partners, appropriate ways to address new and growing forms of employment, possible adjustments to modernise social security systems, labour law, social dialogue and collective bargaining, whilst continuing to ensure high levels of protection for employees;
- Promote a stronger and more resilient EURES[18]: Encourage and assist intra-EU fair mobility of workers and its benefits.

Recently, the German SPD adopted a comprehensive paper on the digital society including policy guidelines[19]. It assumes that the economy, work and employment will change fundamentally as well as the private lifestyle.

The paper foresees an emerging type of capitalism that can jeopardise traditional forms of economic behaviour by fostering neo-liberal tendencies. The digital economy will offer new business opportunities, higher transparency for consumers, and new forms of services. Traditional and regulated professions as well as independent work will be of particularconcern ly. On the one hand, freelancers will lack social protection, and on the other hand crowd sourcing of work tasks will be applied worldwide. As a consequence, the welfare state and social protection for employees at national level will be challenged. Therefore, the SPD intends to adjust social protection mechanisms developed during the "analogue world of the 20th century" to digital times. However, the paper does not so far provide the solutions. It explores challenges, describes issues and states what should be guaranteed. However, new regulations or new instruments are rarely mentioned. The paper at least tries to develop guidelines for good practice in the digital economy by demanding the following:

- Restrictions of performance assessment in work contracts
- Co-determination in facilities of the digital economy
- Use of flexibility (space and time) to match work and private life
- Rights to stay off-line

- Increased prevention at the work place and for health
- Rights to further education
- Minimum rights at platforms and social insurance for the self-employed
- Improvement of data protection and privacy for employees

Concluding the overview, it has become clear that a digital economy is in the making. It will impact not only our private life, and that of consumers, but also and particularly our working life. The "crowdworker" has emerged in the "digital economy" as a consequence of new management strategy of "crowdsourcing". The working conditions of crowdworkers have features in common with workers in the "offline economy" who are currently classified as self-employed, freelancers or independent contractors, such as taxi drivers or deliverers. These types of independent workers would need protection and benefits as those standard employees receive. The kind of benefits or protection provided by labour law is under discussion. To whom the costs of the benefits should be attributed is also under discussion. Clearly, a kind of balance may be struck to offer benefits to freelancers without hindering new forms of employment, start-ups, and businesses in the European economy. Also, it has to be assessed that the Member States' welfare is not overburdened in order to meet European budget discipline. In a nutshell, social security, health care, pension schemes, and payroll taxes are at stake. Also, annual leave, maternity/paternity leave, overtime, or sick pay may be considered in worker compensation schemes.

Overview of contributions

This volume is a contribution to the ongoing debate on the "digital economy". It focuses on social and political issues caused by the digital revolution. The contributions relate to the reflections of the S&D Group in the European Parliament on the impact of the Digital Single Market Agenda forwarded by the European Commission.

More specifically, the volume deals with social aspects of the new "platform economy" enabled by the internet. In this context, digital employment and working conditions are put in relation to the Digital Single Market Agenda. The contributions of the volume are arranged in four chapters. The first chapter is on platform employment and crowdsourcing while the second is on crowdworking and working conditions. The third chapter comments on innovation in relation to the Digital Single Market Agenda and the fourth chapter develops a number of possible policy responses. The individual contributions are extended by an Annex containing the S&D Position Paper called "Towards a Digital Union – Our Progressive Vision. In more detail:

Chapter I provides the base material to the discussion. It deals with crowdsourcing and platform employment. The contributions explain platform concepts and introduce employment forms mediated by platforms.

To start with, *Ivo Blohm presents a comprehensive overview on systems and principles of crowdsourcing and crowdworking. His institute is a competence centre for crowdsourcing* at the University of St. Gallen which holds a leading position in the related research domain. Blohm systematises the various forms of business crowdsourcing and explains the different forms of crowdwork, be it micro tasks, design, marketplace, testing or

innovation. For each type of crowdwork, the working conditions vary. With a coherent approach to regulation in mind, he points to the fact that, in Europe, digital work is subordinated to different national legislation.

Veronika Wasza comes from "Testbirds", a crowdsourcing platform for software testing. She presents the operation of their platform. Testbirds calls on about one hundred thousand testers. Their testers are predominantly not full-time employees. They earn supplementary income and appreciate the flexibility of working time on offer. Testbirds has taken the initiative to foster a code of conduct of business behaviour to ensure a good environment for relations between customers, intermediaries, and workers.

Ursula Huws is one of Europe's most long-standing ICT-related researchers. She discusses variations of platform employment and explains pre-existing business management elements. These existing forms are now digitally enabled and newly combined. The digital enhanced platform intermediation between customers, employers and worker is leading to a new labour market organisation in the making.

Chapter II on crowd working and working conditions in the digital economy starts with the experience of a crowdworker. It continues with two empirical research contributions assessing and comparing the working conditions of ICT-based mobile work, crowd work, and low-paid work in the service sectors in Europe.

Kristy Milland has ten years' experience in crowdworking. From her contribution we learn what a day in the life of a crowdworker may look like. We understand how micro tasks correspond to micropay or even wage theft, when a platform does not accept the work. She also mentions the benefits a platform may provide

for crowdworkers, due to their unfortunate and disadvantaged location and local labour market. As a community manager of a crowdworker forum, Milland explains the options to organise colleagues and concludes, "Transparency is a simple first step towards bringing the rights of a crowd worker in line with a traditional worker".

Ursula Holtgrewe profits from her large empirical research base in low-wage sectors, in order to comment in comparative terms on working conditions of crowdworkers. She is sceptical about the rapid spread of digitalisation and automatisation impacting upon tasks and jobs because behavioural and cultural aspects of employment relations are seen as hindrances and barriers. Her contribution provides important insights into precarious and atypical employment in the service sectors.

Irene Mandl, identifies nine new employment forms, based on one of the most comprehensive studies employment trends in Europe, two of which are relevant for digital work, and which are analysed in her contribution: these are crowd employment and ICT-based mobile work. The forms are explained and their working conditions are assessed, as well as their particular features in comparison to other new employment types.

Chapter III deals with innovation issues of the digital economy that are confronted with the European Digital Single Market Strategy (DSM) of the European Commission. Bearing in mind the impact brought about by digitalisation on the economy, employment and society, the contributions discuss whether the DSM Strategy offers an adequate response to the scale of the challenges envisaged.

Torben Schenk, assistant of the SPD Group in the European Parliament and former collaborator of UNIglobal Europe, presents

the Digital Single Market Strategy of the European Commission in its different articulations, as well as the policy instruments that are being proposed to implement the strategy.

Allan Mayo, responsible for developing UK policy towards service innovation, puts the DSM Strategy in a historical context of technological, economic, and social change. He emphasises the importance of a holistic approach to tackling the challenges, and seizing the opportunities, based on the value chain in question and on local/regional circumstances. He suggests setting up sectoral, or value chain councils, to engage key stakeholders and provide a powerful European mechanism for developing, sharing and disseminating authoritative reports on developments and desirable policy responses to the digital revolution.

Jaari Kuusisto, one of the Finish chief advisors in the field of innovation, focuses on the relations between innovation and regulation policies. He compares the US approach with the European Digital Single Market Strategy. Kuusisto recommends the development of new business models and warns that businesses originating outside of the EU could gain increasing share in digitalised European industries if regulation does not adequately take into account the international character of the digital economy.

Chapter IV discusses what to do about digital employment by presenting the policy positions of Trade Unions and that of the European Parliament. An annex contains an S&D position paper presenting the current considerations of the Group.

Jutta Steinruck MEP, the coordinator of the Employment Committee in the European Parliament, suggests an institutional assessment of the impact of digitalisation on jobs and employment. She calls for a social protection initiative, targeting the

digital self-employed. For this purpose existing national social insurance systems in Europe should be reviewed. Also, in order to master the digital challenges, Jutta recommends a strong financial public commitment to investment in broadband infrastructures as well as education and training.

UNI Global Union Europe represents twenty million workers from over nine hundred trade unions mainly in the private services sectors. Oliver Röthig, its European Secretary General, calls for a restart of the Digital Single Market Agenda of the EU in order to avoid a deepening of the polarisation of European labour markets between the North and the South-East. He believes the European social model should be applied to guide the digital change. It should target empowering workers and protecting social rights and employee data as well as making workers fit for the digital age by investing in education and training.

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CHAPTER I

- PRINCIPAL FORMS OF CROWDSOURCING AND CROWD WORK[1] –

DAVID DURWARD - IVO BLOHM - JAN MARCO LEIMEISTER

Abstract

In recent years, companies have been getting access to larger pools of workers, and the phenomenon of crowdsourcing has emerged as a new pattern of digitally mediated collaboration. In parallel, an ongoing digitalisation has been accelerating the division of labour through hyperspecialisation and giving rise to new forms of work, for example crowd work. This paper illustrates the differences between crowdsourcing as an alternative concept of organizing, and crowd work as a new form of digital gainful work. The variety of crowdsourcing applications on the one hand, and the different forms of crowd work on the other, will be introduced. In summary, more and more individuals decide to work online in the crowd, and those crowds consist of people of any social strata, age or location. Hence, with the rise of crowd work, several opportunities and risks for all of these participants can be observed and need to be addressed.

Forms and Applications of Crowdsourcing

The rise of new information technologies, particularly the internet, comprising low costs of mass communication, allows an interaction with a large number of external sources (Zogaj, Bretschneider et al. 2014). Against this backdrop, companies are able to reach out to these masses (Vukovic 2009) and apply crowdsourcing as a novel form of work organisation. On the one hand this opens up new possibilities of employment for the individual. Furthermore, the

economic impact of this rapidly growing form of work is enormous since the World Bank expects the market size for crowd work to grow to $4.8 billion by 2016 and estimates a gross revenue of up to $25 billion for the crowd work industry (Kuek, Paradi-Guilford et al. 2015). Nevertheless, the reputation of crowdsourcing and crowd work is ambiguous. On the flipside, these novel forms of work can create digital sweatshops in which the remuneration of the individual workers is partially very little and also not guaranteed.

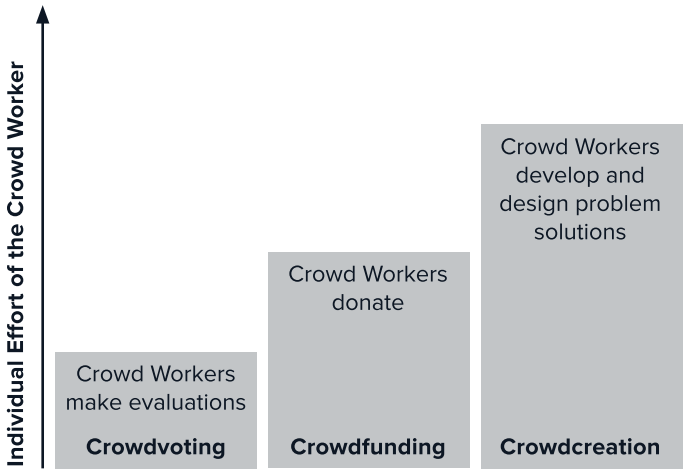
Although, there are many possible lenses through which work can be examined (e.g., economic, management or individual perspective), generally it describes the idea of a purposeful activity. This notion refers to expending energy through a set of coordinated activities aimed at producing something useful (Morin 2004). In organisational settings, work includes the use of human, informational, physical, and other resources to produce products and/or services (Alter 2013). In recent years, digitalisation links all activities in our society and gives rise to dynamic forces reshaping our established structures whereby new forms of work have emerged (Brynjolfsson and McAfee 2014). As a result, the advancement of information and communications technologies (ICT) as well as the internet accelerates the division of labour through *hyperspecialisation* which is breaking work previously done by one person into more-specialised pieces done by several people (Malone, Laubacher et al. 2011).

In parallel to an ongoing digitalisation of work, companies are increasingly using new technological possibilities, like the flexible use of a large reservoir of labour. This form of sourcing is referred to as ‘crowdsourcing’, which describes a neologism formed from the words “crowd” and “outsourcing” and reaches back to Jeff Howe, who used this term first in the Wired Magazine from 2006 (Howe 2006). This word composition clarifies how the terms crowdsourc-

ing and outsourcing differs. The term outsourcing describes the classical outsourcing of defined tasks to a third-party business, a determined institution or an actor, while outsourcing in the case of crowdsourcing is addressed to the crowd, an undefined mass of people (Leimeister 2012). In crowdsourcing, a crowdsourcer (which could be a company, an institution, group or individual) proposes a task presented in an open call to an undefined amount of potentially contributors (crowd worker). These crowd workers do not have to be individuals per se but partially organise themselves into formal or informal groups and organisations to jointly work on corresponding tasks (Durward, Blohm et al. 2016). The ensuring interaction process between crowdsourcer and crowd workers is provided via IT-based crowdsourcing platforms (Blohm, Leimeister et al. 2013).

In general, crowdsourcing can be distinguished in three main forms in relation to the individual effort the single crowd worker has to spend within the initiative. First, in some crowdsourcing initiatives the crowd workers only have to evaluate, for example, a t-shirt design. Another example of this so-called *crowdvoting* is Tripadvisor.com, where the crowd rates restaurants, hotels or sights. Second, in *crowdfunding*, the crowd is asked to give a certain amount of money. Either the crowd donates it or receives different rewards for lending. One of the largest intermediaries of crowdfunding initiatives is kickstarter.com, where the crowd can invest in requesters` projects. An example of a successful project has been the Pebble smartwatch on Kickstarter that costs about $99 and has reached a total of $20 million from the crowd. The third form of crowdsourcing is labelled *crowdcreation* since the effort of the individual crowd worker is high in comparison to the other forms. In these initiatives, the crowd workers actually create something; for example, they design a logo, develop software or test websites.

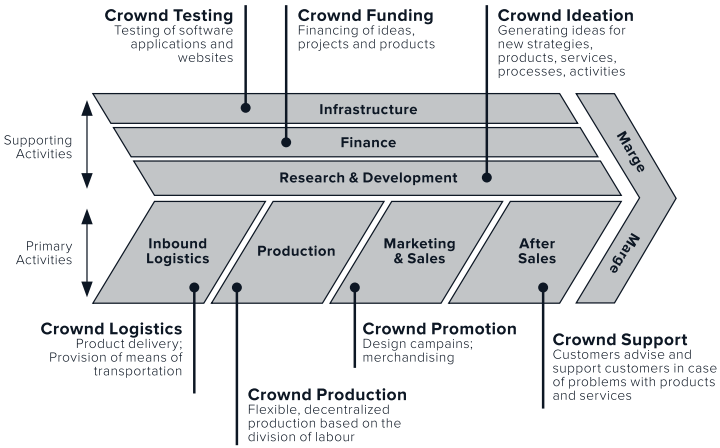
Figure 1: Different Forms of Crowdsourcing



Source: Leimeister (2012).

Although this concept can be observed in traditional businesses since the 90s, nowadays the common label of "crowdsourcing" has been established. The number of companies that utilise crowdsourcing for different tasks and integrate it into a wide variety of existing business processes increase steadily (Hammon and Hippner 2012). As a result, individual tasks of almost every value-adding activity (see. Figure 1) are given to the crowd.

Figure 2: Application of Crowdsourcing in Business



Source: Durward et al. (2016).

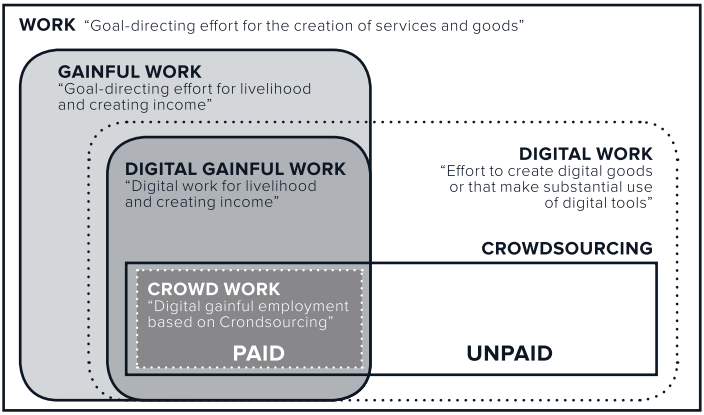
Based on the well-established illustration of Porter`s value chain, the crowdsourcing concept is nowadays widely used for different activities within business performance processes. For instance, even the software company *Microsoft*[2] makes use of the potentials from the crowd in order to test its own software and mobile applications (i.e., crowd testing) while *Dell*[3] actively involves the crowd in the development of new hardware and software products (i.e., crowd ideation). Moreover, the (partial) financing of initiatives and projects through the crowd is enjoying increasing popularity. Against this backdrop, the German TV producer *Brainpool*[4] has collected over a million euros for a movie project

after a few days (i.e., crowd funding). Logistic companies such as *Deutsche Post DHL*[5] engage the crowd for parcel delivery (i.e., crowd logistic). The video streaming provider *Netflix*[6], has asked the crowd to develop an algorithm for predicting movie ratings (i.e., crowd production). In contrast, the German drugstore *dm*[7] used the crowd within a "Soap Sourcing" campaign to design a slogan for a shower gel (i.e., crowd promotion). Finally, *Telstra*[8], an Australian telecommunications provider, employs the crowd to realise their own customer support (i.e., crowd support).

Crowd Work as a New Form of Digital Gainful Work

As a result of rising digitalisation which provides a shared new communication as well as collaboration infrastructure and crowdsourcing as an alternative concept of organising, a novel form of digital work has emerged; i.e. crowd work. Due to the fact that crowd work describes a new form of work, it is located at the intersection of digital and paid work. On the one hand, paid work is the cornerstone of any economy or labour market (Kittur, Nickerson et al. 2013) and therefore in focus of Crowd Work as well. On the other hand, the vast majority of people enter any kind of employment for their own subsistence. Likewise, people perform crowd work to earn monetary rewards. The intrinsic motivation to participate usually plays a minor role. Furthermore, a crowd worker is a self-employed agent since it is not employed by the crowdsourcers. Instead, the crowd worker creates its work activities as well its working time freely. Thus, crowd work describes a digital form of paid work, in which an undefined mass of people create digital goods via an open call. Substantial parts of the value creation take place on IT-supported platforms. Form an individual's perspective, crowd work is a form of digital gainful work that has been done based on the crowdsourcing concept and under significant use of digital tools (Durward, Blohm et al. 2016).

Figure 3: Classification of Crowd Work from the Perspective of the Individual Worker



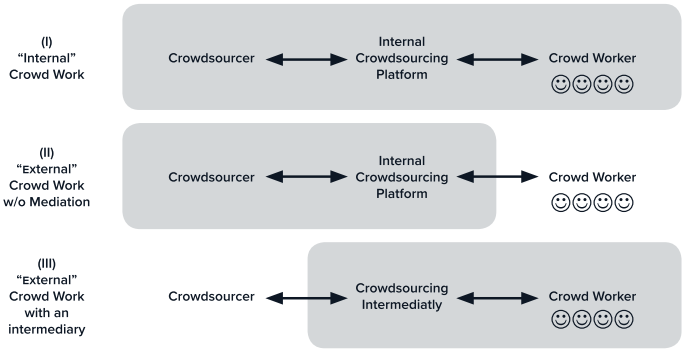
Source: Durward et al. (2016).

Crowd work takes place in information systems (IS) as architectures in which human participants and/or machines perform work using information, technology, and other resources to produce informational products or services (Alter 2013). Yet, research on IS has assumed that work and the infrastructure used to do it are exclusively located within organisations. Nevertheless, there is evidence that many work processes and digital goods occur outside of these organisational settings. Although, the view of organisations as bounding work systems has been useful in IS research, recent studies have shown that there is an erosion of those traditional structures. This shift is manifested in crowd work, due to the fact that there are internal forms, linked to an organisation and external forms that are outside organisational environments and linked to various other technologies and infrastructures. Hence, we distinguish between "internal" and "external" crowd work (see figure 4). In internal crowd work (case I), the employees of an organisation are the crowd. Therefore every employee of the company can be described as a crowd worker. An internal platform (intranet or internet-based platform) functions as a crowd work marketplace through which the crowd (internal staff) can make contributions and process tasks. For example the IBM "Liquid" program is an initiative which should enable the outsourcing of 8,000 workplaces to an internal crowd. The Liquid-platform should make an effective internal crowd work possible, so that employees with spare capacity have better work opportunities. In those internal crowd work settings, the crowd worker remains an employee and thus retains all protective as well as participation rights and all collective agreements persist.

Conversely, in external crowd work, the crowd consists of any individual who is not associated with the company or the crowdsourcer. These are mostly external people, so in principle every person worldwide with an internet connection can function as a crowd worker. Here, the platform will either be operated directly by a crowdsourcer

(case II), or provided by a crowdsourced intermediary (case III). Crowdsourcing intermediaries build the crowd by themselves, which can be invited by the crowdsourcer via an open call. For example, if a telecommunications company needs a logo for their new mobile app and decides to crowdsource this task via *99designs.com*, an intermediary for graphic designs, theoretically any online person could contribute as a crowd worker. Hence, through external crowd work an international, globally-distributed workforce is available. In contrast to internal settings, external crowd work describes legal relationships between two (crowdsourcer and crowd worker) or three (crowdsourcer, crowd worker and intermediary) parties. The crowd workers are no employees of the crowdsourcer but external contributors who act in the broadest sense as self-employed agents, since they are not employed by the crowdsourcer in an employment relationship covered by social security and are not economically dependent. With the transcendence of organisational boundaries, crowd work has emerged in internal and external forms.

Figure 4: Internal versus External Crowd Work



Source: Own illustration following Hirth et al. (2012).

The Archetypes of Crowd Work

Although the amount of companies that implement internal Crowd Work projects has increased, the external form with an intermediary is much more widespread since almost every person can participate easily via the internet. A study on German-speaking platforms, on which crowd work is performed, identified five different archetypes of intermediaries, i.e. (1) Microtask, (2) Marketplace, (3) Design, (4) Testing and (5) Innovation platforms. On microtask platforms (e.g., *Clickworker.com*), the tasks are predominantly simple and repetitive in contrast to the other archetypes. At the same time the rewards per task are mostly in the cent range and the time required for tasks is also comparatively low. In contrast, on marketplace platforms not only simple and single tasks but more long-term and complex jobs are given into crowd, e.g., the development of a corporate website. On those marketplace platforms the specific skills and capabilities of the crowd workers are essential in order to differentiate them from the competition and make them stand out from the crowd. On design-platforms (e.g., *99Design.com*), crowd work is more creative and self-determined than on other types of platforms. The work takes place in the form of result-oriented competitions and the aggregation of solutions is often selective. That means that the crowdsourcer selects just one or a few contributions which are then rewarded. In most cases, there are individual winners, who receive a fixed monetary amount as compensation. Thus, the majority of the participating crowd workers receive nothing in return for their contributions. The rewards on testing platforms (e.g., *Testbirds.com*) are greater; the tasks, however, are not highly standardised since each software application or even products that have to be validated, differ from project to project. The variance of the rewards is correspondingly higher. In contrast, a constitutive characteristic of innovation platforms (e.g., *atizo.com*) is their clear focus on innovation trends

and their variation in terms of task complexity. In comparison to the other forms of crowd work, a cooperation-based approach dominates the innovation platforms in practice. Although the archetypes differ in certain characteristics, on all crowd work intermediaries the division of labour tends to be an underlying process.

The division of labour into various tasks to be performed and the subsequent coordination of those tasks to accomplish the activity are two very important operations to design different forms of work. With the rise of digitalisation and the use of modern ICT a developed international division of labour and a global labour pool has emerged. As a specific form of paid digital work, this global division of labour is a central criterion of crowd work. However, the decomposition of tasks into smaller subtasks as well as the subsequent coordination and aggregation of those subtasks are fundamental operations which represent the core competence of crowdsourcing platforms as intermediaries. Due to great heterogeneity regarding the nature of tasks in crowd work (e.g., design, translation, programming, development, testing), there are different degrees of division of labour. For example, in software development, the entire process is split in very small subtasks whereas the design of a corporate logo does not have this degree of division. Hence, due to this great diversification of crowd work, we observe more or less division of labour depending on the specific tasks.

Nevertheless, the breakdown of tasks is a central aspect of this novel digital work, since the division of labour is no longer provided only by the crowdsourcer as the requester or the platform as the intermediary but by other involved persons. Although the breakdown of tasks as well as the subsequent coordination has been mainly performed by crowdsourcing platforms, these

management functions are increasingly performed by the crowd itself. On crowd work marketplaces, new management structures emerge, in which single crowd workers or small groups of crowd workers – i.e. so-called crowd aggregators – perform the division of labour that, so far, have been a core competency of the platforms. They decompose certain tasks into smaller and less complex subtasks, distribute them to their "own crowd" and finally aggregate them to the initial task. Crowd aggregators are new players on crowd work marketplaces that operate between the crowdsourcing platform and the crowd, and hence represent an additional stage of value creation in crowd work. They use the crowdsourcing principle and in particular the established infrastructure of the intermediaries in order to generate own profit by breaking up tasks. In sum, the perspective on crowd work is characterised by different degrees of division of labour which can be performed by all involved parties.

Based on the different forms of crowd work mentioned above, an online survey on German crowd workers has provided some initial demographical as well as perceptional insights of the individual workers. First, crowd work does not tend to be a gender-specific form of work since gender balance across almost all types of crowd work has been found. In average, the crowd workers are about 35 years old and well-educated due to the fact that 70% of the respondents have the highest German school graduation. Nevertheless, major differences exist in monthly income that is exclusively earned out of crowd work activities. While crowd workers on microtask platforms earn about 144€, within the field of design the average crowd worker earns 662 euros a month. Nevertheless, throughout all different forms of crowd work (e.g. microtask, marketplace, design, testing), the individual crowd worker perceived their tasks as being cognitively demanding (Leimeister, Zogaj et al. 2016).

Chances and Challenges of Crowd Work

Since crowd work continues to expand in business and leads to sustainable changes in the organisation of work, several opportunities and challenges emerge for all participants. On the one hand, crowd work provides an on-demand access to a great pool of labour. Thus, the crowdsourcer increases its flexibility by outsourcing certain tasks to the crowd. Furthermore, the parallelisation of tasks may result in significant reductions of the time needed for task processing. Nowadays industrialisation and hyperspecialisation enable the crowdsourcers to increase standardisation and the breaking up of tasks into smaller subtasks and thus realising additional productivity gains. On the other hand, for the individual crowd worker new forms of digital work are available. Since crowd work allows a variety of tasks, the crowd worker can realise a higher self-determination in work by self-selection. In general, the individual crowd worker can choose which jobs to accept and on what terms and conditions. Crowd work enables the individual to process tasks independently of time and location. In relation to their experience, the single crowd worker can increase the amount and quality of job offers. The individual crowd worker can reach a position of "cherry picking" in which they have the ability to select the best job offers. These crowd workers increase their earnings and further choose which job conditions they accept or even determine the prices.

Nevertheless, despite the arising opportunities there are several challenges in crowd work. Regarding the crowdsourcer, it can be difficult to calculate the total costs for crowdsourcing initiatives in advance. There might be some hidden costs in the phase of task definition or during the final evaluation of solutions. In addition, there is the risk of knowledge losses and losing control over the crowd's activities in crowdsourcing projects. In contrast, internal

staff can be dissatisfied with the application of crowd work, and thus resistance arises in the internal workforce. On the individual level, some researchers as well as the media warn against the creation of "digital sweatshops", because the remuneration of crowd workers is partially very little and also not guaranteed. Furthermore, the microtasks can be very monotonous and trivial in particular, e.g., clicking one thousand likes on a certain Facebook pages or posting positive reviews on websites. Due to the fact that some crowd workers are successful, they build up a digital reputation. However, these reputations are usually bound to a particular intermediary and, thus, cannot be transferred to another intermediary. Another risk that is tied to the platform includes the monitoring and recording of the crowd workers' activities by the intermediary. Sometimes, crowd workers do not even know about this form of surveillance. Likewise, although the individual crowd worker can increase their job offers and be successful, primarily they take the risk of being self-employed. In general, there is a lack of a legal framework that protects the individual crowd worker since this form of digital work is located in a floating network of different national and international legislations.

Advice to Policymakers

Everyday life is strongly shaped by digital technologies. Hence, it is essential for every participant to cope with the corresponding changes. In particular, when the increasing digitalisation changes market conditions, new digital labour markets like crowd work emerge. In the future, it will be important for organisations and companies to realise that it is not a make-or-buy, but rather a make-or-buy-or-crowdsource decision when it comes to outsourcing certain tasks. The organisations need to embed and integrate the products and services of crowd work in internal and external business processes. Due to the fact that crowd work consists of

various forms and applications, the perception of crowd work out of an individual's perspective also differs. There are power asymmetries and thus interdependencies between the crowdsourcer and the crowd worker. In general, these asymmetries are in favour of the crowdsourcer and therefore the working conditions for crowd workers are often not fair. Against this backdrop, the definition of guidelines for crowd work that, on the one hand, allow organisations to benefit from the potentials of crowd work and, on the other hand, ensure good and fair working conditions for individual crowd workers, should be the focus of further discussions.

Endnotes

1 Disclosure: This article is largely based on the following publication: Durward, D., I. Blohm, J.M. Leimeister (2016). "Crowd Work." Business & Information Systems Engineering, forthcoming.

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CHAPTER I

TESTBIRDS SOFTWARE TESTING SOLUTIONS IN THE CROWDSOURCING INDUSTRY

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Abstract

In recent years, a number of astounding technological developments have given rise to a successful new form of labour known as crowdsourcing. Founded in 2011, testbirds are pioneers in crowdtesting, a form of software testing that uses a crowd consisting of a global online community to provide invaluable usability and functionality feedback. However, there are a number of considerations that need to be taken account when utilizing crowdworkers. This paper investigates how testbirds provides crowdtesting and looks at the possibilities and limitations of this innovative approach to software testing. In addition, the paper also explores how testbirds is shaping the crowdsourcing industry by addressing a variety of issues that stem from a lack of regulation and standardization.

Introduction

In mid-2011, Philipp Benkler and Georg Hansbauer, having recently graduated and having had the opportunity to investigate a variety of positions in technology, were struck with the idea of combining software testing with crowdsourcing. Thanks to the immense potential they saw in this relatively new approach to testing, they began to take the necessary steps to enter the marketplace and see their plans through. By the end of December, they brought

Markus Steinhauser on board and together with their first order from their first client; they successfully opened their first office in Munich, Germany. Soon after, they founded Testbirds and coined the term “crowdtesting.”

From there on, Testbirds has successfully grown from 3 employees located in an office in Munich to over 60 located in Munich, London, Amsterdam and Stockholm. In addition, Testbirds has launched a franchise in Hungary and has sales partners in Italy. Alongside the company’s efforts in international expansion, the tester pool has also grown with currently over 100,000 testers, each with a unique background and a diverse level of expertise. As a result, today, there are also over 250,000 devices representing on Testbirds’ testing platform. So, what exactly is crowdtesting?

History of Crowdtesting

From the assembly line to the first computer, the birth of the internet to the current influx of connected devices, the labour force, as nearly all facets of society, has been forced to adapt and expand due to these extensive developments in technology. This has resulted in a new addition to the working world’s already expansive portfolio, that of crowdworking. This new form of labour is the process of getting work from a large crowd of people who are usually sourced online. It’s a close relative to outsourcing that often allows for more flexibility and a larger amount of diversity, which in turn can yield higher levels of quality than traditional freelancing methods.

Thanks to technological developments such as the Internet of Things, daily life has become increasingly digitized. While the intention has always been to simplify all manner of processes in personal and professional environments, when technology mal-

functions or is too unintuitive for the vast population, it produces the undesired effect of becoming an obstacle rather than a pillar of support. Therefore, companies that release suboptimal technology will face serious difficulties competing in an already saturated market. Software testing ensures that quality meets a high standard and lays the foundation for success when it is performed in all phases of a digital product's lifespan.

Possibilities and Limitations of Crowdtesting

Where software testing meets crowdworking is by crowdsourcing testers. This creates a number of differences from traditional testing methods. One clear advantage would be its ability to overcome organizational bias. An external party approaches a piece of software or device in a very different and distinct manner from the developers themselves, hence they tend to uncover issues that otherwise would be overlooked. When it comes to products and services intended for consumers, due to the broad nature of their target audience, it's nearly impossible to predict how a company's software will be used and function in the real world. However, crowdtesting tends to be beneficial in more advanced stages of a digital products lifecycle and is generally unsuitable in initial development phases as the crowd lacks the same level of expertise as developers and testing should go hand in hand with all forms of development.

Where crowdtesting gains a foothold over standard software testing is by allowing companies the ability to have their digital products tested by the end user, or consumer, themselves. At Testbirds this idea is reinforced by segmenting a crowd consisting of over 100,000 testers by 60 demographic criteria that is based on extensive profiling. Similarly, as each individual tester utilizes their own testing tools, companies gain access to over 250,000

devices, which allows the testing of software over a seemingly endless combination of operating systems, devices, browsers, among much more. However, it is also important to note that crowdtesting is often best used to complement traditional methods as internal development teams should perform extensive testing in all phases of development including once a product has already been released.

Apart from consumer application, crowdtesting can also be utilized in an enterprise environment by creating a crowd consisting of the company's own employees. At Testbirds this is offered as the Bring-Your-Own-Crowd™ service. Simply put, a crowd can consist of precisely the people that will be utilizing the software whether those are external consumers or internal users. It's common that software testing becomes an afterthought when development teams are riddled with resource and time restrictions, which is yet another advantage of outsourcing testing to a company such as Testbirds. On the other hand, due to monetary and resource restrictions, investing in crowdtesting is not always a viable option for companies operating on a budget.

Forms of Crowdsourcing Providers

Testbirds has always aimed to achieve its company goals by satisfying clients' requirements through flexibility and innovation. This is demonstrated through the manner the company has consistently expanded its service portfolio based on the demands of the market. A simple example of this, and how Testbirds differs from crowdsourcing providers such as Uber or Mechanical Turk, is by looking at the service levels the company offers. Self-Service tests are managed by the client themselves using Testbirds' testing platform, known as the "nest". Testbirds simply provides clients with a crowd consisting of individuals who fit their needs.

Managed-Service, on the other hand, gives clients access to not only the crowd and nest, but also project managers who set up the test, oversee the entire process and deliver a comprehensive final report. Finally, Self-Service+ tends to fall in between the two, where the level of involvement from Testbirds' side into the actual testing process is entirely dependent on the needs of the client. It is precisely this that splits crowdsourcing providers into almost two distinct categories. Those that provide clients with access to a large group of people and those that work together with clients and the crowd to manage the entire process and support as well as represent all parties involved.

Opportunities and Risks of Crowdworking

For workers looking for flexibility, a supplementary income, or a chance to pursue their hobbies and interests in a structured environment, the crowdsourcing industry is a gold mine of opportunity. Today, it seems that more and more companies are investing in crowdsourced alternatives for a variety of jobs. Similarly, consumers are turning to this new, powerful labour force to address a number of their own needs, from transportation with apps such as Uber to temporary residency with the growing popularity of Airbnb. Software testing with Testbirds provides precisely this venue for personal development, exploring one's hobbies and interests and earning a supplementary income.

For testers at Testbirds, software testing satisfies their desire to develop and exercise their vast knowledge of technology. The opportunity to test applications or connected devices that some of their favourite brands are developing prior to release is an exciting notion. Testers are granted early access to products that they would purchase and use on a personal level. On top of this, their opinions on the usability and functionality are taken into con-

sideration when shaping the final product. For Testbirds' testers, income often seems like a welcomed bonus rather than a key motivator to crowdtesting.

The aforementioned flexibility in testing with Testbirds is another important motivator for crowdtesters. Testers are given the chance to explore a variety of platforms, websites, wearables, smart devices, mobile and desktop applications and much, much more. In addition, testers do not need to apply for tests but are instead invited and have the option to accept or decline depending on whether it matches their personal schedules, interests, etc. without any negative repercussions should a worker choose to pass on an opportunity. This advanced form of flexibility in the workplace is a fundamental aspect of the crowdsourcing industry and undoubtedly one of the reasons that this new labour force has experienced tremendous success.

In addition, as Testbirds strives for a consistently high level of testing, with an average client satisfaction rating of 9.2 out of 10, providing testers with necessary education is high on its list of priorities. This comes in multiple forms. The most basic being the open and easy access testers have to project managers if they have queries or are in need of assistance during the testing process. There is also an active forum for testers to discuss a variety of topics with each other. Finally, Testbirds employs a team of dedicated crowd managers who work to support the crowd, acquire new testers and create and implement concepts that aim to improve the crowd's experience and knowledge when working with Testbirds.

However, crowdsourcing is not without its faults. When taking into consideration that the industry is still at a very early stage, there is a lack of standardization that has serious implications. From a legal perspective crowdworking's, which falls in the same cat-

egory as freelance work, legislation is not well known to many who operate in the industry, which puts workers at serious risk of exploitation. At the same time, seeing as crowdworkers are sourced on a worldwide basis, there are no national labour standards applicable. This has led to several disputes that have had very real consequences for all parties implicated, such as the now infamous predicament that Uber and its drivers have found themselves in across the world.

Regulating the Crowdsourcing Industry

For Testbirds, ensuring that the crowd of testers has a positive testing experience is crucial to the company's success. Therefore, the following core values have been creating when working with individuals who form the crowd:

1. We strive to create a motivating and safe working environment for our testers and provide equal chances for all.

2. We make sure that the personal data of our testers is protected and to create trust through transparency.

3. We reward testers with fair payment, create non-monetary incentives and offer opportunities for personal development.

4. Communication within our community is honest, open, professional and respectful.

5. Not only do we offer crowdtesting to our clients, but we actively seek feedback and suggestions regarding our own products.

In order to achieve this, Testbirds has taken the initiative to create a Code of Conduct, or a self-imposed list of guidelines that aim to create a safe, comfortable and lucrative working environment for the clients, providers and workers in the crowdsourcing industry. Currently undersigned by clickworker and Streetspotr as well as supported by the Crowdsourcing Association, this list of regulations intends to grow and develop together with the industry as new requirements are continually identified and legislation begins to shape the crowdsourced labour market. The Code of Conduct is a first step towards implementing standardization and Testbirds, together with the crowdworkers themselves, clients, and existing as well as new research, will continue to improve and develop it.

The Code of Conduct is an attempt at setting a level of standardization based on respect that hopes to improve the efficiency and the overall experience of those operating in the crowdsourcing industry. It speaks of the importance to only provide respectable and reasonable tasks that are not illegal, defamatory or fraudulent in nature. It encourages providers to clarify the legality surrounding crowdworkers and the type of business relationship that is formed between a company and crowdworkers to the individuals who make up the crowd. The guidelines go into as much detail as possible without established legislation concerning fair payment rules and states that companies must pay a fair and clearly communicated wage for the work they accomplish, as well as pay in a punctual and appropriate manner. It encourages providers to appreciate that crowdworkers are often interested in more than simply an income and therefore should offer motivational tasks.

Providers that sign the Code of Conduct are also expected to provide clear tasks and have realistic estimations of the time it takes to complete said tasks. It is also expected that freedom and flexibility are taken into consideration and maintained for the offered tasks

as crowdworking is rarely a primary source of income. Due to the remote nature of crowdworkers, appropriate support and feedback is also an expectation from providers that choose to join the self-imposed guidelines. As the relationship between providers, clients and crowdworkers is based on reliability, trust and honesty, communication needs to be consistently open and transparent. Crowdsourcing projects are also expected to run effectively and efficiently in a suitable working environment. Finally, there must be a level of privacy, especially as crowdsourcing tends to operate online, that encompasses personal data, contact information and client side confidentiality.

Conclusion

Testbirds was founded in 2011 with the goal of developing the software testing industry by encouraging it to grow alongside technology rather than stagnating and opposing it. The company's original approach to testing has also been reflected in the manner that it operates within crowdsourcing and its attempts to enhance the industry. Testbirds has always attempted to reach its goals by addressing the needs of clients and crowdworkers, through flexibility and innovation. This is reflected in the expansion and development of its service portfolio as well as the focus on creating healthy and long lasting business relationships. As the future of the digital world keeps changing, Testbirds aims to continually adapt and provide next generation software testing solutions to enhance the quality of technology.

NEW FORMS OF PLATFORM EMPLOYMENT OR CROWD WORK

URSULA HUWS

Abstract

This chapter examines recent developments in work organised through online platforms, demonstrating how this new form of work has evolved from the convergence of several existing trends. These include the spread of ICTs and new global communications norms, standardisation of tasks and performance measures and the break-down of spatial and temporary boundaries. It goes on to show the heterogeneity of crowd working, including the wide range of work, both online and offline, that is now managed via online platforms and the variety of forms of payment and employment relationships that currently exist in this exponentially growing field.

Introduction

In a confusing flurry of terminology, 'crowdsourcing', also known as the 'gig economy', 'platform economy' and a myriad other terms, burst into public awareness about half a decade after the 2007-8 financial crisis, appearing as a new and unprecedented phenomenon. Originally thought of as part of a socially innovative 'sharing economy', the reality that online platforms were being used as a means to manage employment came as a sudden shock to many commentators.

As attempts are made to understand the new world of digital labour, it is easy to jump to two conclusions: that this is an entirely

new form of work organisation; and that it takes a single, universal form. Combining these leads to the further conclusion that once this new form of work has been defined precisely then it will be possible to adapt existing practices and norms, or develop new ones, to enable it to be properly regulated.

This chapter attempts to show that both of these assumptions are mistaken.

First, it argues that crowdsourcing did not spring from nowhere but developed from a number of pre-existing trends which are now converging to generate critical mass.

Then it summarises the existing empirical evidence to demonstrate that it does not take a single form but, on the contrary, encompasses a range of different employment practices with strong variations, with the aim of identifying some of the key variables.

The roots of crowd work

The development of online platforms that are used to co-ordinate labour would not have been possible without a number of disparate pre-existing economic, technological and organisational trends on both the supply and demand sides of the labour market and in society more generally.

Spread of ICTs, digital skills and global communications norms

One of the most obvious preconditions for the development of online platforms has been the global spread of Information and Communications Technologies (ICTs) resulting in a situation

where it is predicted that the global smartphone penetration per capita will reach 34.2 per cent by 2017, reaching 65 per cent in Western Europe[1].

At the simplest level, this means that a very high proportion of the population now has access to the Internet from multiple locations and can, in principle, be contacted at any time and any place for work-related purposes. However it also represents the cumulative impact of a number of other trends which have led to the development of a global digitally literate workforce.

The diffusion of ICTs has also been associated with the spread of standard software packages. On the labour supply side, education programmes have aimed to teach the skills to use these, while familiarity with the technology has also led to the acquisition of other, more generic, ITC skills (such as skills to search on the internet, register one's details on online platforms etc.). Knowledge of the Internet has gone hand in hand with knowledge of global languages, especially English. The growth in the global supply of workers with the appropriate digital and language skills has been matched on the demand side by employers' willingness to outsource work, and to simplify and standardise tasks to make them amenable to be carried out remotely. The global sourcing of digitised tasks expanded rapidly during the 1990s (partly driven by the need for a large numbers of software engineers to cope with the conversion of European currencies to the euro and preparing for the 'Millennium bug') and had become a normal business practice by the 2000s, affecting a large range of back-office, software and creative functions.

Reliance on ICTs has not been limited to digitised tasks. Even for manual workers, labour market participation has become increasingly dependent on the use of ICTs, including for job search, application, filing of cvs and communication with employers and

clients. The rise in unemployment following the financial crisis, combined with the effects of austerity and more targeted labour market policies have led to a number of initiatives across Europe aiming at encouraging the unemployed to use online means to find work.

In short, the smartphone and/or tablet and/or laptop or desktop computer, and the skills to use them, have become indispensable tools for labour market participation and work performance for a majority of the European workforce and a substantial and growing minority of the world's workforce.

Growth of teleworking

First studied as a minority practice in the 1980s, the use of ICTs to work remotely has now spread to become a taken-for-granted aspect of many jobs. No longer an activity that takes place only on the employer's premises during set hours, many work tasks can now be carried out regardless of time and place, blurring the boundaries between work and leisure. A home office is now a normal feature of many households and the provision of wifi increasingly expected in cafes, hotels, stations airports and other public spaces. Organisational practices have been adjusted to take account of this new reality, for example by organising work into projects assigned to virtual teams and planning offices on a 'hot desk' principle.

Increasing use of standardised performance indicators

Another important trend that has developed over the last three decades has been the increasing use of standardised performance indicators to measure and monitor work, in both the public and private sectors.

Sometimes this is linked to outsourcing, and embedded in the terms of contracts, for instance the service level agreements in outsourced call centres which stipulate how quickly calls must be answered, or contracts for cleaning services that specify how many rooms should be cleaned, how quickly.

Sometimes it is connected with establishing standards that are used for comparison between different organisations, for instance in hospitals or schools where targets are established for the number of patients seen or the number of students reaching specified standards in examinations. The use of customer ratings has played an increasingly important role in the measurement of quality standards, used as a means of staff appraisal and discipline as well as for comparing different companies or institutions, ranging from fast food outlets to universities.

Across a wide range of different industries, the use of such indicators has now become a normal aspect of work culture.

Increasing use of online management systems

Another trend that has spread rapidly in recent years has been the use of online management systems for logging work progress and for assigning workers to shifts on a just-in-time basis. This is particularly widespread in service industries, such as the retail and hospitality sectors, where the need for staff to be available at particular workstations fluctuates according to changes in consumption patterns.

In some countries it is associated with the use of zero hours or ‘on call’ contracts, for example in call centres, supermarkets, warehouses and café chains. However the need to ‘log on’ to register when one is working (or available for work) and ‘accept’ new tasks

is not limited to these sectors but can be found in many industries. The use of online systems to register the starting and stopping times of shifts and the location where work takes place also generates data allowing workers to be monitored, thus generating new performance indicators, which can be linked to the targets described above.

Migration online of traditional forms of intermediation

Labour markets have traditionally relied on a large variety of different forms of intermediation, including directories, agencies and various forms of advertising. Some of these are highly specialised (such as literary agents, art dealers or the classified advertising sections of trade journals) while others are fairly generic (such as entries in the business pages of telephone directories, leaflets delivered through letterboxes or advertisements placed in the window of a local shop).

For many self-employed individuals, such methods, along with personal recommendations from past customers, were the main means of finding employment in the past. In recent decades, some of these intermediary organisations have moved online and set up websites which more or less replicate previous print-based or telephone-based means of accessing information; others have eroded. The online environment is, however, very different from its offline equivalent. Unless they have exceptionally loyal and knowledgeable users, who have remembered or bookmarked the url, they are only likely to be found if they come to the top of the list produced by the search engine. In a world in which all searches start with google, small advertisers stand a very poor chance of being discovered by new clients.

Many self-employed workers, ranging from graphic designers to window-cleaners, from book-keepers to dog-walkers, now find themselves deprived of many of their traditional means of finding work, often pushed to use whatever sites appear at the top of the ranking to find their clients.

Conclusion

Taken together, these trends have created the preconditions for the online employment platforms currently taking place. On the one hand, working conditions in traditional forms of employment have taken on a range of new features, with workers increasingly expected to be available to work at any time, in any place, with their tasks standardised and measured, often using customer ratings, and expected to log on to online systems to report for and receive work. On the other hand, work in the informal economy is increasingly formalised, dragged into the scope of operations of corporate intermediaries using standardised measures for defining tasks and classifying workers' skills. With diverse roots in different industrial settings, a new model of labour market organisation is in the making.

Convergence: current trends in crowd work

The previous section outlined some of the trends which are converging to produce new conditions on the global labour market. However these are still in the process of formation, with many different competing business models, experiments and false starts. The landscape is a turbulent one, whose long-term character is not yet visible. Nevertheless some patterns can already be discerned.

One of these is a very strong trend of concentration. Online platforms rely heavily on a network effect, whereby the better known

a brand is, the more likely it is to be present in any given locality so the more likely customers are to choose it. This creates a 'winner take all' effect, making it difficult, once a brand is well-established, for competitors to obtain a foothold in the market. Well-known examples of platforms that have benefitted from this effect are Airbnb, Uber and Etsy. This trend towards consolidation (if not monopolisation) has led to several mergers and takeovers among leading platforms. For example eLance merged with Odesk in December 2013 to form a single company that has now been renamed Upwork. Similarly the German-based Helpling merged with UK-based Hassle to form what they describe as 'the world's biggest home-cleaning marketplace'[2] in July, 2015.

Another trend has been a move away from a model based on the notion that online platforms are co-ordinating citizen-to-citizen 'sharing' of resources or skills, towards one in which they are providing professional services to business clients. However in a field in which new models continue to emerge and evolve, it is difficult to make categorical generalisations. Platforms providing opportunities for volunteering or unpaid work carried out for altruistic or self-promotional reasons continue to co-exist with others providing paid work for both business and private clients.

The next section focuses on those platforms that organise paid work and looks in more detail at the range of activities covered, the employment practices and the forms of work organisation involved.

The heterogeneity of crowd work

It is clear that the online platforms currently in place have evolved from many different sources and it is thus no surprise that the kinds of work co-ordinated by them are also highly hetereog-

enous. Very little systematic quantitative research has taken place to estimate their extent, the characteristics of their workforce or the prevalence of particular organisational practices. We are thus dependent on anecdotal evidence for much of this information, derived from journalistic articles, the trade press and the companies' own websites. Nevertheless, there is now a sufficient body of evidence to illustrate the diversity of crowd work and identify some of the key variables.

Professional diversity

Online platforms are used to co-ordinate a wide variety of different kinds of work, ranging from highly-qualified professional services to unskilled manual work. At the high end can be found companies like Axiom, which provides legal services, Heal and Medicast providing medical services, the Business Talent Group, providing senior executives and Eden McCallum providing management consultancy. Lower down the scale can be found companies such as Handy, Taskrabbit, Helpling and Hassle which provide simple services such as cleaning, running errands or basic household maintenance tasks. In between can be found a vast array of occupational categories including teachers, cooks, tree surgeons hairdressers, translators and film editors.

This occupational diversity also implies a diversity in terms of social class, which is amplified when national and ethnic differences are taken into account. For example, both the local cost of living and the local social status are likely to be very different for, for instance, an IT worker based in New York or Berlin and his or her counterpart based in Pakistan or Bolivia, who may be competing directly with each other for work on the same online platform but whose similar earning power may translate into very different purchasing power in the local context.

Diverse routes into crowd work

Just as it is impossible to define a 'typical' occupational profile for a crowd worker, it is also impossible to characterise a 'typical' motivation for seeking this type of work or route into crowd work.

Some crowd workers are established freelancers who have found their traditional means of finding employment drying up and converted (sometimes reluctantly) to this new form of intermediation in order to continue a career trajectory that was already established using other means. Others are people who already have an existing job who see crowd working as a way of earning some extra income in their existing occupation. Yet others see it as a way of trying out a new occupation – perhaps to explore whether something that is currently a hobby could turn into a source of income in the future. Finally, there are people who are simply desperate for any source of income and will take anything they can get, some of whom may have registered on multiple platforms in the hope of receiving some job offers.

Again, it is necessary to take into account the very different situations of people based in different countries. In a low-wage country, for instance in South Asia, Africa, Central Asia or South America, work obtained through online platforms may provide a higher income than work in the local formal economy and may be sought out as a stepping stone to a better future, in some cases as an intermediate step towards becoming an employer.

Online or offline

One broad distinction that can be drawn between different platforms is whether they the work they are organising is carried out online or offline.

Online work includes a variety of different kinds of clerical, professional and creative work that can be carried out independently of location. All that is required to perform it is a computing device with internet access and a worker with technical and language skills that match the requirements of the client. Many of the best-known online platforms, such as Upwork, Amazon Mechanical Turk and Clickworker, fall into this category and tends to involve work for corporate clients.

Offline work includes a wide range of tasks that have to be carried out in particular locations. These may be carried out in public spaces, for example taxi or delivery services, in the homes of private individuals, for example cleaning, gardening or household maintenance tasks, or on business premises, such as on-demand casual clerical or service work.

To make matters even more complicated, there are some services that require a mixture of online and offline work in varying proportions, for instance IT maintenance work and legal work.

In many cases the boundaries between work that is organised through online platforms and that which is organised by other means (such as temporary work agencies, traditional labour exchanges or freelance agencies such as translation bureaux) are extremely fuzzy.

Temporary or permanent

There are also major variations in the degree of attachment of individual workers to the platforms through which they acquire work. In some cases each task is seen as the subject of a new contract, with the worker treated clearly as a freelancer with the ongoing relationship visible only in the form of a ‘reputation’

established on the basis of user ratings. In other cases workers are tied in to the company's identity much more fully, for instance by being pre-vetted, bound by explicit company rules, covered by corporate insurance or made to wear a uniform. In sectors where services are provided to people in their homes and a degree of trust is required, permanent employees are often preferred to temporary ones.

Pay

There is no single model for payment on online platforms.

In some cases, rates of pay are negotiated between individual workers and their clients with the platform taking a percentage from either or parties. On some platforms, clients may ask workers to compete directly with each other in the form of a bid for a specific contract. On others, workers may advertise fixed charges for specific defined tasks.

In other cases, the rates for the work may be specified by the platform, either in the form of fixed rates for defined tasks or variable rates (as in Uber's notorious 'dynamic pricing model' using algorithms that adjust local rates according to demand in real time). In some cases, companies will use specialist estimators to intermediate between clients and workers and agree a firm price with the client.

Workers may be paid piece rates (by the job or the task) or, where the duration of the task is unpredictable, by the hour. The use of hourly rates is often accompanied by invasive surveillance (for example using screen capture or camcorder streaming for online work, or frequent checks via SMS messaging for offline work).

Other payment methods can also be found, for instance the use of 'prizes' for winners of crowdsourcing competitions, or, more rarely, royalties or a percentage of the profit made by an online 'sponsor'. If they are not based in the USA or India, where alternative financial arrangements have been set up, workers for Amazon Mechanical Turk are not paid in money at all but in kind, in the form of Amazon gift tokens.

Not surprisingly, issues relating to pay are high among the complaints of crowd workers. One issue is non-payment of agreed fees in cases where work is 'rejected' by clients (who still, however, keep the intellectual property rights in the rejected work under the conditions imposed by several platforms). Non-payment may also occur if offline work is rejected by a client, for instance if a householder claims that a plumbing leak was not adequately fixed and the platform has to send out another worker, then the original worker may not be paid. Another common cause of complaint is delays in receiving payment. This is particularly prevalent in occupations, such as cleaning or taxi driving, where workers are used to being paid cash in hand and experience extreme cash flow problems if they have to wait several days or even weeks to receive online payment. Online forums in which crowd workers share their grievances also feature extensive discussions about payment which is lower than expected, because the estimated times per task are unrealistic, because hidden extras are not mentioned or for other reasons.

Employment status

The employment status of crowd workers is, perhaps, the thorniest issue of all. This is partly because platform employment is growing up in precisely those parts of the economy where there are, in many countries, already anomalies relating to employment

status, or at least difficulties in drawing precise definitions of it. This can be illustrated by three examples.

One of these relates to the position of freelance workers in creative industries. In the past, such workers have often been the subject of specific rules or institutional practices. These were set in place in recognition of the fact that creative workers constitute a special case. On the one hand they possess unique skills that cannot be delegated easily to others, and cannot therefore appropriately be classified alongside other self-employed workers (who can be seen as one-person enterprises with the possibility of taking on additional employees). On the other hand, the work that they do is often time-bound and project-based and not susceptible to the setting up long-term employment relationships. In the mid-20th century, such workers were often protected, to some extent, by 'closed shop' trade union agreements, or tight rules concerning their rights to receive royalties, performance fees or 'residual' payments. These rights have been eroded in the context of digitalisation, without alternative options being substituted. Meanwhile earnings have fallen, partly due to undercutting through the use of unpaid internships and use of labour based in low-wage economies but also due to appropriation of their intellectual property without recompense. The rise in de facto self-employment among creative workers does not appear to correlate with any corresponding rise in autonomy and self-direction or with genuine entrepreneurship (in the sense of being able to set up a business with employees) raising the question whether it should in fact be regarded as self-employment at all, at least for the purposes of the applicability of anti-competition law.

Another grey area in employment law, predating the development of the platform economy, is the position of on-call or zero-hours workers. An illegal practice in some European countries, and in others one that brings it clearly within the scope of employment

law, this type of contract leaves workers with relatively few of the benefits available to permanent full-time employees with defined working hours, and blurs in many ways into the kinds of relationship more commonly found in crowd employment. Indeed, some might argue that the main difference between being a crowd worker and a zero-hours worker is that in principle the former has a greater right to refuse work offered at short notice.

A third illustration of the complexity of the application of employment laws to crowd work is the history of difficulties in categorising employment in the informal economy, from which many crowd workers are drawn. When workers have been recruited by word of mouth, under agreements made, if at all, in the form of verbal contracts and paid in irregular instalments, often in cash and without documentation, it has always been difficult to establish whether a formal contract of employment can be deemed to apply. Transferring such employment to the more formal environment of an online platform, where workers' hour and payments can be tracked, makes these problems more visible but does not necessarily render them unprecedented.

It could be said, therefore, that to some extent the development of the platform economy is bringing to a head issues that were already present. Nevertheless, online platforms do introduce some new dimensions to these existing problems.

First, they introduce third parties into what were previously bilateral arrangements, raising the question of who should be regarded as the employer: the client, the platform, some other intermediary or the worker.

Second, the nature of online platforms creates new asymmetries of power in the labour market. The scale of the platforms, their

international scope, the impersonal nature of communication with them and the use of standardised procedures present workers with a series of 'take it or leave it' options. The lack of accountability of the platforms and the isolation and fragmentation of the workforce make it impossible to apply the concept of meaningful negotiation implied in traditional concepts either of an employment relationship or of a service contract between a self-employed worker and a client.

Historically, the concept of an employment relationship has been developed in the context of an implicit relationship modelled on that of a master and servant, in which the former gives directions to the latter in the context of a set of mutual responsibilities and obligations.

We must question how this concept can be applied to crowd work.

Endnotes

1 Estimate quoted by Statistica. Accessed on 29 December, 2015 from http://www.statista.com/statistics/203734/global-smartphone-penetration-per-capita-since-2005/

2 Joint press release from Hassle.com and Helpling, July 1st, 2015. Available online at: https://hassle.com/uk/press/releases/hassle-helping-join-forces

CHAPTER II

CROWD WORK:

THE FURY AND THE FEAR

KRISTY MILLAND

Abstract

In the ten years i've worked on amazon mechanical turk, things have changed, but not nearly enough to protect us from being forced to engage in tedious, underpaid crowd work. We have to begin to investigate how these platforms have become what they are, and what we can do to create more ethical work spaces for ourselves to ensure we aren›t exploited. The future of work depends on it.

Upon waking, I look at my phone. No messages, so I turn on my laptop and get it looking for some work. As I brush my teeth, an alarm goes off, and I rush back, toothbrush hanging from my mouth, to write some titles for porn videos. Once the 10,000 pieces of work are complete, I return to the bathroom. Next I grab my laptop and head to the kitchen to get breakfast, but before I can crack an egg the alarm goes off again. This time it is a survey that takes me over an hour, but when I get to the last page it tells me I don't qualify and that I won't be paid for what I had done up to that point. Infuriated, I head to Turkopticon, a site where workers can rate people who post work on Amazon Mechanical Turk, to warn others, but by now there are already over a dozen other comments from people who have already faced the same issue. After this I make breakfast, sit down, and watch for any work that might come through. I need $100 today to pay the rent, buy some

groceries, and pay for my daughter's school trip, but I'm not sure I'm going to get it. By bedtime, after being at my computer for over 12 hours, I only have $20. Tomorrow I'll have to work extra hard, or maybe skip breakfast, or I might not make the rent.

This story isn't just mine, but the story of the thousands of people who rely on crowd work to make ends meet. On Amazon Mechanical Turk alone there are 40,000 workers from around the world on the site at any given time. Of that number, approximately 40% claim to work on the site full-time, and they are the most vulnerable to the issues inherent to the platform. From wage theft and underpaying for tasks to content that is psychologically damaging, crowd work as it stands today is not a career that leaves people healthy and happy, and if we do not find a way to either legislate it or socially put pressure on the companies who operate these platforms to make a better work environment, the fear is that we all face a future of work that will leave us exploited.

To begin, what is crowd work? It is literally being able to access a huge number of workers in order to get a job done. On Amazon Mechanical Turk, or mTurk, each project is broken up into microtasks, which can be tagging a single photo from a thousand taken on vacation, or spell checking a single sentence from a novel, that are completed by workers known as Turkers. Each piece of work is called a HIT, or Human Intelligence Task, and the workers are referred to by Amazon as "artificial artificial intelligence". While their intent in using this term is to imply that one can build mTurk into software directly, it is an insult to refer to real humans with real intelligence in such a way, but Amazon continues to sell the workforce as nothing more than algorithms intended to make the internet tick. Along with microtasks comes micropay, and each piece of work is completed for only a few cents, with most HITs paying less than 10 cents each. The tasks themselves tend

to come in huge batches, so the workers may sit for hours on a single project, doing the same thing over and over again until the work is done. While this means the project is completed quickly, which the Requester (the person who posts the work to the platform) enjoys, it also means that workers face monotony without breaks. It gets worse when the worker faces wage theft, which is not only condoned by Amazon, but built into the platform. When a Requester rejects work, they get to keep what has been done, since they use the submission to judge whether to accept the work or not, but they don't have to pay. Some Requesters even use rejections as a way to save money, randomly rejecting a certain percentage of HITs, often the same percentage as they pay in fees. While workers can report this behaviour on Turkopticon, new workers rarely know that site exists since Amazon provides no helpful information to workers when they sign up, and they end up working for Requesters who reject their work. When a worker receives rejections, their approval rating is affected, which is a measure of how many of their HITs have been accepted or not. Requesters can use qualifications on their HITs to automatically determine who can do the work or not, and one such option is to limit the work to those who have a high approval rating. When you're new and end up working for a bad Requester who rejects you unfairly, you can see your approval rating plummet. The only remedy is to do more underpaid work for any Requester who doesn't reject, or give up, and almost 70% of workers quit within 6 months according to Ross, Irani, Silberman, Zaldivar and Tomlinson (2010). For those who stick it out, an even worse fate is to be blocked by a Requester, often for no fault of their own. Some Requesters block workers just because they want new people doing their tasks, while others seem to block randomly. These blocks build up on your account over time and if Amazon decides to review your account based on a new block, you can become suspended from the platform if you already have other

blocks. Once this happens, the worker is unemployed and there is no way to contest the suspension, since Amazon refuses to mediate disputes between workers and Requesters or between workers and the platform itself. Worse, if you haven't withdrawn your earnings from your Amazon Payments account, they've now gone, too.

This is a return to the assembly line with deskilling, surveillance and unregulated hours; since crowd workers are considered "freelancers" instead of employees, they don't enjoy the benefits that labour legislation offers. No restrictions on hours, no minimum wage, no vacation pay, no health insurance, and no protection from discrimination or unfair dismissal. That also means that it is acceptable for Amazon to pay Turkers outside of the US and India in Amazon.com gift cards, harkening memories of old mining towns. It is literally a labour situation reminiscent of the industrial revolution – there isn't even a way to ensure the worker is not a child or a slave. Beyond that, crowd workers are also not expected to pay into the same social services that a typical employee would, even though because of their low wages they are more likely to be accessing such services. In Canada, a worker such as myself does not pay into pension, employment insurance, or other similar safety nets, but if I end up suspended from mTurk I would likely have to turn to welfare to keep myself going. In fact, I make so little on mTurk that I could qualify for some assistance already! As we see many companies turning to crowd work to replace skilled workers and entire careers being shifted to such platforms, that means less and less people will be supporting social programs while more and more will need to access them. Together, the fact that employment legislation does not apply to "freelancers," both to protect them and to include them in supporting government programs is a troubling state of affairs.

When I visited FEPS to speak about crowd work, many people brushed aside discussion of these issues as problems only found in North America, but there are thousands of Europeans already working on mTurk or similar platforms. For example, Clickworker claims to have over 500,000 workers in its home country of Germany, and it is open to anyone from around the globe, so the total number of European citizens who use the platform is likely far higher. Other platforms such as 99Designs, Testbirds, Crowdflower, and Crowdsource also have many European workers, but since those platforms do not release demographic numbers, we can't know how many of our neighbours might be full-time crowd workers. While these jobs and their associated low pay – workers on mTurk forums report average earnings of between $2 - 40 USD a day – could be a boon for those who live in countries with a very low cost of living, people who live in more expensive areas will struggle to make enough to survive. This may not be a problem today, with the ability to work in traditional jobs or rely on social services to attain the basic needs of life, but what of the future? When teamed with the takeover of jobs by robots and algorithms, crowd work is further eroding what jobs are actually available. mTurk studies have shown that it can be used to diagnose medical conditions ("Is there a Doctor in the Crowd? Diagnosis Needed! (for less than $5)", Cheng, Manoharan, Lease&Zhang, 2015), complete scientific research ("Crowd Science: The Organization of Scientific Research in Open Collaborative Projects", Franzoni & Sauermann, 012), design software ("Collaborative Software Development Platforms for Crowdsourcing", Peng, Babar & Ebert, 2014), engage in graphic design ("The Good, the Bad and the Ugly", Florian Schmidt, 2013), write articles or books ("ProPublica's Guide to Mechanical Turk", 2010), and more. Those in professions once regarded as impossible to be completed by a robot are suddenly finding themselves replaceable by crowds – cheaper, faster, potentially more accu-

rate, and accessible 24 hours a day. Europeans are not immune to this creep of the crowd, and it will not be long before jobs here begin to disappear as well, if they aren't already.

What will we do when those jobs dry up? Join the crowd work platforms, of course. Some may not see this as a dystopian future, but crowd work as a career has some dreary features. One example is the fact that you are constantly in vicious competition with your coworkers, whom you rarely have the opportunity to communicate with on the platform. For example, mTurk has no function on its website for workers to talk to each other, meaning it is literally every Turker for themselves. When work is to be completed, it appears in the listings and is made available to anyone who meets the qualification requirements. Suddenly, a mass feeding frenzy begins, with workers grabbing as many HITs as they can (to a maximum of 25 at a time, as there is a limit on each worker's queue). This results in good work disappearing in seconds and, once it's gone, those who need to keep working to make enough to survive are left to do the work which others who are in better financial circumstances have left behind. Some of the worst work that many have to resort to is content moderation. Child pornography, mutilated bodies, animal abuse, murder, and other abhorrent imagery that is reported on sites like Facebook, YouTube or Flickr used to make its way to companies in countries such as the Philippines where people would make their career around adjudicating the content of these reports. Today, even countries with such a low cost of living can be undercut, and now workers on mTurk are moderating such content for pennies a piece. It was only a week ago that I saw HITs where images from ISIS were to be given tags for their content, and each task paid only 5 cents. So, not only will we be faced with tasks that can leave us with nightmares, but we'll be forced to viciously compete with our colleagues in order to do them.

That isn't to say that crowd work is inherently bad, and there are certain groups of people for whom crowd work offers major benefits. For example, those with disabilities can work from home in an environment that is suitable to their condition, but only on platforms that are accessible. Caregivers can stay home with those they tend to while doing work during down time. People who live in areas that have high unemployment don't have to worry about a dearth of jobs or the high cost of traveling afar to work as they can always find something to do online. Felons and sexual offenders who have limitations on where they can travel and who they can work around can find employment that is satisfying and isolated, protecting others from harm. And those who work in areas where their skills may not be in demand find projects they can add to their portfolio on sites such as 99Designs or CoContest. For everyone else there are many other benefits, such as a flexible schedule, the ability to pick and choose projects to work on, freedom from a boss and coworkers, new job opportunities on platforms within various fields, and the ability to work longer hours if greater income is needed. These benefits are significant, and crowd work should not be written off entirely or we lose these possibilities, but it is important that we make crowd work fair, ethical and sustainable in order to protect those who do benefit the most from such platforms. That means tackling issues such as workers being financially and psychologically exploited, forced to work without any time off, pushed into doing work that they are uncomfortable with, and isolated without contact with other humans who understand what they're going through. As traditional employees have come to expect, a workplace balanced in favour of the well being of both worker and Requester is a must.

This view of the future of labour can seem bleak, but workers are already banding together in order to change their work environment. A thriving, vibrant community has sprouted around mTurk,

spurred on by the fact that Amazon does not facilitate inter-worker communication. Starting with the forum I am community manager of, TurkerNation.com, workers have collected in order to discuss the work they do, just as coworkers collect around a water cooler on the job. Discussion of the job itself, from what work is worth doing to how to maximise earnings, is just part of what the communities are for, and in many ways is just a small portion of their benefit. In a study completed over the summer of 2014, myself and Kate Zyskowski found that many workers used the forums most frequently as social support. They found friends in their coworkers, peers who understood what crowd work was like, especially at the worst of times. Workers come to each other's aid when a Requester mass rejects their HITs, sending emails to the company, or shaming them for their behaviour on Twitter. If a researcher posts a survey that is underpaid, or rejects those who complete it, the community will contact the school's ethics review board to complain. This support has even moved to campaign organising through the website WeAreDynamo.org, created by a partnership between academics and workers, and intended to allow for anonymous discussion of how workers could collect in order to engender change. The first successful campaign of the platform was the Guidelines for Academic Requesters, a repository of tips on how to ethically use mTurk for research. The second campaign, named Dear Jeff Bezos, called for Turkers to write to Bezos, the CEO of Amazon, to let him know who they were, why they used mTurk, and what sort of changes they'd like to see for the future. While Bezos didn't reply directly, one request made by Indian workers – the ability to receive their pay by bank transfer instead of cheques which were more often lost than not – was granted after the campaign. While these are just the first steps in allowing crowd workers to fight for their rights, when paired with strikes and lawsuits by Uber drivers and Handy maids, it seems that finally the crowd is finding its voice.

In order to ensure crowd work is equitable to those who engage in it, governments must step up and make the companies who run crowd work platforms do so transparently. For example, on mTurk workers can't communicate, therefore they have no way to know who else is working there. Amazon does not release information on how many workers there are or where they come from, so no government can know how many of their citizens are working on the platform. As a result, they can't ensure that those workers, or the company itself, are paying appropriate taxes or into social systems typically funded through wage deductions or employer contributions. It also means that workers cannot organise, from providing each other social support to sharing knowledge to campaigning for their rights. If platforms were legislated to provide this information, we could ensure that workers could fight for a better work environment while the government would get its fair share of the profits being earned from the labour. This would then entitle the workers to the support that is especially necessary when engaged in such a precarious job, such as access to healthcare, employment insurance and pension funds. Transparency is a simple first step towards bringing the rights of a crowd worker in line with those of a traditional worker, and with the industry throwing itself headlong into a future of work where employment is measured in minutes instead of years, it is vital.

Tomorrow, I will wake up, open my laptop, and start searching for HITs again. Compared to ten years ago when I first signed up for mTurk, my outlook will be different – instead of thinking that no one knows what I do and how negative it can be, I now know that people are finally discussing crowd work. I also know that people are listening to the workers, and while it took a decade to finally get the attention necessary to start engendering change that stops the descent into precarious, exploitive work for all, the time for action is now. We must petition our governments to protect

all workers, not just those who have job security thanks to old legislation. We must pressure companies to be open about their workforce, and to consider changes that allow the workers to organise. Lastly, we must listen to workers to better understand their situation and how we can all offer them the support they need to be self-sufficient. Further discussion is necessary, and all stakeholders must join the conversation in order to gather the necessary knowledge to make solid choices going forward, but talk is not enough. The next step we must take now, before we find the situation is beyond repair, is action. There is no position that cannot be completed by a robot, an algorithm, or a crowd, and if you want to be able to work in a career where you can support your family and enjoy your job, it is up to you to join the fight.

WORKING IN THE LOW-PAID SERVICE SECTOR: WHAT IS TO BE LEARNED FROM THE ANALOGUE WORLD?

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Abstract

This contribution argues that the new forms of employment such as crowdsourcing need to be viewed in the context of existing contracts and patterns of flexible and precarious employment. Current developments in the labour market and the organisation of work, in particular in the spheres of low-waged work and atypical employment, provide insight into the mechanisms and patterns that are likely to emerge or continue in digital employment, and also into the likely limitations and contradictions of crowdwork.

The comparison finds that deskilling, work intensification, labour market polarisation and the vicious circles of poor-quality work and service put the very potentials of workers and their customers at risk that are needed to handle and manage the social and technological complexities of modern societies. Platforms are unlikely to be able to model all these functions technologically.

The paper thus argues that European societies cannot expect technological change, liberalisation and productivity increases to deliver welfare and sustainable quality of work and life by themselves. The uncertainties of human interaction, of complex

processes of value creation and the similarly complex integration of modern societies require smart, circumspect work and collaboration in order to function.

This chapter argues that new forms of employment such as crowdsourcing need to be viewed in the context of existing contracts and patterns of flexible and precarious employment. Current developments in the labour market and the organisation of work, in particular in the spheres of low paid work and atypical employment, provide an insight into the mechanisms and patterns that are likely to emerge or continue in digital employment, and also into the likely limitations and contradictions of crowdwork.

Crowdsourcing has attracted considerable interest in recent years, and the picture is only now starting to take shape. Crowdsourcing represents a "type of internet-enabled labour exchange" (Barnes et al., 2015) where tenders for pieces of work are invited through an online platform from the "crowd", a pool of potential workers with profiles, credentials and work samples. Crowdworking platforms provide tools and support for tendering, control and evaluation of work, and the handling of payments. Crowdwork ranges from tendering for knowledge-intensive and creative services with varied contractual arrangements to the virtual distribution of microtasks such as image recognition, labelling and tagging or the manual checking of database entries – tasks that often enough fills gaps in automation. We can also distinguish the crowdsourcing of immaterial services that can be delivered online ("virtual crowdwork") from those platforms that broker the spatially-bound services of drivers, landlords and -ladies, tradespeople or domestic workers.

However, not all the "disruptive" features of crowdwork are entirely new. Work "on demand" with discontinuous employment and income is found in other forms of employment. Customers and clients shape contracts and working conditions in wide areas of the service sector, and workers are increasingly exposed directly to market volatilities. In particular, women workers in personal services find their skilled, responsible and demanding work misrecognised as an extension of care or housework, work for "pin money" or "love" and in fact as anything but a "real" job. In this way, both ideologically and structurally, low-wage service work in some areas comes close to work activities in the informal sector, and employers, customers and workers may consider informal work a viable alternative. All of these aspects of "hard work" (Holtgrewe et al., 2015) occur in outsourced services and result in problematic working conditions, precarious employment, and – unless collective and political action is taken – decreasing quality of work. This contribution explores the evidence that low-wage services provide for likely impacts that a technologically-enhanced further fragmentation of work can have on working conditions in the affected and the neighbouring sectors.

1. Low-wage services: the situation

Low-wage services have expanded in Europe since 2000, and together with the construction sector, stand for the low end of the polarisation that is observed in many European labour markets during both the period of employment expansion since 1995 and more markedly during the crises starting in 2008 (Hurley et al., 2013). Indeed, the supposed knowledge society has consistently failed to get rid of "hard work". It generates its own low-skilled, menial and tightly regimented jobs that fill in the gaps of automation and self-service where direct interaction or physical handling are necessary, for example in call centres or logistics.

The literature on low-wage work agrees that these jobs and sectors are characterised by comparatively **low wages**, **physical and psycho-social strain**, **low and misrecognised skills** and **patchy** to **low interest representation**. Additionally, they are structured by strong gender and ethnic segmentation, both between and within sectors. Low-wage jobs offer labour market access to the low-skilled and to newcomers to the labour market (which is not necessarily the same), but overall, they are more likely to lock workers into problematic employment conditions than to offer stepping stones into more secure and lucrative employment.

The expansion of low-wage jobs with poor quality of work is not just driven by employers looking to increase their profits in depressed markets. It is also driven by **cost-sensitive customers**, either private households, businesses or the austerity-driven public sector, and by the competition among varied groups of workers, some of whom make do with "extra income" or very low wages. These dimensions of demand for lower-cost and precarious services are self-enhancing: less affluent consumers may look for cheaper options in transport, accommodation or tradespeople's services and thus embrace platforms that undermine conventional service business models. On the company side, crowdsourcing fits into the continuum of relocation, virtualisation and the implementation of internal markets in companies that has been observed in recent years, and it is likely to continue. It also fits into the pattern of flexibilisation in which companies experiment with various labour market segments, comparing them and having them compete (Rubery, 2007).

There are economic, political and social-structural reasons for the expansion of problematic working conditions and low wages in the service sector that are also likely to extend to

crowdsourced work. In an economic view, the **"cost disease"** argument put forward by Baumol (1967) is still pursued in Eichhorst and Marx (2015), although recent studies pay more attention to the institutional and societal contexts of services. The "cost disease" emerges as labour-intensive services are having difficulty in achieving productivity increases in line with those in other sectors such as manufacturing or the "scalable" services. Thus, markets in these services are expected to allow for lower wages only unless centralised and solidaristic collective bargaining or state intervention redistribute productivity gains of the economy. This is more likely in personal or business-to-consumer services where higher wages cannot easily be absorbed or where services may alternatively be provided through unpaid housework.

A more political argument is that for historic and structural reasons the new service jobs are less regulated and organised than manufacturing work. There, in the "old" industrialised countries **unions** have been powerful enough to achieve middle-class wages for medium- and even low-skilled work (Palier and Thelen, 2012). Hence, with less union density and **decreasing bargaining power** of workers in the new and growing segments of the service sector, wages and working conditions suffer. In addition, new service jobs are likely to be filled by newcomers or **outsiders** to the respective labour markets or labour market segments: women, young people beginning their careers, and migrants, possibly also older workers and people with discontinuous careers. These groups may lack alternatives in the labour market and thus have to accept more precarious working conditions. On the upside, low-paid service jobs do provide labour market access for vulnerable groups – but so far offer few opportunities for workers to move out of the sphere of low wages and problematic working conditions (Hohnen et al., 2015).

Low-wage services also offer some insight into workers' ways of coping with problematic working situations and the aspects that matter to them. Workers are very aware of the downsides of their respective jobs, and feel the pinch of low wages and the unfairness of misrecognition. Yet they cope in various ways, by combining jobs and resources in households, and many find meaning in the usefulness of the work they do. In this contradictory and uneasy configuration, they appreciate the "small gains" in working conditions: a good working atmosphere, mutual support among colleagues and by management, reciprocal and fair relationships, reliable working times and wages (Holtgrewe and Hohnen, 2015).

However, there are ways of improving the quality of work in low-wage services and good practices are observable in Europe (*walqing* Project, 2016). Inclusive employment regimes and welfare state provisions can provide "institutional anchors for job quality" (Jaehrling and Lehndorff, 2012). Increasingly, they need to address the challenges of atypical employment and in this way limit labour market segmentation. Joint initiatives of social partners are also able to influence the choices of customers, setting standards and addressing the quality of services as a political and social question (Kirov, 2015). Smart organisational solutions and management strategies can render employment more secure and contribute to service innovations. Inclusive and collaborative working cultures contribute to good job quality. However, the increase of low-paid and precarious work shows that neither the market nor technological progress automatically improves working conditions, and that dedicated political efforts are needed.

2. Low-wage services and crowdwork: not proper jobs?

Clearly, several of these considerations also apply to some segments of crowd work: by definition, crowd work is labour intensive and clients are promised readily accessible labour at low cost. Platforms that act as intermediaries for household or tradespeople's services directly intervene into the markets for personal and "other" services to households. They compete with both the **informal sector** and with current attempts to formalise it. Such work takes place even further outside the cores of organised, coherent "normal" employment than low-wage service work. Indeed, platforms consistently aim *not* to take on the roles and responsibilities of employers and to shift risks and liabilities comprehensively onto self-employed workers. They also frequently present the services as **"anything but" work** for money. Some suggest services rendered by friendly neighbours and people with time on their hands. Others present cleaners for example as anonymous entities with cute names such as "helplings" or "tigers", or, in the aptly named Mechanical Turk, suggest that working people are a well-hidden part of potent machinery. This obfuscation of the realities of work and precarious employment looks familiar from the history and presence of service work. Women's work in particular has been devalued as activities done for love or for supplementary income and "pin money".

As crowdworkers are spatially distributed and either work from home (or wherever) or on the clients' site, they cannot easily be reached by unions or self-organised associations although there are some web-based initiatives. In addition, platforms deliberately render their **markets intransparent** for workers: while detailed rating and reputation systems for workers are used, workers them-

selves often cannot figure out critical information such as going rates for contracts or the reliability of clients. This intransparency drives down wages further as workers anticipate lower bids by competitors (Lorig, 2013).

So far, there is little known about the situation of workers who take on crowd work in Europe. It is likely to be taken on by workers with few employment alternatives (for example in remote regions), as a secondary or supplementary job, or as a road of entry into skilled and professional labour markets similar to the notorious internships in creative fields. All of these configurations assume workers who make **concessions or investments** in their careers, either out of need and lack of alternatives, or because they can afford to do so. However, through their specific rating and reputation systems, platforms exacerbate these investments by workers over those in "traditional" creative or media jobs: crowdworkers report that when starting on a platform they need to take on many lower-paid and unattractive jobs in order to build their reputation and gain access to more favourable and interesting work (Bergvall-Kåreborn and Howcroft, 2014; Schörpf et al., 2016). In this way, platforms add an extra and discretionary layer to the general requirements of maintaining employability that have been shifted onto workers and even on the unemployed by companies and the labour market policies of activation in recent years. Unlike certified skills and also local reputations that are attached to the person, these reputation systems tie workers to the respective platform.

We thus find through the comparison that platforms of crowd work both continue and exacerbate two contradictory mechanisms that have been eroding workers' interests: the devaluation of some forms of work as "**not a proper job**" or something done for love or "pin money" or both, and an idea of **employability** that renders labour market access contingent on an uncertain and possibly

limitless amount of upfront investments by workers. Either mechanism has a tradition in knowledge-intensive and creative sectors and in the feminised low-wage services respectively that extends into new forms of employment. The emphasis on their "newness" blurs that continuity and obfuscates the concerns of current precarious workers in both segments of the labour market.

3. Working outside the "normal" employment relationship: the elimination of downtime

It is worth remembering that throughout capitalism, "normal employment" in one permanent full-time job has been the exception rather than the rule for a majority of the working population. Services in particular are frequently provided through "atypical" employment as employers aim to adapt staffing levels and cost as closely as possible to customer frequencies and needs. The recent Eurofound study on "new forms of employment" (Mandl et al. 2015) finds that certain forms of casual and extremely precarious employment have one detrimental aspect in common with crowd work: the aim to comprehensively remove slack times from work and to have employers or customers pay for active working times or immediate results only. Crowdworking, zero-hour contracts and work "on demand" could be called **hyperflexible employment forms** that fragment work well beyond what is known in conventional employment contracts such as part-time or marginal employment.

Zero-hours contracts and on-call work often offer permanent contracts but do not stipulate working hours or schedules in advance. Instead, employers call in workers if and when they are needed, to cover other workers' absences, peaks in demand or other contingencies. Such work is mostly used in service sectors with variable demand such as tourism or home care and also retail and entertainment. In hyperflexi-

ble employment, the elements of a conventional labour contract, that is, circumscribed working times, a workplace, work tasks and wages or payments, are thus becoming uncertain. The unpredictability of working schedules and income is likely to generate stress and may combine the disadvantages of severe underemployment and intermittent very long working hours for workers.

Some experts see the merit of such contracts in providing access to the formal labour market for young or unemployed workers and a reduction of undeclared work. However, there is clearly a risk of substitution of regular jobs, either directly or through the cutting of staffing levels that no longer need to take short-term changes in customer demand or staff availability into account. In this way, employers find themselves drawn into a vicious circle: when work is subdivided among a larger number of workers to cover work peaks, the increased headcount (plus often strenuous work) increases the likelihood of worker absences at short notice due to sickness or other demands. Then, with low staffing levels, replacements must be found at even shorter notice – an ongoing challenge and area of conflict for frontline managers which, again, is likely to be encountered in crowdworking arrangements as well. In this context, the very attractiveness of casual labour pulls employers further into the vicious circle, detracting from efforts at more sustainable management practices and better work planning which in turn would allow for more stable employment and responsible autonomy of workers.

4. Space matters:

Networks in the real and virtual world

With regard to work organisation, research in low-wage and other services shows that the **coordination needs** and hindrances of hyperflexible and virtual work are unlikely to be solved tech-

nologically, and are even likely to slow down digitalisation and automation. Virtual collaboration is unlikely simply to open up "global", purely transactional service markets everywhere. One case in point is the emergence of national-language crowdsourcing platforms in Europe found by the Eurofound study (Mandl et al. 2015). In a national context, signals of skills, experience and of trustworthiness are easier to decipher, and many tasks on a platform will require some knowledge of the national or cultural context. Lehdonvirta et al. (2015) find that even on global platforms, workers find more and better-paid work in their domestic markets. This insight may also open insights into the possibilities of regulating and organising virtual work.

It is in line with research into face-to-face and also project-based services and construction, sectors with longstanding traditions of freelance work and varied employment contracts. In IT, film and TV production and also in construction, such collaborations are often embedded in enduring, trust-based networks. Even in commercial cleaning with its high labour turnover, HR managers aim for labour retention and try to access workers' networks of friends and family to assess potential workers' reliability, save transaction costs and create worker engagement at a low cost (Holtgrewe and Hohnen 2015). In cases of the migration of domestic cleaners or construction workers from Eastern Europe to Western European countries, work is also often distributed through family and neighbourhood networks. Frequently, more experienced workers become formal or informal co-ordinators or intermediaries of teams and networks – but obviously such networks can work both as support systems and modes of exploitation and corruption.

Arrangements of casual work thus are rarely purely transactional. Both knowledge-intensive project work and menial tasks such

as cleaning apparently benefit from collaboration with established contacts and from social and cultural proximity. Workers need and establish networks to gain access to the respective labour markets and to improve their positions and safeguard their interests. Employers also favour some social connection as a signal for reliability and trustworthiness – and in time-pressured work contexts such signals may become more rather than less important.

Platforms try to develop technical substitutes for such social relations through their rating and reputation systems, and – like standardised and branded services elsewhere – aim for users to transfer their trust from the person employed onto the platform. However, they disempower workers as they become dependent on decontextualised and anonymous client ratings and on some platforms need to work their way up within the platform. Recent evidence shows that workers and clients tend to re-adapt these features and fit them back into complex social arrangements. Lehdonvirta et al. (2015) find that in South-East Asia, crowdworkers use their reputation in the platform to further subcontract work. This can happen in a self-interested way, turning one's reputation into economic capital, or for mutual benefit, providing work for friends and family. Crowdworkers also form stable bonds with customers and contract with them directly after some rounds of platform-based collaboration. Crowd work thus emerges as much as a societally embedded activity as other types of work in both organised and networked contexts – but clearly, platforms have an impact on social relations and mutual expectations that favours workers' interests less than those of other participants. They also embed that power asymmetry technically. In this way, they eliminate reciprocity and equality from their formal procedures and challenge workers, collective actors and society at large with re-establishing socially viable modes of working.

5. What is to be learned?

It appears that the focus on the newness of digital employment, and its deviations from "normal" employment relationships, indeed blurs some important insights that may be gained from recent research into low-wage service work or atypical employment. New and atypical forms of work can be shaped in more or less favourable ways. Inclusive employment regimes and labour market policies distribute access to and the benefits of employment evenly and aim at de-segmenting labour markets. They are less sensitive to the vicious circles of fragmented employment and races to the bottom that result in poor quality of work. Understandably, for trade unions and social democrats, at first sight it is the skilled and professional workers in core sectors who have the most to lose from a shift of employers to external labour markets. Even if that shift is limited, labour market segmentation offers employers exit options from established labour standards and increases the pressures on workers and their representatives to bargain for concessions (Doellgast and Greer, 2007). However, a purely defensive stance obscures both opportunities for and risks to other "atypical" groups of workers and consumers.

Nor can European societies expect technological change, liberalisation and productivity increases to deliver welfare and sustainable quality of work and life by themselves. The uncertainties of human interaction, of complex processes of value creation and the similarly complex integration of modern societies require smart, circumspect work and collaboration in order to function. It is for this reason that more than 70% of working Europeans work in services. This complexity is also found in low-wage work – elderly care is a case in point. Deskilling, work intensification, labour market polarisation and the vicious circles

of poor quality work and service put the very potential of workers and their customers at risk that are needed to handle and manage the social and technological complexities of modern societies. Platforms are unlikely to be able to model all these functions technologically.

On the one hand, this suggests that sweeping prognoses on the substitution of conventional work either by technology or by platform-mediated modes of distributed or virtual working are likely to be exaggerated. On the other hand, we have seen that some features of platforms are disproportionately harmful to workers' interests and undermine the prerequisites for better jobs: transparency of markets, reliable and fair relationships, possibilities for collaboration and worker voice.

These negative impacts are not in the "nature" of the technology but in the position of for-profit platforms and business models as new and disruptive intermediaries. They exploit the opportunities of technical possibilities, segmented labour markets that already offer uneven access to secure and adequate employment to vulnerable groups, and of the growing demand for services under conditions of social inequality. In ways that are both innovative and opportunistic, they make commercial use of the policy oversights of the neoliberal era.

However, there is no reason why the innovative possibilities of platforms should not be taken up by other societal actors and designed and developed with a wider variety of interests involved. For example, trade unions could reinvigorate the traditions of labour cooperatives and union-run hiring halls of the 19th century. Other social movements, initiatives and social entrepreneurs might update the "alternative" cooperative businesses of the 1980s. Municipalities, regions, NGOs or specialist service

delivery networks around issues such as health or sustainability could harness information technology to local or regional purposes. As multinational and disruptive companies borrow the rhetoric of "communities" and "crowds" that suggests participation and empowerment, other actors can implement "real" innovation and choice. A look into the histories and continuities of work and labour thus provides an insight into both the risks to and the possibilities for inclusive social progress and innovation.

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WORKING CONDITIONS IN CROWD EMPLOYMENT AND ICT-BASED MOBILE WORK

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Abstract

The European labour market is characterised by an increasing diversity of forms of employment, mainly driven by the need for more flexibility by employers and employees. This article provides an overview of two of the new employment trends related to digitalisation. Crowd employment refers to a situation in which employers address a virtual cloud of workers through an online platform, often breaking up bigger activities into micro tasks assigned to various workers. ICT-based mobile work is understood to be conducted by employees or self-employed persons at any time and any place that fits the task, the employer and the worker, with intensive use of modern information and communication technologies. The article presents the main characteristics of these new forms of employment and their implications on working conditions and the labour market, and highlights some policy pointers.

Introduction – New forms of employment in Europe

While 'standard employment', understood as permanent full-time employment contracts or self-employment, is still the dominant form of employment in Europe, societal, economic and techno-

logical developments bring about an increasing heterogeneity of forms of employment. However, information about the characteristics of these 'new forms of employmentand their effects on working conditions and the labour market is limited so far. To contribute to closing this knowledge gap, the European Foundation for the Improvement of Living and Working Conditions (Eurofound) conducted a research project in 2013/2014 to map the emerging employment trends in Europe and give some initial indications on the implications of the new forms of employment on working conditions and the labour market (Eurofound, 2015).

In the study, 'new forms of employment' are considered to have been emerging or becoming increasingly important since about 2000. A national perspective was chosen, meaning that what is 'new' in one country might already be well established in a second country or non-existent at all in others. Employment that falls into one or several of the following categories qualified for analysis:

- Employment relationships involving either multiple employers for each employee or one employer and multiple employees; however, temporary agency work which could also be classified under this definition was not considered as 'new' for the purpose of this project.

- Provision of work on a discontinuous/intermittent basis or for very limited periods of time rather than on a continuous or regular basis. 'Standard' part-time work or concepts like seasonal work were not considered as 'new', unless other features that made the employment relevant for this project applied.

- Networking and cooperation arrangements between the self-employed, especially freelancers, going

beyond traditional relationships along the supply chain, sharing premises or carrying out traditional project work.

- A place of work that is different from the premises of the employer(s), for example, working in own office, working 'around'; traditional teleworking was not considered, but only 'more mobile' work relationships.

- Strong or prevalent support of ICTs, including mobile phones, PCs, iPads or similar, where this technology changes the nature of work relations or patterns.

As a result of this working definition nine broad new forms of employment were identified for Europe. It has to be mentioned that an individual employment can fall into more than one category.

- Employee sharing means that an individual worker is jointly hired by a group of employers (not being clients of a traditional temporary work agency) and works on a rotating basis in the different companies.

- In contrast to this, in job sharing a single employer hires a group of workers to jointly fill a specific job.

- In voucher-based work the employment relationship and related payment is based on a voucher rather than an employment contract. In most cases, the workers have a status somewhere in between dependent employees and self-employed.

- Interim management refers to situations in which a worker is hired for a temporary period of time by

an employer, often to conduct a specific project or solve a specific problem in the company. In contrast to traditional fixed-term work arrangements, interim management has some elements of a consultancy, but the expert has dependent employee status rather than being an external advisor.

- In casual work the employer is not obliged to regularly provide the salaried employees with work, but has the flexibility of calling them in on demand.

- ICT-based mobile work refers to work patterns characterised by the worker (dependent employee or self-employed) not operationally providing the services at the premises of the employer, but 'working around' (for example at home, at the client's premises, 'on the road'), supported by modern technologies such as IPads. It is different from traditional teleworking in terms of being even less 'place-bound'.

- In crowd employment, virtual platforms match a large number of buyers and sellers of services or products, often with larger tasks being broken down into small jobs.

- In a similar way, portfolio work refers to situations in which a self-employed person works for a large number of clients, and provides just small jobs for each of them (but not necessarily in the 'virtual space').

- Finally, new work patterns for the self-employed in the form of new collaborative models have been found in a variety of countries, going beyond traditional business partner relationships.

From this list it becomes obvious that ICT-based mobile work and crowd employment in particular strongly depend on a 'digital element'. In the following, these two new forms of employment will be analysed in more detail, with specific focus on their effects on working conditions.

Crowd employment – Main characteristics[1] and workers involved

Crowd employment takes advantage of an online platform allowing organisations or individuals to access an indefinite and unknown group of other organisations or individuals to solve specific problems or deliver specific services or products in exchange for payment (Green and Barnes, 2013; Papsdorf, 2009). It is likely that a larger task is divided up in smaller subtasks ('micro tasks') to be conducted remotely (Felstiner, 2011; Kittur et al, 2013). Examples for tasks often commissioned through crowd employment refer to developing web content and software, database building and cleaning, classifying web pages, transcribing scanned documents and audio clips, classifying and tagging images, reviewing documents, checking websites for specific content, validating search results, and tasks related to advertising, such as the design of logos or the drafting of slogans (Horton and Chilton, 2010; Felstiner, 2011).

While the crowd employment platforms have to follow general legal frameworks such as commercial codes, civil codes, consumer protection acts, data protection legislation etc., Eurofound (2015) could not identify any legal or collectively-agreed framework specifically addressing the employment aspect. In general, the employment relationship between the client and the worker is based on individual agreement, hence remuneration as well as working conditions and other issues, notably Intellectual Property

Rights, are determined by the two parties or the terms and conditions of the platform (Klebe and Neugebauer, 2014).

Crowd workers tend to be young:

- 45% of US workers on Amazon Mechanical Turk and 66% of Indians were born after 1980 (Ipeirotis, 2010).
- 80% of the workers signed up with the Czech TOP-DESIGNER.CZ are younger than 30.
- As regards the German Clickworker platform, most of the workers are aged between 22 and their late 40s.
- Workers on the Lithuanian Lingjob platform are aged 18-35.
- About 60% of male and 70% of female workers of the Portuguese platform Idea Hunting are younger than 35.
- The typical worker of the Spanish Adtriboo.com is described as a 26-35 year old male with at least five years of work experience and located in a Spanish city (more than half of them are in Madrid).

German and Danish experts assess that crowd employment requires a high level of qualifications, creativity and soft skills from the workers, and a similar situation is also confirmed by Howe (2008), Brabham (2012) and Ipeirotis (2010). At the same time, it is observed that crowd employment, in terms of micro tasks, tends to reach lower qualified persons in need of some (additional) income.

The main motivation of crowd workers to engage in this type of employment includes the fun element in carrying out this type of work, learning opportunities, social exchange, recognition by other crowd workers and clients, the opportunity for self-marketing, and a better combination of work and private life (Klebe and Neugebauer, 2014). Furthermore, people get involved in a crowd employment platform as a source of (additional) income (Klebe and Neugebauer, 2014; Silberman et al, 2010; Ipeirotis, 2010).

The main motivation for clients to use crowd employment is the access to a huge portfolio of knowledge and a potentially quicker and cheaper completion of the job under consideration (Klebe and Neugebauer, 2014; Felstiner, 2011). Recruitment of dependent employees can be avoided and hence labour law does not have to be considered.

Due to its young age, the spread of crowd employment within the EU and Norway seems to be marginal, but hardly any strong data exists to signal the usage. Some indication can be given from Eurofound's case studies: From summer 2010 to January 2014 the Danish crowd employment platform Boblr ran only about 15 different competitions. The Czech TOPDESIGNER.CZ had about 3,900 registered workers and 320 completed projects in January 2014; that is about two years after its launch. Since its establishment in 2011, the Latvian Academy of Ideas announced about 150 tasks, has about 40 clients and 30-40 regular workers. Almost 3,000 workers are registered to the Lithuanian Lingjob platform in 2014 (about one year after its launch). For Spain, information stemming from internet blogs leads to the assumption that there are about 28 crowd employment platforms in the country, with the most important one (www.adtriboo.com) offering services of about 135,000 professionals from Spain, Argentina, Chile, Ecuador and Mexico.

Nevertheless, Kaganer et al (2012) highlight a 'skyrocketing annual growth' in global revenue of crowd sourcing platforms of 53% in 2010 and 74% in 2011, clearing showing the potential of this form of employment. The potential of crowd employment can also be exemplified by Amazon Mechanical Turk on which more than 350,000 tasks are offered at any one point in time.

ICT-based mobile work – Main characteristics and workers involved

ICT-based mobile work refers to work arrangements carried out at least partly, but regularly, outside the 'main office', be it the employer's premises or a customised home office, using ICTs for online connection to shared company computer systems (Andriessen and Vartiainen, 2006; European Commission, 2010; Eurofound, 2012). Work takes place wherever and at any time it suits the work activities, task, business schedule and lifestyle of the worker, not necessarily at a specific place but also 'on the road' (Andriessen and Vartiainen, 2006; European Commission, 2010).

While ICT-based mobile work can be applied by both employees and the self-employed, this article will focus on salaried employees in the following. For them, ICT-based mobile work could be considered as a variation of teleworking; however, it is more flexible with regards to the place of work or even 'on the road'.

ICT-based mobile work is not suitable for all jobs. Certain preconditions must be met before mobile work can be applied:

- The tasks inherent to a job (or at least parts of them) must be able to be carried out from the premises of the employer or another fixed workplace.

- There needs to be a technical set-up in place enabling the workers to access and exchange work relevant information irrespective of place and time. This requires some kind of cloud solution with virtual access from mobile devices as well as the related infrastructure (that is, a network of computers, laptops, tablets, mobile phones etc.) and some arrangements regarding communication procedures and information exchange strategies.

- The work culture needs to provide for a sufficient level of trust from the employer towards staff to delegate responsibilities and accept a certain level of loss of control.

- Workers must have the capabilities to self-organise and self-manage their work as well as the willingness to do so.

ICT-based mobile work is generally conducted on the basis of standard work contracts, in most cases related to full-time positions of indefinite duration. Some case study evidence even hints at the aspect that the employer deliberately links the possibility of mobile work to permanent contracts to highlight that the increased flexibility (for both, employer and employee) should not result in reduced security for the workers, as that would reverse the intended positive impact of such flexibility measures such as the increase in productivity and employee satisfaction.

The implementation and application of mobile work is instead done in an informal way, covered by a general element of flexibility in the company agreement or working contract. Due to the young age group undertaking this type of employment in most European

countries, it is not specifically regulated in most of the countries in which it was identified to be emerging. Only for Hungary was a specific legal regulation for mobile work found: Since 1 January 2013, regulations concerning 'outworkers' were included in the Labour Code. In Denmark's case, the act on working conditions applies to both mobile work and fixed workplaces. However, it has identified various locations where work is typically performed, and provides some guidelines on which type of work should be done where. For example, it recommends that employees do not perform large writing tasks on laptops in trains or hotels where the working conditions for ergonomically correct positions might not be ideal. Instead, the guidelines recommend that the employee, while 'on the road', handles tasks such as reading, commenting, or phone meetings.

ICT-based mobile workers are rather young, high-skilled specialists, knowledge workers or management. The latter might be related to the above-mentioned precondition of a high level of trust between the employer and the worker and the employer's willingness to give up direct control over the worker (which besides is probably more difficult to exercise with regards to managers or specialists).

The sectors where mobile workers are diverse are, for example IT, engineering (in particular automotive, aerospace, building and construction sectors), creative industries (for example, audiovisual industry, journalism, design), health and wellbeing, manufacturing (Schaffers et al, 2006; European Commission, 2010; Drobnjak and Jereb, 2007; Vinnova, 2007). In terms of activities and tasks developed by mobile workers, these vary considerably according to the sector and the occupation. In general, however, after telephone conversations, receiving and sending emails is the most relevant activity (92.4% of workers in 2002), followed by accessing the internet (70%) and connecting to the company's internal system (around 60%) (European Commission, 2010). The exchange of

emails is particularly the case for office and knowledge workers, while the non-office workers in sectors such as field maintenance and healthcare are mainly connected to their company's computer systems using special applications.

Employers seem to implement ICT-based mobile work as a means of increasing flexibility of the organisation of work and to introduce innovative work practices. This is done with a twofold objective. Firstly, they aim for efficiency and productivity gains in terms of the best use of available working hours (for example, rather than having 'empty hours' when workers are travelling). Secondly, offering ICT-based mobile work might help employers to attract skilled labour. This is based on the assumption that ICT-based mobile work in many cases is driven by the demand of the workers who request this form of employment to gain more flexible working time and work patterns, a better work-life-balance, and less commuting (Popma, 2013).

Data on the spread of ICT-based mobile work is very limited and results in mixed findings, which is probably mainly due to the different definitions applied in the individual surveys. Data from a study conducted in 2003 in 28 regions within 13 European countries indicates that on average 4.7% of workers can be classified as a 'mobile teleworker', ranging from 13.3% in the Berkshire/Buckinghamshire/Oxfordshire region in the UK to 0.5% in Central Macedonia. A recent Norwegian employers' poll on mobile work estimated that 62% of the companies made all of their working documents accessible to their employees via mobile devices outside the work premises.(Nordialog, 2013). The same survey showed that 91% of companies provided workers with mobile devices. According to the European Working Conditions Survey data for 2010, in Europe a quarter of the workers can be considered 'e-nomad' (Eurofound, 2012). The future potential of ICT-based, mobile work can be shown by data of a survey carried out as a part of Micropol, an EU project promoting ICT based work in December 2012. 81% of 1,335

respondents would be willing to work from a distance. Moreover, they would be willing to work not only from home but also from telecentres – places close to home where an individual work place can be furnished with necessary equipment, as well as with rooms suitable for meetings with clients and colleagues (Kārkliņa, 2013).

Working conditions in crowd employment

Working conditions of crowd workers appear to be poor. First of all, pay tends to be low as far as micro tasks are concerned. Survey research has, for example, shown that 25% of the tasks offered at Amazon Mechanical Turk are valued at $0.01 (€0.007), 70% offer $0.05 (€0.04) or less, and 90 % pay less than $0.10 (€0.07). This is equals an hourly rate of around $2 (€1.44) (Irani and Silberman, 2013). Also the available information for the Czech TOPDESIGNER.CZ shows the very small scale of each task, with an average remuneration of €200. For the German Clickworker platform it is estimated that a worker can earn €200-400 per month for about 30 hours of work.

Another negative aspect related to crowd employment is the insecurity about pay as access to work is not continuous/regular. Furthermore, workers who submit work to the client are not always guaranteed to be paid. Clients only pay if they are satisfied with the results, and this leaves workers vulnerable to the whims of clients (Felstiner, 2011; Silberman et al, 2010; Klebe and Neugebauer, 2014).

As crowd workers are considered to be self-employed/freelancers, they do not get any benefits (including access to HR measures like training, mentoring or coaching) nor job security (Felstiner, 2011) or social protection, and they widely lack representation.

Other negative aspects pointed out by Felstiner (2011) and Klebe and Neugebauer (2014) are the information asymmetry (limited informa-

tion about the clients and the tasks to be performed at the point of time when they have to submit offers), the lack of a reliable dispute resolution system (for example, in case a client refuses to pay for the work done), the possibility of privacy violation (as the workers often have to disclose personal information without a clear guarantee of confidentiality), and the lack of support from colleagues and managers. On top of that, particularly micro tasks commissioned through crowd employment tend to be low skilled and trivial in nature, hence not very rewarding with regards to work content.

On the positive side, the considerable level of autonomy regarding the freedom to choose when and where to work, how long to spend, and what work to perform, resulting in a better work-life balance and the opportunity to combine multiple jobs, is often indicated as the main positive aspect of crowd employment, together with the opportunities of gaining substantial achievements in personal productivity as they have the possibility to adapt service provision to their personal working patterns (Felstiner, 2011; Howe, 2008). This, however, is very subjective, shown by the fact that for some crowd workers these specific elements cause stress due to the need for self-organisation and the blurring spheres of work and private life.

Another positive aspect of crowd employment is related to its potential to create skill development opportunities and learning by also having the opportunity to build up a track record which could be an important incentive for this type of work for young workers in industries placing considerable attention on experience.

Working conditions in ICT-based mobile work

French[2], German (Deutscher Bundestag, 2013) and Swedish (Vinnova, 2007) publications point towards some positive effects of ICT-based and mobile work on the working conditions of the

affected workers. The employment form is related to a higher level of autonomy and hence flexibility than traditional employment forms. The opportunity to work in a location best suited for the tasks ahead can contribute to an improvement of working conditions and personal efficiency gains. For example, workers might prefer to work at home in times of tight deadlines or if they require high concentration as they experience less distraction and disruption compared to an employer's office. Hence, they could increase their productivity and reduce stress levels or work intensity.

As this increased level of autonomy also brings about a reduced level of control for the employer, companies introducing ICT-based mobile work either establish remuneration based on results rather than on working hours or technically advanced monitoring instruments, such as systems capturing at any time whether a worker is logged on to the company network and how long they are working on which task. Both can be disadvantageous for workers if they negatively influence their wage level (depending then, consequently, more on the workers' personal capability to organise their work efficiently), work intensity and stress levels. Furthermore, full transparency of each and every activity might also interfere with the workers' privacy.

Mobile workers are generally not excluded from any company training offered, but are allowed to join such if it suits their working patterns. Additionally, due to their permanent work on modern devices, employees are becoming more familiar with them. This is deemed to be particularly favourable in ICT firms as it increases workers' knowledge about the products they are promoting and selling, making them more comfortable to be able to do their work, and also increasing the potential for earning additional bonuses due to better selling techniques.

ICT-based mobile work results in new forms of collaboration,

including better communication (within the organisation, but also with clients and business partners) and access to information (Popma, 2013) due to the enhanced use of ICT. At the same time, this quick and continuous access to work-related information can result in an overload of information which, in turn, leads to insecurity and stress (Paridon and Hupke, 2009). Furthermore, as reported by Meyer et al (2007), exclusive virtual collaboration can create a lack of opportunity to contact supervisors to coordinate work immediately, and conflicts are often detected too late in such virtual teams (European Commission, 2010).

A related problematic aspect of ICT-based mobile work is the isolation of mobile workers and their lack of access to informal information and integration into the whole process (that is, they are just working on their fragmented task but are less involved in the overall activities). Electronic communication does not match the richness of face-to-face communication, and a lack of social contact may lead to a lack of opportunity in developing social/soft skills (like team work or tolerance), an increasingly negative tone of communication, including assertive or hostile language and an increased sense of depersonalisation. Also, it has to be pointed out that decreases in productivity and increases in effort in order to maintain effective information exchange may lead to uncertainty and ambiguity, which can increase stress levels (European Commission, 2010).

The boundaries between work and private life are another aspect of working conditions that can be influenced by mobile work. Work-life balance is thought to be influenced positively by home-based telework. But ICT-based mobile workers only rarely and exclusively work from home, and therefore their work-life balance is more comparable with that of those working only at the employer's premises. Some experts assume that it is even worse as due to the constant availability of mobile workers implied by their 24/7

availability to access work-related information from everywhere there is no longer any borderline between work and private life (Maschke et al, 2014; European Commission, 2010; Popma, 2013; Unionen, 2013). This also results in a situation in which it is difficult for the mobile worker to get a chance to recover, pinpointing the risk of burnout (Popma, 2013). Nevertheless, there seem to be more opportunities for mobile workers to at least sometimes organise work and private life according to their needs (European Commission, 2010; Popma, 2013; Järviniemi, 2012). Due to lacking regulation, this availability/accessibility issue widely depends on the bilateral arrangement between employer and worker. It results in workers being expected (or perceived to be expected) to be permanently available for work, not only during standard or core working hours. In a German survey, 70% of the interviewed companies expect their staff to also be available beyond the firm's working hours, even if the company agreement states that no one is obliged to be available beyond the agreed working hours (Maschke et al, 2014). Another German survey shows that while 21% of the workers feel stressed, the share is as high as 38% among those who have to be permanently available (Maschke et al, 2014), clearly showing the negative effect of permanent availability. At the same time, there is some evidence that if individual work contracts or company agreements limit working hours for mobile workers (for example, by technically cutting access to the company network out of company working hours or by forcing superiors to clarify tothe workers that they are not expected to work overtime), this is not appreciated by all mobile workers. Some experience this as paternalism and it increases their stress levels as they are less free to organise their working time (Maschke et al, 2014).

Finally, a number of ergonomic risk factors seem to be inherent to ICT-based mobile work. Poor visual interface due to the small display screens and controls and problems related to the reflec-

tive glare or an insufficient level of ambient light, excessive noise levels due to high volume settings to compensate for background noise, wrong posture related to the use of devices in an unsuitable environment and continuous exposure to radiation and electromagnetic fields arising from the use of mobile devices have been identified as health risks embedded in mobile work (European Commission, 2010; Popma, 2013). Maschke et al (2014) highlight that risk assessments regarding physical or psychological effects of mobile work are rare and that the agreements on which ICT-based mobile work is based hardly include regulations related to health and safety, or if there are any, they only refer to the general health and safety requirements. As, however, the workplace is off the premises of the employer, this somewhat 'outsources' the employer's obligations to the workers.

Assessment of the analysed new forms of employment

The aim of this article was to summarise the effects of crowd employment and ICT-based mobile work on working conditions. While the above discussions are generalisations or stereotypes derived from research, it has to be highlighted that the operational implications of each form of employment might strongly vary from case to case. In practice, elements presented as beneficial can turn out as disadvantageous in the individual case and vice versa, depending on the employers' and employees' characteristics and preferences as well as the bilateral agreements among them.

Overall, ICT-based mobile work offers some important advantages to salaried employees. These particularly relate to flexibility, autonomy and empowerment. At the same time, this form of employment brings about some dangers related to work intensification, stress

levels, increased working time, blurring boundaries between work and private life and the outsourcing of traditional employer responsibilities (notably in the field of health and safety) to the workers.

For freelancers and the self-employed, crowd employment offers the potential to enrich the content of the tasks through diversification, access to clients and income and the opportunity to gain practical experience and enrich their portfolio. The underlying model of voluntarily engaging in a variety of activities enhances the workers' autonomy and hence has positive effects on flexibility and work-life balance as it is up to the worker to choose which tasks to conduct when, where, and how. However, it can also be disadvantageous due to high competition, and the pressure to take on any task that is available as employment (and therefore income) security is low.

Compared to the other identified new forms of employment that are emerging or gaining importance in Europe, working conditions for crowd and ICT-based mobile workers raise more concerns than employee sharing and job sharing while they tend to be better off than casual workers or portfolio workers.

Almost all new forms of employment are characterised by a 'flexibility element' which, with the exemption of casual work, can be considered as positive for the working conditions of the affected workers (and not only for the employers) as it provides them with the opportunity to achieve a better work-life balance. This seems to be particularly true for ICT-based mobile work which seems to be rather demand-driven, that is requested by the workforce, for this specific reason. On the other hand, this higher level of flexibility might result in longer working hours as the mobile workers might be expected (or perceived) to be available 24/7.

Also, crowd employment offers a high level of flexibility for the workers as it is completely up to them to choose the task they want to engage in. This could result in an improvement with regards to working time compared to traditional employment as it is up to the worker to decide how much time they want to spend on work. The final benefits, however, could be negative as due to the low employment security and the small scope of each task the worker might be required to combine a very large number of tasks to earn a living.

This also pinpoints the effects of the new forms of employment on income levels and access to fringe benefits or a bonus. In general, crowd employment is characterised by micro tasks related to very low pay, income insecurity and no access to fringe benefits and bonus payments. Similar holds true for collaborative employment and casual work. ICT-based mobile workers, in contrast, tend to have well-paid jobs with access to additional benefits as traditional workers filling similar positions in more place-bound workplaces, so neither a negative nor a positive effect can be detected so far. Employee sharing can be considered as more favourable regarding income and access to fringe benefits as workers would otherwise have to combine various part-time positions which might result in an overall lower financial outcome.

In line with the high flexibility, there also is a high level of autonomy and responsibility in ICT-based mobile work and crowd employment. This is, for example, considerably lower in employee sharing, job sharing, voucher-based work or casual work in which employers generally conduct more monitoring and control.

Interestingly, the high flexibility results in low employment security in crowd employment (as well as in portfolio work, collaborative employment or voucher-based work) while it does not seem to

affect job security in ICT-based mobile work. In line with that, crowd workers are affected by a low level of social protection (as are casual and portfolio workers) while there is no difference between ICT-based mobile and more traditional employees as the employment relationship tends to be based on standard employment contracts.

Most of the new forms of employment, including crowd employment and ICT-based mobile work, have the potential to negatively affect work intensity and stress levels. This can either be explained by the lower employment security (as in crowd employment or portfolio work) or the inherent work patterns (as in ICT-based mobile work, employee sharing or job sharing). Collaborative employment, in contrast, is deemed to improve stress levels and work intensity due to the cooperative element of completing the otherwise more isolated organization of work.

Both crowd employment and ICT-based mobile work can result in social and professional isolation, which again can be explained by the fact that both employment forms are not place-bound and often carried out without much physical interaction. The same holds true for portfolio work and voucher-based work. Similarly, employee sharing, job sharing, interim management and casual work in addition can result in situations in which the workers are less strongly integrated in the organisation of work of the employer company than in more traditional forms of employment. In contrast to this, notably co-working (one of the sub-forms of collaborative employment) seems to help freelancers or the self-employed to overcome social and professional isolation by offering them opportunities to meet with peers to discuss both professional and personal issues.

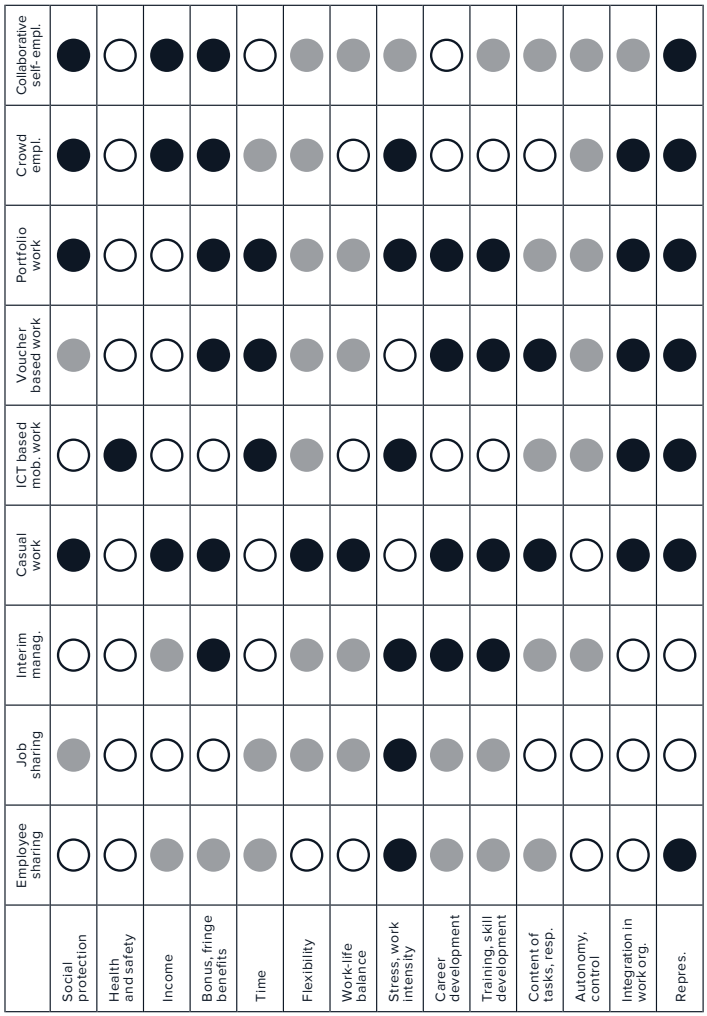
With regards to access to training and skills development, and related career development opportunities, both ICT-based mobile

work and crowd employment can have positive effects on the workers as the type of work to be carried out and the manner in which work is organised can contribute to developing occupational and transversal skills (e.g. organisation and management, communication and dealing with others etc.). Similar would apply to employee sharing and job sharing. In these two forms, however, workers tend to benefit more from specific training organised by the employer that is lacking in the case of crowd employment (due to the client-worker relationship rather than an employer-employee relationship) and more difficult to implement in ICT-based mobile work (due to the physical absence of the workers from the employer's premises). Similar limitations regarding training and career development are also inherent to interim management, casual work, voucher-based work, portfolio work and collaborative employment, mainly due to the less continuous or intensive character of the employment relationship.

While for the other identified new forms of employment little can be said so far regarding their effects on health and safety issues, this raises some concerns for ICT-based mobile workers. Due to the lack of a permanent/fixed workplace some dangers could arise and respective responsibilities are 'outsourced' to the workers as the employer has little possibilities due intervene in out-of-premise-workplaces.

To conclude the discussions about the effects of new forms of employment on working conditions, the general lack of representation of the workers in the new forms of employment is to be mentioned. Again, this might be attributed to the enhanced flexibility, resulting in a rather 'fragmented workforce' from the perspective of workers' representatives, making it difficult for them to identify and approach them, taking into account their limited resources.

Table 1: Overview of implications of new forms of employment for selected working conditions, by employment form



N.B. It should be highlighted that the operational implications of each form of employment might in practice strongly vary from case to case.

Gray circles: beneficial working conditions

White circles with a black contour: neutral working conditions (or evidence for both beneficial and disadvantageous realisations)

Black circles: disadvantageous working conditions

Source: Eurofound, based on national contributions

Recommendations for public intervention

Based on the above findings, it seems that there are some issues where public intervention could be useful to counteract practices that might deteriorate working conditions.

Regarding the regulation of new forms of employment (and referring to both legislation and collective agreements) the anecdotal evidence from this project highlights improvement potential with regards to the clarification and facilitation of the frameworks. While it is acknowledged that they need to be designed in a way to be a sound safety net for the workers, they should at the same time find a balance to also incorporate the flexibility needed by the employers, particularly at the present economically difficult time. Furthermore, they should be formulated in a clear and concise way to make them easy to understand for employers, workers and their representatives and consultants. At the same time, regulations related to crowd employment in particular might be difficult to design and implement due to the potentially 'global character' of this form of employment and the fact that the platform, clients and workers might be located in several different countries.

For some of the analysed types of employment, notably casual work, but partly also ICT-based mobile work, job sharing or crowd employment, there is some need for 'safety nets' for the workers. Such flexible forms of employment are either strongly required by the employers to cope with fluctuations in demand which do not allow for traditional permanent full-time employment or requested by the employees in their aim to obtain higher flexibility to achieve a better personal work-life balance. Consequently, it can be assumed that they – in general – are a necessary element of a modern labour market, with little potential of avoiding them. Nevertheless, there is some inherent danger for the working conditions that should be addressed. However, this turns out be a very difficult task. In some countries this has already been done through legislation or collective agreements. Sometimes this results in a situation in which either the workers are still not well protected, or they are protected in a way making the employment form in practice unusable for the employers (and hence maybe triggering undeclared work). A balance is challenging to find, highlighting once more the benefit of cross-national exchange of experience and lessons learned.

Furthermore, not only regulating frameworks should be established or reconsidered, but monitoring and control mechanisms may also need to be designed or improved. From the anecdotal evidence from this project we learn that labour inspectorates do not devote much of a specific focus on new forms of employment, partly due to lack of awareness and partly due to lack of resources. However, there are, for example, initiatives by trade unions that have set up special institutions where workers can report misuse of the system that might then be followed up.

Endnotes

1 As this is covered by other articles in this publications, it will only be briefly discussed here; more details can be found in Eurofound, 2015

2 http://www.strategie.gouv.fr/content/limpact-des-tic-sur-les-conditions-de-travail-note-de-synthese-266-fevrier-2012

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CHAPTER III

THE EUROPEAN DIMENSION OF DIGITAL WORK

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Abstract

The article argues that the Digital Agenda for Europe, mainly authored by the European Commission, contains considerable shortcomings. Despite proposing important measures to harness the economic potentials of digitalisation, the digital agenda fails to develop strategies for the management of the social and labour market transformations occurring in the wake of digitalisation. The article identifies these shortcomings and describes the joint efforts undertaken by progressive policy actors - especially trade unions and social democrats in the European Parliament - to overcome them.

The European Commission likes to stress that "the digital economy is borderless by nature"[1] and that its management necessarily requires coordinated European policy-making. In an integrated Europe, digital technologies, information, and transactions are indeed borderless and are having an immense impact on national economies, labour markets, and living conditions throughout the entire EU. With such borderless processes of economic and social renewal posing comparable challenges to societies, workers, and companies, tackling them jointly obviously seems like an attractive idea.

European action is indeed essential to overcome the expected challenges encountered in the wake of digitalisation. It is, for instance, a well-known fact that many of the new IT-based business models, for example, in the field of e-commerce or big data, require a market of sufficient size in order to be internationally competitive and thus to secure Europe's place in the global digital economy. In the fields of employment and the labour market, there is a similar need to shape the digital transformation in a European context - especially in those areas where progress for workers can only be achieved if competition over foreign investment and labour costs can be eliminated through collective political action at the EU level. Furthermore, the European Union has wide-ranging competencies that exclusively render national action virtually impossible in such policy fields as public spending, consumer protection and occupational health and safety, which are of great importance in the digital era.

Against this background, it may seem encouraging that the European Union has been busy developing a digital agenda and related policy initiatives since 2010. Since May 2015, however, when the European Commission tabled its proposals for a 'Digital Single Market' package (hereafter: DSM), trade unions and progressive forces in the EU are less sure of the appropriateness of the EU's approach to digital policy. Among such progressive actors, EU digital policy is seen as missing important elements, above all as the DSM gives no due consideration to the important role of employment and social policies in the management of the digital revolution. Indeed, the European Commission's ambition seems to be limited to encouraging the digitalisation of the EU economy whereas, at best, little thought is given to the exploration of the socially progressive potentials of digitalisation. Providing a reasoned illustration of this line of argument, as well as presenting instances of contestations to the prevailing EU approach digital policy, is the aim and purpose of this present chapter.

A Digital Agenda for Europe('s economy)

In its Communication presenting the Digital Agenda for Europe, the EU Commission stresses the key importance of digitalisation for future economic competitiveness and societal renewal in Europe. However, the subtitles of these communications, for instance "Driving European growth digitally"[2], are already indicative of the relative weight of the digital agenda's economic and social objectives. The digital agenda's narrow focus on economic growth and competitiveness is firmly affirmed by the aforementioned DSM, which basically constitutes the roll-out strategy for the initiatives and measures announced as part of the digital agenda for Europe.

As part of that strategy, the European Commission has tabled comprehensive proposals for harmonisation measures that aim to create a single European legal framework for the processing of cross-border online transactions in the EU. By updating regulations in such fields as consumer protection, intellectual property rights, and data protection, the European Commission seeks to integrate national digital economies in the EU, thereby increasing consumer choice and creating economies of scale for digital businesses. Additionally, the Commission has put considerable effort into updating EU telecoms regulation, hoping to encourage additional private investment in broadband infrastructures to accelerate the roll-out of high-speed data networks across the entire continent. Sectors and services that are complementary to digital business models, such as parcel delivery services that play an important part in eCommerce services, are also being reformed in order to facilitate cross-border transactions and shipments.

Citizens and workers mostly feature in their roles as economic agents in the digital agenda and the DSM. The DSM package, for

instance, frequently takes recourse to citizens as consumers who desire access to digital marketplaces outside their country of residence in order to benefit from increased choice and lower prices. The same package also announces largely unspecified actions to modernise education and training with a view to improving consumers and workers' skills necessary to use and provide digital services. While the political attention given to these issues is as welcome as it is necessary, trade unions and other progressive actors criticise the DSM package for not going further in considering means to empower Europeans as economic *and social* agents in the digital age. Such criticism is informed by the realisation that digitalisation constitutes a process of such comprehensive economic and societal renewal that a holistic view of society – and not just an economic one – needs to be embraced in order to explore its full potential.

Such a socially balanced approach to digital policy is indeed pivotal, especially as digital change might also unfold in socially regressive ways despite creating economic benefits. This would, for instance, be the case if large parts of the workforce were to be immersed into such forms of employment as crowd work, which, by providing cheaper and more flexible labour, have an undoubted economic appeal, but may undercut workers' social rights. That digitalisation creates the need to actively manage the balance between economic and social concerns which can also be seen in the so-called sharing economy. While many consumers value the economic benefit of having the choice between, say, incumbent taxi companies and UBER's cheaper services, workers in the sharing economy do not enjoy the formal employee status and the social rights and protections as their peers in the 'traditional' economy. Yet again, the European Commission's related policy initiatives, most notably its 2015 Single Market Strategy that addresses the sharing economy, exhibit little evident concern for such social issues.[3]

As time progresses, the European Commission is indeed increasingly looking like one of the few institutions that fails to develop an interest in the social dimension of digitalisation. Such an interest is clearly exhibited by the Commission's own 'constituency', hence national regulators such as the German Federal Ministry of Labour and Social Affairs that runs extensive stakeholder consultations and prepares policy proposals as part of its 'work 4.0' programme.[4] Similarly, the World Economic Forum – an institution not usually seen as dominated by left-wing politicians and trade unions – has debated the social and labour-related implications of digitalisation during its annual meeting in January 2016. Against this backdrop, unions and progressive EU politicians have joined forces to move the social dimension of digitalisation up the European Commission's priority list. The remainder of this chapter will, in an initial step, provide further insights into the contents of such a socially balanced approach to EU digital policy, before a final section will present the strategies that European trade unions and progressive actors employ to advocate such a policy approach.

A social agenda for digitalisation in Europe

For most progressive political actors in Europe, a digital agenda for quality employment constitutes the most vital element of a socially balanced approach to digitalisation in Europe. In particular, this is the case as it is in the workplace that the opportunities and risks of digital change are most closely intertwined.

Consider, for instance, the case of digital mobile work where employees have access to mobile devices such as laptops and smartphones that may or may not be used during standard office hours. Such forms of work may imply significant gains in employees' autonomy and improve their work-life balances as

they enable workers to choose for themselves when and where to work. Yet, the same work setting may also prove detrimental to workers' autonomy when employers, colleagues, and clients may feel inclined to contact such digitally-mobile workers at virtually any given point in time. This example illustrates how the use of digital technology at work needs to be managed so the right balance is struck between workers and employers interests. The European Union possesses the competence and power to provide such management. By way of its comprehensive regulatory competence in relation to working time and occupational health and safety, the European Commission, as the institution initiating all legislative acts at the EU level, could play an instrumental role in tapping into the potentials of digital mobile work while avoiding its pitfalls.

Even where the EU does not possess regulatory competence, trade unions and progressive actors would like to see a European Union that facilitates action between Member States. This applies for instance to the issue of crowd work, hence forms of employment that typically remove affected workers from the scope of standard employment regulation and social security systems.[5] To prevent the emergence of a new class of disenfranchised workers with hardly any social protection, EU Member States need to implement comprehensive reforms of labour and social security legislation. Although regulatory competence in these fields lies in exclusively national hands, it is deemed desirable – or even necessary – for the European Union to assume a coordinating role. Without such coordination, there is a great danger of national governments not introducing measures, for instance, aimed at creating social security systems and minimum wages for the self-employed, in an effort to avoid losing out in intra-EU competition in unit labour costs.

The same applies to the possible reduction in employment levels. Recent years have seen the emergence of a lively debate regarding the magnitude of job destruction that is – in the eyes of most academic observers – seen as inevitably going to occur in the process of digitalisation as new technologies make labour in certain fields redundant.[6] The European think-tank Bruegel considers that 40-60% of today's jobs in the various EU Member States, especially in medium-income occupations, could be crowded out by digital tech in the coming twenty years.[7] At the same time, several scholars doubt that the rising demand for labour in other fields not affected by automation will be able to offset such job losses. Up to now, European policy-making has not reacted to such scenarios and no strategies are being discussed to overcome such threats.

Though the first consequences of the structural changes caused by digital technologies are now being seen in EU labour markets, no attempt has been made either to assess their impact on European integration or to counteract them with a proactive policy. A study on growing wage and income inequality in Europe, published by the European Parliament in January 2015, draws the conclusion that digital technologies are already leading to reduced employment in the middle-income segment.[8] As a result, labour markets in the EU are becoming increasingly polarised, with new jobs being created either at the high end or at the low end of the income and skills scale. Whereas the highly developed economies in Western and Northern Europe, with their higher-performance education systems, can be expected to have decisive advantages in creating and securing high-end jobs, Member States in Southern and Eastern Europe would probably be limited to attracting the lion's share of low-end jobs relocated on cost grounds. This would accentuate the already existing divide between a North/West European heartland and South/East European periphery. As can already be seen, this runs not

only against the goal of social cohesion set forth in the European Treaties, but also releases economic and social centrifugal forces with the potential to endanger the European project as such.

To counteract such digitalisation-induced developments, EU policy is urgently needed. Taking the issue of labour market polarisation very seriously, trade unions advocate substantial investment strategies. Given that digitalisation has already crowded out medium-income employment in private services and industry, and continues to do so, the aim of such investment strategies would be to create jobs in exactly this income bracket in order to recreate a relatively egalitarian income distribution, thus preserving social cohesion. Significant potential to create such employment is particularly evident in social and care services where labour does not compete with technology. Additionally, such employment yields significant societal gains as it raises citizens' quality of life and advances social justice, e.g. by easing households' need to provide such services, one of the key causes of low female employment rates where they exist in Europe. Given the EU's far-reaching competences in the area of public finances, with the European Commission practically overseeing national governments' budgetary plans, as well as in areas as structural policy and investment, implementing such investment strategies without the constructive involvement of the EU institutions is practically unthinkable.

Although these examples constitute only a non-exhaustive list of elements of a socially balanced approach to digital policy, they illustrate how such a policy approach is doomed to fail without a European Union that shares these objectives and contributes actively to their achievement. As such a social bias remains absent in EU digital policy to date, trade unions and progressive actors have engaged on a series of joint action over the past years to

press for change, which will be the focus of the next and ultimate section of this chapter.

Pushing for digital progress

Realising the magnitude of the change that digitalisation will bring to labour markets and societies in Europe, trade unions and progressive political actors – broadly from the social democrat spectrum of politics – have debated this so-called fourth industrial revolution for years. Such intense debate has, as a first tangible outcome, yielded a strong commitment of these groups of actors to the same aims and objectives. For this reason, it does not come as a surprise that both camps worked together closely and constructively in bringing social issues to the fore in the EU policy discourse on digitalisation. Especially the year 2015 has seen major breakthroughs in this campaign.

The European Economic and Social Committee (EESC), a body tasked to advise the European Commission, Council, and Parliament in their policy-making, was the first EU institution to open a dedicated debate on the social implications of digitalisation. In January 2015, the EESC, which is made up of representatives of employer, employee, and other civil society representatives, began to study the observed and expected transformations in labour markets as part of the digital revolution. This process was initiated by Wolfgang Greif, international secretary of Austrian trade union GPA-djp and member of the committee. Over the course of almost nine months, the committee held several – at times heated – debates in order to explore and weigh the evidence on digitalisation-driven labour market developments and to develop related policy proposals. Although especially representatives of organised labour and employer organisations exhibited significant divergences in their political assessments of

the issue at stake, the EESC proved able to agree on a substantial list of policy proposals that addresses most of the issues raised in the previous section of this chapter.[9] While the policy advice produced by the EESC is purely consultative and hence non-binding for the three main EU institutions, the committee's work on digitalisation and labour indeed rose to prominence thanks to the European Council's intervention. As part of their programme as presidency of the European Council, the Luxembourgish government decided to closely follow the committee's debate and take up its main upshots. As a result, the Council presidency itself held conferences and talks at the ministerial level to discuss the need of EU intervention in order to enable a socially balanced management of digitalisation.

Beginning in the spring of 2015, progressive politicians from the group of socialists and democrats (S&D) in the European Parliament began their work on digitalisation as part of an own-initiative report outlining the European Parliament's position vis-à-vis the proposals presented by the European Commission in its DSM package. An important win for progressive forces could be achieved when Evelyne Gebhardt, member of the S&D group and the Parliament's internal market committee, secured the right to act as one of the two co-rapporteurs of the report. Her position gave Mrs Gebhardt a strong influence over the work on the report and related procedural matters, for instance, allowing her to play an important role in granting the European Parliament Committee for Employment and Social Affairs (EMPL) permission to act as an associated committee in the reporting procedure. This allowed Jutta Steinruck and her colleagues in the EMPL committee to raise issues related to questions of employment and social cohesion in the parliamentary report on the DSM package (see Jutta Steinruck's contribution to this volume). Thanks to the excellent cooperation between the co-rapporteur and her colleagues

in associated committees, the Parliament's report makes a strong case for a socially balanced approach to EU digital policy and thus asks the European Commission to reconsider and adjust its policy approach.

This campaign for a broader, more social approach inside the institutional framework of the European Union was – and continues to be – complemented by an increasingly lively campaign and debate outside the European institutions' neon-lit corridors. While trade unions and their progressive political allies certainly commenced the debate and succeeded in raising awareness for the social dimension of digitalisation through regular public events, seminars, and press work, the community of interested and active stakeholders is constantly growing. Meanwhile, such varied groups of actors as think tanks, media outlets, NGOs, and political foundations – like the Foundation for European Progressive Studies – feed into a discourse that is becoming increasingly impossible to ignore.

Conclusion: A digital agenda for a social Europe

For the opportunities offered by digitalisation to be used in a way that benefits the maximum number of EU citizens, political intervention is also needed at the European level. The goal of trade unions and progressive actors' efforts must be to realise the digital potential in a way that promotes decent work, welfare, prosperity, justice and social innovation in Europe. As the digital agenda for Europe has no such orientation, trade unions and progressive political movements need to work towards a readjustment of the agenda for the sake of social progress.

As this article intended to illustrate, there is a strong case for the European Union to manage the process of digitalisation jointly

rather than by national means. An increasing number of stakeholders and parts of the European Union institutional landscape itself are clearly in favour of adopting such an approach. With the achievements of this campaign being substantial indeed, progressive actors can be confident that it remains only a matter of time until related political processes at the Union level are initiated by those enjoying the right of initiative in the EU, i.e. the European Commission.

Endnotes

1 (COM(2012) 784 final, P. 6)

2 COM(2012)784

3 COM(2015) 550 final

4 cf. http://www.arbeitenviernull.de/

5 Benner, Christiane (Hrsg.) (2015): Crowdwork – zurück in die Zukunft? Bund-Verlag, Frankfurt am Main

6 Frey, Carl Benedikt and Osborne, Michael A (2013): The Future of Employment: How Susceptible are Jobs to Computerisation, available at: http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

7 Bruegel (2014): The Computerisation of European jobs. Available at: http://www.bruegel.org/nc/blog/detail/article/1394-the-computerisation-of-european-jobs/

8 European Parliament (2015): Wage and income inequality in the European Union, European Parliament; Brussels, P. 15-16

9 cf. https://webapi.eesc.europa.eu/documentsanonymous/eesc-2015-00765-00-03-ac-tra-en.docx

THE TRANSFORMATION TO A DIGITAL ECONOMY: THE NEED FOR A CONTEXTUALISED AND HOLISTIC APPROACH TO POLICY.

PROFESSOR ALLAN MAYO, DIGITAL GREENWICH

Abstract

Following a brief historical perspective, the paper considers the current evidence on the impact of digital technologies on employment, before discussing whether the Digital Single Market Strategy provides a response that is commensurate with the challenges that lie ahead. In contrast to the fragmented and partial approach adopted by the Commission, the paper suggests three main thrusts to policy, namely: giving stronger support to digital SMEs; building on the recommendations of the ETUC to establish a European Forum to monitor digital developments; recognising the importance of local/regional initiatives in addressing the complex societal challenges that confront us, and the potential for digital technologies to underpin innovative solutions.

Introduction – A Brief Historical Perspective

As the Commission's Digital Single Market (DSM) paper[1] and its accompanying Staff Working Document[2] make clear, Europe is on the cusp of an industrial and societal transformation which, in scale and scope, takes us back to the early days of the Industrial Revolution. In considering the threats and opportunities afforded

by digitalization and, in particular, the nature of the Commission's policy response, it is worth recalling the impact that the widespread mechanization of industrial processes, and the diffusion of steam power, had on English society in the early 19th Century – and the nature of the policy response.

In modern parlance, Britain was a rural economy based on portfolio home working, where the cottage weaver could earn additional money as a casual farm labourer, or tend to his own small holding, and supplement this further by rabbiting on common land. At around the outbreak of the Napoleonic War, a skilled handweaver in his late 20s could earn £150 per week (at current prices). However, the growth of mechanisation resulted in a radical reduction in weavers' wages, and the government refused to intervene to ameliorate the situation. By 1806, earnings had fallen five fold, to around £30 per week. At the local level, to alleviate the growing tension, a system of income relief linked to the cost of living (the price of bread) was developed by magistrates at Speenhamland, in Berkshire, which soon spread to many parts of the country.

However, notwithstanding the widespread adoption of in-work benefits and its rising cost to local taxpayers, there were sporadic outbreaks of violent reaction to the fundamental changes taking place and, when the harvest failed in 1811, the East Midlands, South Yorkshire and Lancashire exploded in popular revolt, led by a mythical figure, Ned Ludd. Machine breaking and the attack on property was so extensive that more troops were deployed in the Luddite region than accompanied the Duke of Wellington to Portugal in 1808, and repressive legislation was introduced to restore law and order.

After the Napoleonic War, the priority of the Earl of Liverpool's Government was to return to a balanced budget and restore ster-

ling to its original parity with gold; a period of austerity ensued. While taking steps to protect its own landed interests, the Government also took measures to open up markets for British products with reciprocal trade agreements, reduce protection, repeal income tax, remove restrictions on incorporation and, following the financial crisis of 1825/26 when over 90 banks were forced to close, it established regional branches of the Bank of England and strengthened the capitalisation of banks, outside London, by permitting them to expand their partnerships.

From 1825, the combination of a new technology, the availability of a seemingly limitless supply of cheap labour, the development of a new transport infrastructure, powerful incentives, and access to finance opened up a whole new wave of investment opportunities and employment in a diverse set of industries, including the new railway infrastructure, steam powered ships, machine tools, telegraph – the ultra-fast broadband of the Victorian era – and the development of new services, such as financial services and travel and tourism. By the time of the Great Exhibition of 1851, both the physical and socio-economic landscape Britain had been transformed: more than half the population had flocked to towns and cities for employment in "manufactories", and London had doubled in size over 40 years to 2.3 million people.

However, for the millions working in the factories, conditions, like those at home, were appalling. Until 1833, the Government's only concession was to set a minimum age (at nine years) for children to work in cotton textile factories. Thanks to the greater productivity resulting from steam power - relatively unskilled children and women working on power looms were far more productive than skilled hand-loom weavers (by a factor of seven) - the number of steam powered looms increased almost asymptotically: 2,400 in 1813, 14,150 in 1820, 100,000 by 1833 and 250,000 by 1850. For

weavers, wages remained severely depressed and the result was a life of destitution for as many as a million people from that community[3]: from almost a quarter of a million people employed in 1820, there were but a few thousand by 1860.

200 Years Later: the Shift to a Digital Economy

With the steady development of digital technologies since William Shockley's pioneering work on transistors and silicon semiconductors in the 1950s, we are witnessing history repeat itself, albeit with different technologies and impacting a different segment of the population. While the 1st Industrial Revolution mechanised operations in a way that deskilled many industrial processes, and generated economies of scale by harnessing (water then steam) power, the present Digital Revolution is generating and harnessing data in a way that is replacing low skilled, repetitive tasks, and even supervisory roles, in a wide range of manufacturing and service sectors, through automation and artificial intelligence.

In many sectors, algorithms and technology have already replaced human judgement in the workplace. For example, in factories quality control and material re-ordering have been automated; in aeroplanes, in-flight analysis determines the service schedule on landing; and, similarly, condition monitoring of construction assets and heating/lighting is increasingly being handled by sensors and microprocessors. Automation is being rapidly extended to service sectors, for example: at airports, e-passports and identification technologies are in use; driverless trains meet the needs of commuters in cities; GIS and platform technologies are disintermediating traditional taxi services; many banking services (from cash dispensers to screening loan applications) have been automated; investment funds switch investments according to algorithms; retail check-outs offer

self service channels; telecare technologies are monitoring the condition of patients, and anticipating adverse events; and professional services, such as law, are using cognitive technologies to analyse case law.

But this only the beginning: as a range of economists and commentators such as Erik Brynjolfsson (MIT)[4], David Autor[5] and the Oxford academics Frey and Osborne[6] have indicated, digital technology will continue to develop rapidly, so this trend will accelerate. The Table below illustrates the breadth and scale of the change that is underway as new technology, such as Building Information Modelling (BIM), the Internet of Things (IoT) eg, sensors, actuators and microprocessors, and telecommunications technologies will enable networked devices to perform many of the tasks currently performed by humans in homes, offices, factories and warehouses. This will soon be extended to our roads with the advent of autonomous vehicles.

Traditional Data Interpretation	Data Visualisation / Artificial Intelligence	New Insights
3D World	Algorithm / Virtual Reality / Simulation / Rapid Design	Total Immersion
Automation	Additive Manufacturing / Autonomous Systems	Advanced Manufacture Intelligent Machines
Vulnerable Systems	Cyber Security Technology & Practice	Secure Systems
Cost/Price Models to effect Change	Behavious Science "Nudge Theories"	Subtle tools of Behavious Change
Internet of Information	**Internet of Things**	**Internet of Services**

Indeed, Frey and Osborne predict that over the next 10-15 years, as much as half the labour force will be at serious risk to computerisation, and most of these will be in the service sector. The impact is already being felt in a number of ways:

- The steady shift towards e-retailing is transforming the way we shop, the configuration of our High Streets and the skills required within the sector.

- As David Autor's research (in the USA) has shown, computerisation has driven a wedge in the labour market, where those, without the skills to adapt, have been driven into low value, poorly paid service jobs with a strong element of personal interaction while, at the same time, there has been an increase in demand for highly skilled digital workers, with the ability to generate value from ICTs.

- In the USA, real household incomes for those in the bottom quintile (20%) have fallen some 17% from their peak in 1999; for those in the next lowest quintile they have fallen around 11% from their peak in 2000; and 7% for the middle quintile; while the real household income of the top quintile has fallen only 2% from its peak in 2006[7].

- In the UK, since the Financial Crisis, there has been a small but perceptible increase in self employment and in the proportion of males in part time employment, which is most marked in London[8].

- Following Frey and Osborne's work on occupations that are vulnerable to computerisation, a study of long term unemployment in the Royal Borough of Greenwich indicates that whereas, in 2005, those in vulnerable occupations accounted for a third of those receiving Job Seekers Allowance for more than a year, this had increased to two thirds by 2015[9]; and

- Where investment in automation has not been introduced, some firms are seeking to maintain their competitiveness by adopting demeaning work practices, where staff perform low skilled repetitive tasks under pressure and acute supervision, at dire rates of pay[10].

- The overriding policy conclusion to be drawn from research and current developments is that the impact of ICT on employment is systemic, at all levels:

- at the corporate level, where digital technology is changing business processes and engagement with the customer, suppliers and the work-force;

- across the value chain, where technology is creating new opportunities and activities, while dis-intermediating others, from travel/tourism, to music and entertainment, retail, advertising, law and pro-fessional services, even health and social care;

- at the city or regional level, where traditional industrial clusters are vulnerable to change, while investment in ultra-fast broadband and ICT skills, and a willingness to explore paradigm shifts in public service delivery, afford the opportunity for industrial regeneration and seizing the benefits which the digital economy offers;

- at the national or European level, where policy makers need to ensure that member states, and the EU as a whole, are well prepared and best placed to cope with, and capitalise on, the radical changes ahead.

These are complex challenges and, in such a world, there is the real risk that policy makers will focus on promoting and securing the benefits from systemic change, and fail to address the needs of those destined to struggle with it. It is, of course, the duty of government to assist those least able to cope, and to ensure that the unscrupulous do not circumvent well established norms and standards for terms and conditions of work. That principle applies regardless of numbers affected but, when 47% of the work force are at high risk of automation, and platforms for digital workers are operating on a global scale from outside the EU, then it is vital that European policy makers pay as much regard to the "inclusive" elements of the growth objectives for 2020 as to the "smart" – if growth is to be socially "sustainable". We need to consider the Commission's strategy in the light of that.

The Commission's Response:

The DSM Strategy

The Commission's DSM paper recognizes the need for a range of measures to ensure European industries are at the forefront of developing and exploiting ICT to serve the markets of the future. It also recognizes that a digital economy can make society more inclusive, and that citizens and businesses are not currently receiving the full benefits from digital services (from e-government, e-health, e-energy to e-transport) that should be available seamlessly across the EU.

The paper rightly confines itself to measures that need to be taken at the European level; it also attaches importance to measures which can be delivered within the Commission's mandate, and which are in line with Better Regulation principles. However, in so doing, it tends to focus on a range of generic measures (help-

fully summarized in a roadmap[11]) to promote cross-border trade, such as preventing geo-blocking, establishing effective cross-border rules for consumers and businesses, reducing the burden of different VAT regimes, reforming the copyright regime, and promoting cross border parcel delivery.

There is no gainsaying the importance of what has been proposed, but the Commission's paper raises three fundamental questions:

- in focusing on generic market measures that assist the innovators and market transformation, has the Commission neglected other policies that provide reasonable protection to all stakeholders - at worst, has it satisfied itself with a minimalist approach, worthy of the Earl of Liverpool's Government?

- Does the combination of market opening measures suggested by the Commission provide sufficient incentive to dynamic SMEs to expand within the European Single Market, rather than try their fortunes in the USA?

- More fundamentally, is the answer to the technology challenge confronting Europe better analysed and addressed through the lens of one monolithic Digital Single Market, or should one view the DSM as a series of very large linked (global) value chains, that are underpinned by digital technology and undergoing systemic change, with a view to developing a holistic response to those challenges, that is contextualized to meet the needs of all stakeholders in each value chain?

Policy Concerns and a Suggested New Approach to Policy Development

(i) Inclusivity and Minimalism:

Like its historic predecessor, the Commission offers a protective measure for children, but other than that, it fails to address the terms and conditions of work of a wide range of people, whose lives are already being affected by the developments underway. Furthermore, it fails to establish effective processes to ensure that businesses and work-forces across Europe, not to mention their political representatives, are aware of the nature and scale of the disruption ahead.

The paper notes that demand for digitally skilled employees is growing by around 4% a year, that shortages of ICT professionals in the EU could reach 825,000 unfilled vacancies by 2020 if no decisive action is taken, and that digital skill levels need also to be raised among employees in all economic sectors and among job seekers to improve their employability. However, it does not reveal how this might be achieved, how the skills in each broad area will change, nor does it attach sufficient importance to the mutual recognition of (ICT) skills in different sectors, to improve the efficiency of the EU labour market.

Thus, the concern of many, not least the European TUC and UNI Europa (a federation of European trade unions which represents some 7 million people in a wide range of service sectors), is that, in developing the DSM strategy, insufficient emphasis has been given by the Commission to the third leg of its 2020 growth objectives, namely inclusivity. Both organisations have responded to the Commission's Communication (on the DSM) by demanding

greater focus be given to empowerment, cohesion and inclusiveness, with an emphasis on more effective regulation to protect workers' rights.

Regulation has to be a critical part of the European policy mix but regulation can be a blunt tool – it needs to be smart, effective and fit for purpose in a digital economy. In the light of the foregoing analysis, there can be no compromise on fundamental rights but, in a world of paradigm shifts, it may be better for regulation to follow a principles based approach, than to insist on companies adhering to an outdated rule book.

Furthermore, while regulation is critical, policy makers also need to understand that regulation alone does not empower the worker or the citizen, other than to provide a basic, minimum standard. **It is knowledge, transparency and choice that truly empower the citizen and protect the public interest, and the digital revolution has the potential to provide all three, at the click of a button. But, without literacy and digital skills, that click is for nothing: the unskilled and the functionally illiterate will always be vulnerable to change. In a Europe of massive digital skills shortages, policy makers should prioritise the 39% of EU citizens with low or no such skills.**

(ii) Incentives for SMEs to expand in Europe:

The Commission's strategy places emphasis on the e-Government Action Plan but fails to acknowledge that, according to Deloitte's evaluation of the 2011-2015 programme[12], the greatest weakness in the current plan lies in the implementation of measures to promote the internal market (where only half of the measures are completed or on-track), as well as improving efficiency and effectiveness (where five out of seven measures have been delayed).

The evaluation itself strangely fails to provide confirmation of the extent to which the Commission has achieved its two quantifiable objectives, namely that, by 2015, 50% of EU citizens and 80% of businesses, will have used eGovernment services.

Even if the Action Plan and the other measures are implemented in full, the acid test of the Commission's strategy is whether the measures underway will be sufficient to encourage dynamic SMEs to drive growth across the European market, rather than choosing North America as their market of choice for expansion. The COSME Programme, valued at € 2.3 billion between 2014-2020, which funds the Enterprise Europe Network and provides advice on conducting business in the different member states, is the vehicle for promoting SME growth, and H2020 research/innovation programmes are also a significant source of funds to promote collaboration between innovative SMEs and European counterparts. But, what is missing is a sense that SMEs will expand rapidly across hubs of innovation in Europe, funded by venture capital, as they do in the USA – the cultural, administrative, and financial barriers are perceived as being too great.

To bring that dynamic to the European market, COSME should pilot a programme where (digital) SMEs, that have been successful in their home market, are supported in opening new operations in another member state (on a shared cost basis, to a maximum public commitment of, say, €50K for six months to a year). This would reduce the cost and risks of expansion for SMEs and would provide banks and venture capitalists with the business case for investment.

(iii) A Monolithic DSM or Linked Value Chains

However, there is a more fundamental question, namely whether, in order to develop a powerful Digital Single Market, policy needs

to be contextualized to meet the needs of manufacturing and the main service systems that are undergoing systemic change, in particular:

- health and social care systems
- energy (particularly the shift to a distributed renewable energy system)
- transport and logistics
- tourism and the visitor economy
- construction and the modern built environment
- banking and finance
- professional and business services
- the creative industry.

The EU and individual member states can all point to the horizontal measures they are making to improve the business environment: the primacy of the rule of law; trying to establish stability and business confidence; creating an entrepreneurial climate through smarter regulation, appropriate incentives and being open to competition, while maintaining standards of corporate behaviour. Similarly, governments can point to their efforts to establish a competitive broadband infrastructure and intelligent multimodal transport systems, and to funding the research and skills for a modern knowledge based economy. However, at the national and European level, policy in relation to these different elements is typically developed in isolation and, as a result, **it is**

missing a shared vision between stakeholders of the speed and impact of digitalization, the way sectors or whole value chains will be affected, and priorities for EU and national policy, in each broad theme.

That gap needs to be filled, and the governance mechanisms introduced to assist it. In this regard, the ETUC has already made an important contribution to the debate by recommending the establishment of a permanent Forum to discuss the impact of digitalisation[13]. But, if it operates in isolation, a high level forum runs the risk of being little more than a talking shop: what is required is a series of sectoral or value chain Councils, covering the main broad areas of the European economy (outlined above), reporting to the Forum, and disseminating their findings through their respective European employer and employee channels. They might be called European Digital Development Councils, or "little EDDIES" if you will.

They should comprise representatives from industry, trade unions, academia and Commission officials (including support from the JRC's Institute for Prospective Technological Studies in Seville) and their task should be to discuss and outline future technological developments, their impact on competitiveness, employment and skills, the barriers to transformation of service systems by digitalization, the interoperable standards required to enable the smooth exchange of data within and between value chains, the nature of the regulatory regime, and the policy implications. It is only by an in-depth and shared understanding of the transformation of broad value chains, involving key stakeholders active in the market, supported by research (including international experience), that all stakeholders can prepare for the future, and policy makers can create the right conditions and monitor progress.

By strengthening the DSM in this way, business would develop a confidence to invest in innovation, and investors the confidence to invest in innovative business. It would also create a dialogue on regulations to protect workers' rights and, by informing all stakeholders of the nature and speed of change and the choices open to address the challenges, it would offer the real empowerment that flows from knowledge and choice. **This should be the focus of EU policy discussions and recommendations because almost everything else flows from it.**

The Importance of the Local or Spatial Dimension

However, one thing that doesn't flow from a sectoral perspective is the spatial dimension. The Staff Working Document notes the importance of the public sector, both in terms of employment (17%), and in the overall market for purchases of goods and services (almost 20% of GDP). Much of this procurement and the delivery of services is carried out locally. Indeed, both the challenges posed by digitalization and the policy levers for addressing them tend to surface and be applied at the local level, and this brings an important new player into the innovation and growth equation, namely the "burgomeister".

Innovation in public services has been relatively slow to materialize, but the combination of austerity and public expectations, about the quality of services, are beginning to force local authorities to seek to effect the same channel shift and strategic use of data that is now common place in the private sector. Furthermore, the need to regenerate in the face of global competition and the recognition that businesses will wish to locate where public services are efficient, where connectivity is of a high standard, and where skilled labour is available, has given rise to a growing interest in the concept of smart cities. This provides a whole new

driver of change and a means of raising the productivity of local communities.

Thanks to a small, little known EU programme, INNOSUP (and its predecessor), a number of European regions have sought to effect systemic change through piloting holistic approaches to regeneration, with "light touch" support by the Commission. The Commission has also been actively supporting the concept of smart cities, by funding a series of "Lighthouse" projects that demonstrate the value of more integrated approaches to data management and service delivery in key areas, such as health and social care, transport and mobility, energy and resource management.

As noted above, innovation and digitalization of public services and holistic approaches to regional regeneration are relatively new phenomena, and critical to smart, sustainable and inclusive growth. The development of large scale demonstrator projects, or "living labs" as they are known - where these new approaches are co-created with citizen support/engagement and tested - are invaluable to the process of public service innovation, by providing local and regional decision makers with experience, citizen feedback, and costed use cases upon which to base their investment decisions or new business models. Supporting such projects is an important task for the Commission, but establishing networks to share experience and encouraging successful innovation to be commercialized across the EU, is no less important in ensuring that a Digital Single Market brings confidence to local decision makers to innovate, and real benefit for the European citizen.

Concluding Remarks

The Digital Single Market is not an end in itself but rather a means for improving the quality of life of EU citizens. It will only succeed

if it establishes a framework that places the EU at the forefront of the drive towards a digital economy, while affording protection to those least able to cope with such change. To achieve these objectives, this framework needs to promote a culture of systemic change, in particular a combination of:

- investment in a competitive digital infrastructure and a modern built environment;
- investment in the knowledge and skills to innovate and make best use of technology;
- a regulatory regime that facilitates change and provides incentives and a market for innovators to capitalise on their talents, while respecting and protecting the rights of the work-force and individuals.

But, following the thinking of the EU research programmes, where substantial resources are assigned to the mobility of researchers, this paper suggests that COSME might consider piloting a programme to promote the mobility of digital businesses, with a record of success in their home market, to overcome cultural and financial barriers in the DSM and prompt a much needed shift in entrepreneurs' perceptions about the relative opportunities and costs of pursuing growth in the European and American markets.

And, following the thinking of the French Nobel Laureate Jean Tirole[14], this paper goes on to suggest that effective policies of transformation – like industry regulation - are, by necessity, holistic and contextualized: we need a deep understanding of how change may impact on a given value chain - one size does not fit all. The paper sets out how European organisations,

under the auspices of a Digital Forum, might play a key role in developing, sharing and disseminating that understanding for each value chain.

Context and systemic change are also spatial in nature: we need a better understanding of how the DSM is playing out on the ground and affecting the every day lives of citizens. The transformation of public services and the development of the concept of smart cities should be integral to a DSM strategy: there is a strong interest across all cities/regions in adopting good practice and in attracting private firms to locate. The judicious use of Structural and Investment Funds can ensure that cities in the developing regions of Europe retain their attractiveness to their residents, and employment opportunities for all.

Finally, we all recognize how trade unions have empowered the working class, and ensured a more equitable distribution of the value added by labour, capital and enterprise, but this countervailing power has been strongly based on the ability to withdraw labour in a co-ordinated and targeted manner. The radical changes to the world of work – in particular, crowd sourcing, self employment and the shared economy - have fragmented the labour supply side, transformed the meaning of a "workforce", and considerably reduced the power of unions and collective bargaining: to picket a factory is one thing, but to picket the "ether" is quite another. It would be in the best traditions of collectivism if the Co-operative movement were to examine alternative means of developing countervailing power, eg by establishing its own job platforms, to ensure that high standards of employment were available to workers.

Europe needs a comprehensive response to the challenges it faces and to deliver on its 2020 promise of smart, sustainable and inclusive growth. The Commission's Communication on the DSM

provides a good starting point for debate; this paper aims to provide further impetus to it.

Endnotes

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CHAPTER III

DIGITALISATION AND INDUSTRIAL RENEWAL – CHALLENGES AND OPPORTUNITIES FOR BUSINESSES, EMPLOYEES AND THE PUBLIC SECTOR

DR JARI KUUSISTO

Abstract

Manufacturing and service industries are increasingly transformed by digital technologies and current socio-economic trends. These changes have a major influence on business model innovations, employment and working conditions in Europe. Today, the majority of these new and globally-scalable business models originate outside of Europe. Still, they are very much re-shaping markets and terms of employment also within Europe. In order to improve its competitiveness the EU has launched two major policy programmes, 'Digital Single Markets' and 'Horizon 2020'. These actions have the potential to make a major impact on Europe's future. Their scope is massive both in terms of invested resources and the scope of the regulation they cover. The question is how well will these policies realize their potential benefits? This depends on the optimisation of policy mix, policy coherence, as well as their capability to create fertile conditions for innovation. After all, it is important to facilitate even disruptive innovation that will shake existing industry structures, incumbent business and employment conditions. It seems that the EU needs to re-think its policy approach to regu-

lation and digital transformation promotion in order to be on par with the USA. Speeding up industrial renewal and gaining competitive edge over the competitors requires re-thinking of some policies, and swift action from policy makers.

Introduction

The economy, business and employment are going through a dynamic period of change driven by technology new business models and socio-economic changes. The following sections will address the nature of current technological change in relation to the characteristics of European policies and regulatory system. Implications of the on-going changes are discussed in relation to employment, skills and business. The aim is to inspire thinking about alternative ways to influence digital employment, working conditions and job creation in Europe.

New technologies and a faster pace of change

Traditional manufacturing and service industries are going through a digital transformation that is being accelerated by exponentially growing technologies such as ICT and mobile technology, new energy and sustainability, intelligent robots, autonomous drones, sensors, and 3D printing. Many of these technologies are not new, having been 'invented' some 20 or 30 years ago. What is pushing the development now is the recent massive boost in computing power (Moore's law) and the reduction in cost, along with miniaturisation, that now make them suitable for industrial and consumer use.

Every so often new technologies can be overrated and this can cause concern, because at the beginning the development curve is slow in absolute terms. However, when the exponential development takes off, the influence of key technologies is often

underestimated and disruptive market changes are missed. The argument is that several of the afore-mentioned exponential technologies will be leaving their linear growth paths in the coming years and they will achieve exponential growth.

The pace of change in many traditional industries also is now beginning to reflect this 'Moore's law' on the speed at which information technology-driven change happens. As a result, many incumbent businesses, their processes and employees are facing increasing pressure to adapt to this rapid change if they are not to be left behind by developments in their sector and by their competitors, not to mention joining the ranks of unemployed citizens. To a large extent, digital technologies are not confined within borders, and we are seeing increasingly global competition even in services that used to operate on very local markets. This development is now having an impact on European businesses, employees and labour unions alike. The question is: how are fit businesses, employees and the unions going to face this major challenge?

EU policy actions, Digital Single Markets and Horizon 2020

The two main priority policy areas in Europe include the promotion of Digital Single Markets in order to create one of the largest market places in the world, and Horizon 2020, an 80 billion, 7-year research and innovation programme. These are worthy efforts and their potential benefits are huge. The approach of the Digital Single Market policy area is to renew regulation in the areas of telecoms, media, online platforms, security and trust of online services. Such regulatory reform involves a huge amount of work due to its coverage of a large set of legislation and 28 Member States.

When realised in full, the size of a Digital Single Market is huge with its 508 millions citizens. In order to create a single market the EU is developing regulation on four thematic areas: Making telecoms rules fit for purpose, a media framework for the 21st century, the role of online platforms, and strengthening trust in online services. A more detailed outline of the areas is presented in the following (European Commission, 2015, European Parliament, 2015).

- Making telecoms rules fit for purpose: All digital services, applications and content depend on the availability of high-speed, secure infrastructures, requiring a strong, competitive and dynamic telecoms sector. But the sector is changing, consumer behaviour is changing, and markets remain isolated and national; meanwhile, the slow and incomplete release of spectrum has impeded the rollout of 4G. This calls for an ambitious overhaul of telecoms rules.

- A media framework for the 21st century: The audiovisual sector is changing – with new technology, new business models, on-demand services, and new ways to watch media such as on your smartphone. The Commission will review existing rules in this area.

- The role of online platforms: Online "platforms" — like search engines, social media, e-commerce platforms, app stores, and price comparison websites — are playing an ever more central role. However, there are issues, such as transparency, use of information, and constraints on moving from one platform to another. The Commission will comprehensively assess these issues, as well as looking at how to best tackle illegal content on the internet.

- Strengthening trust in online services: Address Europeans' concerns about their personal data. 72% of European internet users are concerned about how their personal data is used: the new Data Protection Regulation should address these concerns and boost trust; the Commission will also review rules on ePrivacy and act on cyber security.

While the development of Single Digital Markets can be seen as the main future target guiding regulatory development in the area, many questions remain. For instance, an expert panel in Finland raised the question of a fragmented approach and lack of vision for building the Single Digital Markets (Helsinki Round Table, 2015). In the regulatory reform a clear vision of Single Digital Markets would greatly benefit the work of numerous parties by giving them a clearer direction to work towards a common goal.

Horizon 2020 - The Framework Programme for Research and Innovation

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. It is the largest EU Research and Innovation programme ever, with nearly €80 billion of funding available over 7 years (2014 to 2020). On top of this EU funding there will be the private investment that this money will attract. The EU approach seeks to increase breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. In terms of participation and the financial contribution received, universities remain in first place. The private sector, public bodies and 'other' have increased their relative share of participation, and financial contribution and research organisations have also

increased their share of the EU financial contribution (European Commission, 2016).

By coupling research and innovation, Horizon 2020 seeks to build up Europe's global competitiveness. The goal is to ensure that Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation. The European Research Area is a complementary measure aiming at breaking down barriers to create a genuine single market for knowledge, research and innovation (European Commission, 2016a).

How will the European Union policy mix benefits innovation and economic growth?

The question remains: how effectively have EU policies been in building up global competitiveness? Or, how has the EU policy mix succeeded in boosting innovation and economic prosperity of the Union as a whole and its individual Member States?

In the context of this paper, the relationship between regulation and innovation policies comes down to Policy Coherence. It is defined by the OECD as the systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the agreed objectives. A recent argument by the Information Technology and Innovation Foundation points to problems in this area. The argument is that ‘Europe’s regulatory approach is distinctly biased against innovation’ (Atkinson, 2016).

- During the last decade, the EU has been putting in place a rich and diverse array of innovation policies.

> Almost every month there is a new programme to encourage industry clusters, technology transfers, collaborative research projects, entrepreneurship, venture funding, and the like. If these types of policies were all it took to successfully promote innovation, the EU would be the world's innovation leader. But true success requires a culture and a regulatory environment that embraces the disruptive innovation which leads to new technologies and business models that displace or reorder existing markets and industries... Unfortunately, Europe is decidedly ambiguous, if not outright hostile, toward disruptive innovation. The prevailing sentiment seems to be that innovation must be shaped, limited and ultimately made to fit into Europe's existing economic and political frameworks. ... Internet platforms must face special regulation for they may take a share of the market away from traditional industries such as publishers and taxi companies. Instead of supporting such innovative disruptions, European policymakers tend to stick to the safer political ground of being "pro-innovation" by encouraging scientific discovery.

Such analysis is raising concerns at many levels, even if the argument only holds partially. It would mean that major EU policies have a rather limited impact on competitiveness, economic progress, inclusive growth and prosperity. These concerns are highlighted by the fact that limited policy coherence and the focus on scientific discovery could seriously hamper commercialisation and business potential of the key exponential technologies in Europe. To make the situation more serious, this could give Europe's global competitors and their businesses a significant competitive edge on such a dynamic situation.

By comparison, the US approach to regulation is very different to European policy practice. For instance, the recently published 'Strategy for American Innovation' addresses the 'Designing Smart Regulation to Support Emerging Technologies' and the importance of new business models (National Economic Council and Office of Science and Technology Policy, 2015).

- Even the innovation process is changing. Key trends include the drastic reduction in costs to launch and scale technology, the lack of regulatory pathways for the testing and pilot phases of emerging technologies, the reduced role of incumbent, regulated intermediaries, and the shift away from technologies that can be regulated in accordance with stable categories to technologies that enable and require more fluid approaches.

- These innovations flow not only from the development of new technologies (e.g. cloud computing, the integration of IT with objects in the physical world through the "Internet of Things," predictive data analytics, advanced materials, energy storage, life- saving drugs), but also from novel applications of these technologies and new business models that create economic and societal value.

In the US case, the available innovation space seems to be much broader allowing a constant flow of disruptive business models to enter the markets. They include several multi billion dollar start-ups and more established firms such as Über, Airbnb, Facebook, Twitter, Instagram, and many others (Wall Street Journal, 2016). These new businesses are increasingly powerful

and re-shape the markets. Über is the largest taxi operator without a single car in its fleet, Airbnb is the largest accommodation business without owning any real estate, Facebook is the largest media company without any content production of its own, just to give some examples. These business models are changing the economic landscape as we speak and very often they do not 'fit' the existing regulatory framework. It is also clear that they can be regulated only after the novel business model has been operational for some time. This seems to be the role where the EU recently has been active (Wall Street Journal, 2015).

The rapid global growth of such new businesses means that in most cases it is the regulation that will need to be adapted and powerful new business models will continue to grow. Take Über, for instance, which seems to create superior value to users as well as for a great number of new drivers entering the business. These new market entrants disrupt the business of the existing taxi industry that is vigorously protesting the developments, in some cases with the support of a regulator. However, it is relatively safe to forecast that at the very moment the disruptive business model emerged, the industry change became irrevocable. Even if this particular business were to fail, there will be new entrants utilising the strengths of this disruptive business model. In Schumpeterian terms, creative destruction is an inevitable part of the innovation process. The US approach to regulation and innovation seems to embrace this view more than the European one. The US tends to rely on the market's capability to work effectively leaving only limited role for the regulation. Once the new, perhaps controversial, model has emerged it may need to be regulated but only to prevent some unwanted side effects. As such, the new business is seen as an opportunity rather than an existential threat to incumbent businesses.

New business models mean new types of employment

Often new types of business models also mean significant changes for the types of employment they create. Every so often existing types of employment and jobs are in danger of being sidelined by these new entrants. For the labour movement this means multiple challenges. Their existing power base is diminishing in line with the shrinking market share of traditional businesses. At the same time, even the incumbent businesses are rapidly changing their processes, moving into digitalised processes, automating routine jobs and creating global value chains.

The Future of Jobs Report by the World Economic Forum seeks to understand the current and future impact of key disruption on employment levels, skill sets and recruitment patterns in different industries and countries. It does so by asking the Chief Human Resources Officers of today's largest employers to predict how jobs in their industry will change up to the year 2020. According to the survey report (2016), concurrent to the technological revolution there are a set of broader socio-economic, geopolitical and demographic developments, with almost an equivalent impact to the technological factors. These include the following drivers of change in the order of importance:

- Changing nature of work, flexible work 44%
- Middle class in emerging markets 23%
- Climate change, natural resources 23%
- Geopolitical volatility 21%

- Consumer ethics, privacy issues 16%
- Longevity, ageing societies 14%
- Young demographics in emerging markets 13%
- Women's economic power, aspirations 12%
- Rapid urbanisation 8%

The respondents also expect that the impact for nearly all drivers will occur within the next 5 years time, highlighting the urgency for adaptive action.

To cope with the rapidly changing nature of work the regulators may choose to use their power to slow down the developments in order to shelter the existing jobs in incumbent businesses. Most likely this road will finally end up at a dead end as it is unlikely that anything can stop the developments enabled by the exponentially growing technologies coupled with numerous socio-economic changes. But how should we cope with the 'Fourth Industrial Revolution', where old rules do not apply but the need to look out for employees' interests remains? In broad terms the answer is that we need to find innovative solutions and new ways to create value for the employees in the diverse new types of employment.

Such changes will inevitably involve some creative destruction among business and existing unions also need to adapt their activities. Since the current situation and rapid pace of change is a challenge for employees as well as employers, they may find it useful to work together in three-party cooperation with the public sector. Some suggested actions in the World Economic Forum

report include the following. In the short term the following issues need to be addressed.

- Making Use of Data Analytics as a new approach to workforce planning and talent management, where better forecasting data and planning metrics will need to be central.

- Talent diversity is necessary as finding talent for many key specialist roles is expected to become much more difficult by 2020. Hence, it is time for a fundamental change in how talent diversity issues are perceived and well-known barriers tackled:

- Leveraging flexible working arrangements and online talent platforms. As physical and organisational boundaries are becoming increasingly blurred, organisations are going to have to become significantly more agile in the way they think about managing people's work and about the workforce as a whole. Businesses will increasingly connect and collaborate remotely with freelancers and independent professionals through digital talent platforms. Modern forms of association such as digital freelancers' unions and updated labour market regulations will increasingly begin to emerge to complement these new organisational models.

In the longer term, the following issues need to be addressed:

- Rethinking education systems: Most existing education systems at all levels provide highly siloed training and continue a number of 20th century practices that

are hindering progress on today's talent and labour market issues.

- Incentivising lifelong learning: The dwindling future population share of today's youth cohort in many ageing economies implies simply reforming current education systems to better equip today's students to meet future skills requirements. Ageing countries also need to establish a wholesale reskilling of existing workforces throughout their lifecycle.

- Cross-industry and public-private collaboration: Given the complexity of the change management needed, businesses will need to realise that collaboration on talent issues, rather than competition, is no longer a nice-to-have but rather a necessary strategy.

It is clear that WEF report represents business perspective rather than employees' views. At the same time, it is more than likely that in many areas businesses and employees do have common interests. Both parties face global competition and they need to cope with the changing, more fragmented landscape as it comes to evolving industry structures, new business models and platform based organisations, rapidly changing skill sets and other major changes including socio-economic ones.

Concluding comments

The presented material shows how capitalism and employment are going through a period of dynamic change. These changes involve digital businesses, employment and working conditions that are rapidly progressing across the industries. As a part of this process, globally-scalable business models are re-shaping mar-

kets and terms of employment. Due to its rapid phase of change, the progress of digitalisation is characterised by numerous experiments, some of which fail fast while others may grow very rapidly into global scale enterprises. In addition to technology, the key socio-economic trends will influence digital employment and working conditions.

It is clear that national as well as the EU level regulation are facing challenges. Businesses with global reach can with relative ease spread parts of their operations beyond regulation. Typically regulation in Europe can only react to new digital businesses that launch new, even disruptively innovative, business models. Many of the new digital businesses originate from the US where regulation is relatively limited and policy seeks to encourage innovative business models. This development is causing concerns as it may lead to a situation where businesses originating outside of the EU will gain increasing share of digitalised industries in Europe. This means that also the terms of digital employment and working conditions originate outside of Europe.

It seems evident that Europe has to make a choice between being a strict regulator, or being a facilitator of fertile conditions for the new digital business models, in line with the US approach. We should at least make a conscious decision on which way to proceed. Such a decision should be based on thorough analysis of the impact of various choices on working and business conditions. Apparently, the time frame for such action is limited and the decision ought to be made in the very near future.

The current situation is rather complex and it makes sense to seek better understanding of the diversity of digital employment and working conditions. This can be achieved by investigating the topic from several different perspectives; top-down, bottom-up

and by carrying out international comparative analysis. Industrial change also has its down side, and there will always be the unemployed who are often in need of individual programs that provide them with a skill set that employers demand. On positive side, digitalisation can also create new jobs, albeit different from the existing ones.

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CHAPTER IV

EUROPEAN PARLIAMENT'S EMPL OPINION "TOWARD A DIGITAL SINGLE MARKET ACT"

JUTTA STEINRUCK

Abstract

The Digital Revolution shapes new forms of life and work. For instance digital work comes with mobility and delocalization, which means that the digitalization enables more flexible working arrangements. Nevertheless, this advantage comes with risks as it facilitates more unstable forms of employment.

Many digital jobs require more complex skills. This might turn out to become a problem for the creation of new jobs and the EU's competitiveness, as Steinruck observes a "skill-mismatch" in EU countries.

Steinruck concludes that we have to ensure that employment and social policies "keep pace with the digital innovation". Furthermore, she states that we might not be able to hold back the digital revolution, but that we are able to shape it. Therefore, the assessment should include details on potential risks, job possibilities and new forms of employment. Attacks on the social security, the working environment and the employment protection have to be avoided.

When we talk about digitalisation, we are not only talking about technical changes and developments, but about one of the biggest transformations of our working world and our society. The Digital Revolution is going to dramatically change our lives in the coming years and we, as policy- and decision-makers, are asked to lay out a framework in order to shape this epochal transformation, in a way tothat benefits mostthe majority of people and reduces the dangersrisks associated with it.

In May 2015, when the European Commission came up with a proposal for a Digital Single Market Strategy, I was very surprised to see that its three pillars are only concerned with the technical aspects of the digitalisation. The Commission focuses solely on access, environment and economy. Don't get me wrong, I am very much in favour of equal access for consumers and businesses to digital goods and services across Europe and to create the right conditions and a level playing field for digital networks and innovative services to flourish. But I am afraid that maximising the growth potential of the digital economy does not hold any reference to workers and work conditions.

Digitalisation cannot just be seen as a technological or market issuen issue it is also about the transition of traditional analogue jobs to digital jobs. We can already see its impact on the way of working in the industry and the services sectors, but it is quite worrying that there is no motivation to analyse the social impact of digitalisation.

This is why I, in my role as the coordinator of the Employment Committee in the European Parliament, have asked that the strong voice of the Employment Committee is heard on this issue. We have to take into account that the digital revolution is the key driver in shaping new forms of life and work, and therefore we

need social considerations to be taken on board in the Digital Single Market Strategy in order to take full advantage of the related employment and growth potential.

In my opinion "Towards a Digital Single Market Act", which was voted in the Committee on Employment and Social Affairs on 10th of November 2015, focused on the main aspects of digitalisation from an employment perspective.

Job creation

When the Commission speaks about the creation of "thousands of new jobs", they withhold the fact that it is not possible to make a living from the majority of these new digital jobs. Of course, start-ups are important drivers of net job creation across the EU. And I am aware that many Member States with high unemployment see the Digital Single Market as an opportunity for SMEs, micro-enterprises and start-ups to develop new businesses. But we need to take a closer look at their sustainability. If we create jobs just to keep people out of the unemployment statistics, we will only postpone the problem, not solve it.

Of course, there is a generation of new business models and new jobs, especially for high-skilled but also for low-skilled workers. But we should not hold back the fact that due to automation processes some jobs even disappear completely, especially in the medium-skilled labour sector.

We have to ensure that employment and social policies keep pace with the digital innovation and entrepreneurship in order to profit from the opportunities and manage potential risks which could be associated with it. If we do not defend workers' rights and establish sustainable jobs, we are creating a no-win situation for the employees.

Future labour market

The European labour market is already facing tremendous problems and challenges, such as youth and long-term unemployment, the integration of people with disabilities, social dumping and demographic changes. The Commission's Strategy for the Digital Single Market cannot ignore these issues.

And the policy decision makers cannot do this alone. A regular exchange of best practice of all relevant stakeholders, including trade unions and employers, should be implemented to discuss how such a European digital vision can be developed. Their experience on how digitalisation is changing the daily working routine can help shape the future digital Europe. We will only be successful in designing an industry 4.0, workplaces 4.0 and smart digital services in the European Union if we include the experts, the social partners, in the evolution of a clear roadmap.

The Commission should, in cooperation with social partners and the Member States, also regularly assess the impact of digitalisation on the number and types of job opportunities available. We need to identify new forms of employment as well as their effects on work and private life. What does it mean when you have flexible working times? Can you really chose your working hours or does this only allow your boss to contact you whenever he needs your help? What does it mean to work in a crowd? Does this give you the freedom to decide which jobs you want to accept? Or will you be forced to accept any working conditions in order to earn a minimum monthly salary? We have to ensure that those new forms of employment do not undermine existing labour legislation.

Education and further training

Another challenge is the need for a re-design of educational systems, training curricula and working methods in a holistic and ambitious way in order to address the challenges and opportunities of the digital revolution. Since job and skills profiles become more complex, new demands – especially regarding information and communications technology (ICT) skills – are being placed on training as well as on further education and life-long learning. We have to promote digital literacy and tackle the existing gender and generational gaps.

Once again, the social partners and various educational training institutions are being asked to bring course content up to date and develop skills strategies linking the world of education with the world of work. Otherwise, the skill-mismatch between supply and demand will be a problem for the development of the digital economy, the creation of jobs and the competitiveness of the European Union.

Public and private investment in vocational education and lifelong learning is necessary to ensure that the EU workforce – and I mean the complete workforce, including 'digital workers' working in non-standard forms of employment – is equipped with the right skills for the digital economy. We have to make sure that all workers have access to education and training. Lifelong learning for workers of all ages must be a standard in the digitalised area. And we have to find solutions abouton how to establish new funding opportunities for lifelong learning and training, especially for micro and small enterprises.

The Member States should make appropriations from all possible funds available to employers so that they can invest more in the

digital training of their less qualified staff or recruit low-qualified staff with the promise of further training which willto be financed from these sources. We also have some examples in the Member States to introduce rights that guarantee workers minimum entitlements to paypaid educational leave as a measure to improve workers' access to education and training.

Atypical work

When I talk to my colleagues from the other parties, I very often hear that my position hinders people from having more flexible forms of employment and thus impeding them from having a better work-life balance.

But actually the opposite is the case: I think that the Work 4.0 and the digital future could be important in creating a family-friendly work environment. But I would like to draw the attention to the fact that we also can see an increase in atypical and flexible employment relationships. There has to be a modernisation of social and employment legislation to maintain existing standards of protection in the workplace and also in the digital world of work.

I recognise that there are positive effects in relation to flexible working arrangements for some people, allowing them to achieve a better work-life balance, and I also see that digitalisation brings advantages for people from rural and economically less developed areas in joining the digital labour market.

However, the digitalisation-driven trend towards more flexible working practices may also give rise to unstable forms of employment. We need to ensure that current standards with regards to social security, minimum wages, worker participation and occupational health and safety are maintained.

New forms of self-employment

Furthermore, the Commission, the Member States and the social partners should develop strategies to ensure that persons performing work as if they are workers – regardless of whether their official status is self-employed or other – have appropriate rights under labour law. This also means that they must have the right to collective bargaining.

For me it is indispensable that we define 'self-employment' in a way to prevent bogus self-employment. Therefore, the Commission should promote an exchange between Member States on the various forms of self-employment, taking into account the mobility and delocalisation of digital work. Bogus self-employment with the goal of undermining existing labour and social security standards must be prosecuted by all means. This must be taken up as a task by the platform on undeclared work.

Crowd Worker

For some people, the protection of workers' rights sounds like an old-fashioned system which is only used to put a burden on companies and the employers. But the freedom of association, the right to conclude collective agreements and the right to organise workers are fundamental rights, which must apply in the context of new forms of employment in all sectors. These are achievements of an enlightened society. In service sectors particularly, such as in ICT, media, or administrative and support services, recent growth in self-employment has been substantial. Practices such as crowdsourcing (i.e. online platforms allowing companies to publish tenders for work assignments for which freelancers compete) are expected to lead to further growth in self-employment. Moreover, competition for job opportunities on such crowdsourcing plat-

forms is global, implying a competitive advantage for bidders from locations characterised by a low cost of living, low income tax rates and a low level of social security cover.

As a crowd worker you compete with jobseekers in Europe and worldwide on crowdsourcing portals. It is for the national social partners and governments to find solutions to this by means of constructive dialogue in order to guarantee a fair and inclusive labour market for all employment arrangements. Additionally the social partners have to provide adequate information to workers on working conditions and workers' rights throughout crowd working platforms.

Sharing economy

I do not want to blame people for using new taxi or accommodation, but as a politician and as a European tax payer I am convinced that the Member States need to adjust their legal framework to the hypercapitalistic practices of the sharing economy. The Commission, the Member States and the social partners have to develop strategies to ensure that all relevant tax information is available to national tax authorities and that all contributions are paid for all forms of work. If we have on the one hand entrepreneurs paying taxes and on the other hand people doing the same business without paying taxes, there is no fair competition at all.

Parcel delivery

The intended harmonisation of parcel delivery is another inglorious example of a challenge we are facing: the majority of the people in this sector are self-employed. Not because it is a profitable business, but it is cheaper for the parcel delivery services if the workers are self-employed rather than employing them directly. With the

upcoming European single market harmonisation, these self-employed people will have to compete with parcel deliverers from all Member States. We will end up with the lowest standards if the Commission does not make ensuresure that parcel deliverers, irrespective of their employment status are protected when it comes to social and working conditions. It is important to ensure that workers' rights in this sector concerning access to social security systems and the right to exercise collective actions are respected.

Data protection & Health and safety

We are also facing some challenges when it comes to data protection. The Commission must set high minimum standards under the basic EU Data Protection Regulation. But additionally, the Member States must be allowed to introduce more stringent measures that go beyond the high EU minimum standards. We need to develop employee data protection measures which cover new forms of data collection.

Due to the changing working conditions, there is also a need to adapt the existing health and safety measures accordingly. The proliferation of digitalised forms of work implicates major transformations of work organisation – enabling practices such as telework and crowdsourcing and facilitating freelance work. These developments challenge the traditional understanding of employment, working hours and place, and companies, and bring about specific health and safety hazards. It is necessary that we assess the effects of digitalisation on health and safety at work.

We have to be aware that work-related mental health problems, which are caused by constant accessibility and the erosion of traditional working time arrangements (for example burnout), represents a serious risk for workers. There is a big demand for studies to be

produced on the spillover effects of digitalisation, such as greater labour intensity on workers' psychological wellbeing and family life, and on the development of cognitive abilities in children.

And we have to focus our attention on the new working relations between humans and robots. On the one hand, robots provide opportunities for removing burden and providing backing for the inclusion of older and physically or mentally impaired workers. But on the other hand, we don't have enough experience to estimate the effects on the workers and on their mental well-being.

Social security system

The growth of new, non-standard forms of employment caused by digitalisation implies that a growing share of the workforce does not contribute to or benefit from established social security systems such as public unemployment, health and pension insurance. In some Member States this is already the subject of debates between social partners and governments. Combined with the decline in overall employment rates, such developments may erode revenue for, and thus the overall effectiveness of, established tax and welfare regimes that rely on revenue mainly generated through levies on wages and systems of employer-employee co-financing, and therefore depend on high rates of standard employment.

This loss of effectiveness would pose serious threats to the fabric of the European social model, which is built on strong public engagement in the financing and provision of services of general interest and effective social security nets. However, successfully mastering the process of digitalisation is largely dependent on the effective provision of services of general interest, such as modern education systems and broadband infrastructure.

So we have to call on the Member States to ensure adequate social security for self-employed and freelance workers who are key players with regard to new forms of employment. They have to find ways to develop social security systems, together with the social partners and in accordance with national law and practice, in order to provide better social protection, particularly with regard to pensions, disability, maternity/paternity, sickness and unemployment.

Conclusion

It is impossible to hold back the digital revolution, but it is definitely possible to shape it. Digitalisation is not only a technical issue; we need to have the employment and social policy included in the Digital Agenda.

We need an assessment of the impact that digitalisation will have on the number and types of new jobs, and we need information on new forms of employment, for example crowdsourcing and crowd working.

Job and skills become more complex in the digital world of work. This means that regarding education and skills, we need a new system of training and further education. We need to have institutionalised life-long learning. The social dialogue must play an important role in bringing course content up to date and developing skills strategies.

The digitalisation-driven trend towards more flexible working practices may also see a rise in precarious forms of employment. We have to ensure that this doesn't result in an attack on social security, working time, working location, worker participation and employment protection. Self-employed persons with quasi-employee status should have equal footing under employment law.

Labour rights such as freedom of association must apply in the context of new forms of employment. And we need to develop employee data protection measures which cover new forms of data collection.

Last but not least, Member States and the social partners have to find new ways to establish social security for self-employed persons and also to protect the effectiveness of existing national systems.

WHAT TO DO ABOUT DIGITAL EMPLOYMENT THE POSITION OF UNI EUROPA AND ITS GLOBAL APPROACH

OLIVER ROTHIG, UNI EUROPA

Abstract

The digitalisation of our economies and labour markets influences various aspects of our life and challenges the European social model. The European Commission has launched a Digital Single Market Agenda, which strives to bring down barriers to unlock online opportunities. However, UNI Europa questions the missing social dimension in this agenda and calls for a policy framework, which provides social and labour rights to workers participating in the on- and offline workforce.

To this end, UNI Europa stresses the importance of addressing the social challenges of the new forms of economy. Current social security systems at national level, as well as EU competition law, are in need of reform to guarantee that existing regulations and standards are not undercut. Moreover, questions on the definition of a worker, and how working time provisions and collective rights can be extended to include the new forms of work are in need of an answer. In addition, UNI Europa stresses the need to tackle the increasing polarisation of the labour market leading to an ever-growing income and wealth inequality.

It must be ensured that European citizens, as workers and consumers, are included in the digital process and empowered to

influence and shape this development. To guarantee that digitalisation does not jeopardise employment rates or the quality of jobs, trade unions have to work towards a restart of the Digital Agenda for the EU. The digital changes to the labour markets need to be adequately set in a policy framework, which would include a strong social dimension.

The most exciting development of our age is certainly digitalisation - the spread of digital technologies across all segments of society and the economy. This process will influence our way of living, thinking and working in various ways, and will challenge our European social model. The digitalisation of Europe is an interesting process, which poses not only opportunities but also key challenges to current and future generations.

Digitalisation and the connected transition to Industry 4.0 is – and will be – a radical transformation for workers in the service sectors. On the one hand, many experts forecast a net decrease in jobs across all European Member States in the coming decades. On the other hand, new forms of work and new economic forms – such as the so-called 'gig economy' - will emerge and will spread widely. It is expected that these new economic forms will lead to economic growth. Nonetheless, the number of staff on permanent contracts will decline and the number of (bogus) self-employed will rise. This changing nature of the work relationship will shape the employment relationship and will have a rather significant societal impact. As former colleagues become competitors in the online bid for work, and as society moves towards e-education, e-jobs, e-commerce and e-services, citizens will become more and more isolated from one another. Thus, social cohesion in many Member States will decline. This might lead to a European society char-

acterised by a lack of trust and disruption, and a divide between those included and those excluded from the digital society.

Digitalisation does not stop at national borders. It is a cross-border development, which poses similar challenges to governments, businesses and societies across our continent and thus needs to be addressed at the European level. The European Commission has responded with a Digital Single Market Agenda, which strives to bring down existing barriers to online opportunities. UNI Europa welcomes the Commission's ambitious economic approach, which strives for harmonisation measures in various relevant areas of legislation, for instance, consumer protection, copyright regulations, privacy policy and safety regulations. In addition, the Commission pushes for investments in infrastructure politics. Nonetheless, UNI Europa strongly questions the missing *social* dimension in this agenda, e.g. there is not even the slightest attempt aimed at setting a policy framework to provide social and labour rights to workers participating in the gig economy. However, such a framework is necessary in order to ensure that the new development does not only lead to economic growth but also guarantees quality jobs, a skilled workforce and social justice. Thus, legal initiatives are important and urgently needed, striving towards a renewed Single Market Agenda with a strong social dimension.

The Current State of Play - A Neo-Liberal Digital Single Market Agenda

With the aim of ensuring that the Single Market functions properly, the Commission has launched a Digital Single Market Package (DSM Package). The aim of this package is to facilitate access to the digital world and to address certain key challenges, for instance geo-blocking, EU copyright and telecom rules, as well as

the perceived high costs of parcel delivery within the Union.

Even though UNI Europa welcomes these efforts on consumers we stress the need for an emphasis on how this digital development affects not only industries and services, but also workers. According to UNI Europa, the DSM package does not provide any comprehensive and meaningful proposals to address the challenges for workers with regards to the fundamental digital transformation process. Consequently, UNI Europa calls upon the Commission to develop – in close cooperation with social partners – a strong social dimension in its digital policy. This has to focus in particular on policies that foster quality jobs and social justice.

To this end, UNI Europa favours three principles, which must guide the development of such an economically and socially-balanced digital policy approach. These three principles comprise:

- The **empowerment** of European citizens, i.e. it must be ensured that all Europeans are able to influence and shape the digital process at work (and beyond) within the framework of their rights and needs.

- Fostering **cohesion**, i.e. the process of digitalisation must be steered in such a way that the atmosphere between citizens, workers and countries in the EU is characterised by solidarity.

- The **inclusiveness** of all Europeans in the digital realm, which must be framed by a policy framework.

These principles are important in order to include European citizens in the digital process from the very beginning and to create an economically and socially balanced European labour market

system, which is and will be based on the notion of democratic and social progress. Without doubt, digitalisation enriches our society in many respects: it boosts productivity, it provides smart services and it accelerates and facilitates our communication and information culture. Nonetheless, there is also a dark side to digitalisation, which can have a negative impact on European citizens, industries and in particular on the environment. In the following, the focus shifts towards these challenges and possible negative consequences.

Key Challenges and Consequences

Robots and robot technology will take over jobs previously carried out by people, and will create whole new possibilities. As the demand for labour power will decrease in certain sectors, displacing the workers or subjecting the remaining workers to extreme productivity pressure, policies must be in place that counterbalance a long range of disruptive consequences, including: wage dumping, mass redundancies, precarious working conditions, a rise of atypical employment, excessively dominant online platforms (including 'gig economy' portals) and the invasion of employee privacy (personal data). In the following, several potential challenges linked to the process of digitalisation are illustrated.

Current social security systems at national level, as well as EU competition law, will need to be changed and adapted to the new economic forms and the geographical scope of digitalisation. From a legal perspective, there are two challenges in particular that must be addressed. Firstly, the new forms of employment (online, crowd-sourcing) and business models (online platforms) simply undercut existing regulations and standards. Secondly, self-employed workers are regarded by current Competition Laws

as a one-unit company. Any attempt to organise these individuals and collectively negotiate higher unit-costs (i.e. pay) will be seen as cartel building and hence be illegal.

So-called crowdsourcing platforms serving the 'gig economy' mostly use self-employed workers. These platforms allow companies to publish online tenders for work assignments for which job seekers can apply. As those who win contracts on crowdsourcing portals usually operate as freelancers through their one-person companies – an employment status exempting them from standard employment legislation and the right to information, consultation, and co-determination that an employee status grants –, a growing number of people are excluded from fundamental social rights. Moreover, these workers are excluded from social protection, such as unemployment benefits, paid holidays, paternity leave arrangements, and so forth.

In addition, as companies 'go digital', more and more service workers perform their tasks by using digital mobile devices such as laptops and mobile phones. In theory, labour flexibility allows employees to work flexibly at times and locations of their choice. In practice, however, such flexible forms of work also involve the risk of 'work without boundaries', i.e. employees are available for work at all times. If we then couple that with the new forms of employment where workers are exclusively paid for tasks completed, it is a big question whether the working day will ever end. In the attempt to find solutions, one suggestion could be that workplace regulations and standards should be *universally applied* irrespective of what forms of employment exist in an individual workplace. This would protect the (bogus) self-employed working within the boundaries of a company that uses a mix of forms of employment. With regard to the working and employment conditions for people finding jobs through online platforms, we encourage the small and

medium-sized enterprises and employers' federations to sit with the trade unions and find sustainable solutions that guarantee quality jobs, and avoids unfair competition.

The digital economy will also lead to a polarisation of jobs as employment will emerge either at the top or at the bottom of the competence and wage scale. For instance, IT engineers being at the forefront of digital innovation earn considerably more than warehouse packers who work rather at the end of the production chain. For many, having digital skills and constantly renewing them will be key for employment/job opportunities. The requirement to constantly re-skill will be forever present as it is estimated that skills will become obsolete after just two years. Frequent re-training measures that are equally accessible to workers in standard and non-standard forms of employment must therefore be in place. To meet this challenge, all workers, including those in non-standard employment, must have an enforceable right to paid educational leave and effective training schemes.

To ensure that the cost of life-long training is not borne by workers, both employers and governments must increase the investment in education and training. Such education and training systems are important in order to promote digital innovation striving towards a fairer distribution policy within the European Union. Nonetheless, as corporate contributions to social security decline in line with the transition towards engaging with (bogus) self-employed rather than permanent employees, state revenue raising capacity and public budgets will suffer. This also raises new questions of taxation and a general funding of public services.

In general, EU policy has to ensure that all workers, regardless of their type of employment, are entitled to social protection and social rights. Equally a universal access to further training must be

ensured to avoid larger groups of workers being excluded from the core of the labour market. However, none of this is provided for or even envisaged in the DSM Package.

UNI Europa's Call for a Social Policy Framework

UNI Europa strongly calls for a social dimension in the DSM package. Due to the growing use of crowdsourcing and online platforms as intermediaries between employers and workers, an increasing share of the EU workforce is in need of empowerment. This is particularly necessary as crowdworkers' wages and working conditions are heavily influenced by the terms and conditions that – under the current circumstances – are unilaterally imposed by the operators of crowdsourcing portals. Even though UNI Europa recognises the potential benefits of the digitalisation process and thus welcomes the Commission's consideration towards this issue, it notices that the foreseeable effects of digitalisation on European markets and company structures are not fully reflected in the analysis underpinning the DSM package. It is beyond doubt that digitalisation comprehensively transforms business models and processes in the EU services industry – a process with major implications for services work and employment. Therefore, based on a sound and complete analysis of this transformation, regulators and social partners must influence and shape this process in order to support social justice and the quality of jobs in Europe.

A Restart – What Needs to be Done

If the opportunities linked to digitalisation should be presented in such a way that as many people as possible benefit from it, political intervention at the European level is urgently needed. In close cooperation with social partners, the legislator has to ensure that

digital changes to the labour market are adequately set in a policy framework and managed and monitored according to this. In order to make sure that digitalisation does not jeopardise employment rates or the quality of jobs, fundamental social rights have to be at the centre of the Union's digital future.

Consequently, we must work towards a restart of the Digital Agenda for the EU, so that the shortcomings of the DSM Package are tackled. This new agenda needs to include a social dimension based on the aforementioned principles of empowerment, cohesion and inclusion. Therefore, UNI Europa calls on the EU to create an agenda striving towards the establishment of adequate social security systems at national level as well as fair EU competition law. In this agenda the following principles and considerations should be taken into account:

- Digital technology must serve to empower workers and enrich work
- Workers' right and social protection for all in the digital age
- Universal education and training systems fit for the digital age
- Reinforcing the European social model in the face of digital change

To conclude, Europe is more than its Single Market. European citizens and social partners need to be at the forefront of further discussions on digitalisation. It is essential that trade unions and employers are involved in order to successfully anticipate and manage digitally-driven change in the labour market. This

change would ensure the promotion of good work, general interest, social justice and innovation.

CONCLUSIONS ON DIGITAL EMPLOYMENT

WERNER WOBBE

Abstract

Digitalisation will have repercussions on the European labour market in the years to come. The European Commission has identified a high positive potential of the digital economy while other institutions or authors warn about high replacement effects. The structural change across business sectors, world regions, and in Europe between core and peripheral nations will be dramatic. The impact of the digital revolution will be less in terms of the technical replacement of jobs, but more in terms of the emergence of new forms of business organisation and their effect on the work organisation.

Firms will expand their business activities over national borders by crowdsourcing via digital platforms. On one side, core employees control well-defined services and tasks, and on the other side crowdworkers compete for small tasks or jobs offered via digital platforms. This new global platform economy replaces protected and insured employees with self-employed contractors or insourced freelancers. Such development is eroding the traditional form of workers' organisations as trade unions are no longer able to organise workers in factories or offices.

This volume reflects social and political issues on working conditions caused by the digital revolution. It assesses options for regulation and potential action at the European level.

This volume discusses issues of the "digital economy". It comments on innovation in relation to the Digital Single Market Agenda put forward by the European Commission. The focus of the debate is on social and political issues caused by the digital revolution, which is currently in the making. The specific aspect of that societal change is the new "platform economy" featuring "crowdsourcing" of enterprises and its related "crowdworking", which are enabled by the internet. Currently, crowdworking is probably a small but rapidly growing segment of the workforce[1]. In this context, this study examines digital employment and working conditions in relation to the Digital Single Market Agenda.

Crowdsourcing, or platform strategies of enterprises, has been identified as one of the most crucial issues related to working conditions. Through enterprise crowdsourcing strategies, an increasingly large class of new workers may come into existence whose modes of work differ from those of normal employees. In the future, we are likely to see the growth of enterprises that generate mixed forms of dependent employment. A likely scenario is an enterprise that is composed of core employees, in charge of coordination work and with normal employment contracts, and a large crowd of self-employed workers or freelancers who compete for limited task-contracts and services issued remotely by a platform. These formally designated self-employed workers are, in reality, dependent employees without any social protection. At stake, then, is the issue of who should care or be made responsible for the social protection of these workers.

What options for regulations are there for digital workers?

The conservative (or liberal) position regarding the regulation of digital labour would strive to preserve the current platform setting.

This position would refuse to change the law concerning **independent contractors,** the **self-employed or freelance status. As a consequence, this would provide the flexibility for the new digital economy to flourish more quickly, and regulation would be perceived as hampering innovation**, including those not yet identified. Liberals would argue that the absence of regulation would enable digital platforms to start up and expand in disadvantaged regions, thereby encouraging economic regeneration by providing full-time employment for core staff undertaking highly skilled coordination and development work.

By contrast, a traditional trade union point of view would insist on transforming the **independent contractor into employee status** in order to offer all the social benefits of labour law. At stake are social security, health care, pension schemes, and payroll taxes. It would therefore insist on a minimum income to allow a decent living from crowd work, and holiday, maternity/paternity leave, overtime hours or pay during illness periods, as well as worker pension schemes.

For other options, the principal relationships between employers and employees or contractors have to be taken into account. In contrast to independent contractors or freelancers, employees benefit from labour laws that include significant benefits, which are paid by their employers. In essence, employees agree to be economically dependent on their employers by abandoning control over many aspects of their working lives and, in return, employers must provide workers with a degree of economic security.

Taking these two different relationships into account, a third option was proposed recently – at least for regulation in the US. Harris and Krueger suggest introducing a third legal category, under labour law, namely the status of “independent worker”.

According to their proposal, the category of “independent worker” lies between categories of “employees” (regulated by labour law) and “independent contractors” (regulated by civil law). The definition of an **"independent worker” according to Harris and Krueger is the following:**

"*Independent workers operate in a triangular relationship: they provide services to customers identified with the help of intermediaries. The intermediaries create a communications channel, typically an “app,” that customers use to identify themselves as needing a service—for example, a car ride, landscaping services, or food delivery. … The intermediary does not assign the customer to the independent worker; rather, the independent worker chooses or declines to serve the customer … However, the intermediary may set certain threshold requirements for independent workers who are eligible to use its app, such as criminal background checks. The intermediary may also set the price … for the service provided by independent workers through its app. But the intermediary exercises no further control over how and whether a particular independent worker will serve a particular customer. The intermediary is typically rewarded for its services with a predetermined percentage of the fee paid by the customer to the independent worker. … The independent worker chooses when and whether to work at all. The relationship can be fleeting, occasional, or constant, at the discretion of the independent worker."*[1]

Their proposal is that “independent workers” — regardless of whether they work through an online (platform) or offline intermediary — would qualify for many, although not all, of the benefits and protection that employees receive. Independent workers should have the freedom to organise and bargain collectively, receive civil rights protection, withholding tax, and employer contributions for payroll taxes. Because it is conceptually impos-

sible to attribute their working hours to any single intermediary, however, independent workers would not qualify for hours-based benefits, including overtime or minimum wage requirements. Further, because independent workers would not qualify for unemployment insurance benefits, given the discretion they have to choose whether to work through an intermediary, they would not be covered by the program or be required to contribute taxes to fund that program. However, intermediaries would be permitted to pool independent workers for purposes of purchasing and providing insurance and other benefits at lower cost and higher quality, without the risk of their relationship being transformed into an employment relationship.[2]

Taking into account the global development of the digital economy, a differentiated approach may be adopted. In Europe, the respective national labour, or civil, laws have to be taken into account as they vary considerably.

For example, the SPD programme on the digital society suggests pragmatic approaches based on German experiences.

- One is the ***voluntary contribution of the platform owner to social contributions*** such as the current voluntary CO^2 contribution in air traffic.

- A second is ***public citizen insurance allowing some security and protection for independent work, guaranteed by the state.***

- ***A third*** is insurance such as that which already exists for artists and workers in the media industry in Germany (Künstlersozialversicherung). In this case the artist, or the crowd worker, can choose his

contribution for a retirement pension and the state adds an equal amount.

Also, the **Canadian approach might be considered where, different** to other countries, there is a third legal or defined category of "dependent contractors". If these contractors receive 80% of their income from a single firm, they have access to some, but not all, of the standard employee legal protection.

Activities to be envisaged at the European level

In Europe, we need a serious debate about the challenges posed by the platform economy and the options for addressing these challenges mentioned above. The S&D Group Position Paper[4] would be an excellent starting point for the European Commission and the Member States to develop a programme of activities, and the recommendations of UNIglobal, suggested by Oliver Röthig in this volume, together with those of the SPD's programme for the digital society[5], should also be considered. The following operational steps might also be considered:

- *Assess the impact of digitalisation on jobs and employment by the European institutions. Jutta Steinruck's suggestion should be taken on board, including the review of existing national social insurance systems in Europe.*

- *Monitor the Code of Conducts of crowdsourcing platforms. Testbirds' approach should be evaluated.*

- *Foster initiatives of self-organisation by crowdworkers, or the organisation of crowdworkers by trade unions. The "crowdworker forum" explained*

by Kristy Milland is such an example, or those of the IG Metall and ver.di to organise the self-employed as trade unions, which would assist crowd workers in legal disputes.

- *Organise the exchange of experiences at* the European level via the TUC or UNIglobal, because transparency/information is the first step towards bringing social and civil rights to the attention of crowd workers.

In a nutshell, crowd workers are still a small minority of the work force. However, business concepts and strategies emerge rapidly, and start-up platforms offering crowd work are developing quickly. The European Digital Agenda is meant to foster digital start-ups and digital employment, and the discussion on the impact of these developments on digital work has already started. At the European policy level we urgently need an informed debate on how new regulations, to protect the rights and welfare of the emerging digital work force, might be developed and enforced.

Endnotes

1 In 2015 figures for the US are estimated of about 600.000 or 0.4% of the workforce. In 2016 figures for the UK are estimated at about 5 million workers as digital workers.

2 Harris, Seth D., Krueger, Alan B. (2015) "A Proposal for Modernizing Labor Laws for Twenty-First-Century Work: The `Independent Worker,'" published in December 2015 by the Hamilton Project of the Brookings Institution, p.2. http://www.hamiltonproject.org/assets/files/modernizing_labor_laws_for_twenty_first_century_work_krueger_harris.pdf

3 Harris and Krueger, l.c. p. 2 and p. 15ff. The proposal has been opposed vividly by some left think tanks claiming that independent worker would not exist. See for example Benjamin Sachs, „Do we need an „Independent Worker Category?" In: onlabour – Workers, Unions, and Politics, posted on 8 December, 2015. I am grateful to Roland Schneider TUAC-OECD, providing material of the US discussion.

4 http://www.socialistsanddemocrats.eu/sites/default/files/towards_a_digital_union_sd_group_position_paper_en_150521.pdf

5 SPD #DigitalLeben – SPD Grundsatzprogramm für die digitale Gesellschaft, adopted at the party conference November 2015 https://digitalleben.spd.de/wp-content/uploads/2015/09/150925_DigitalLeben_Programm_Leitantrag.pdf

EUROPEAN PARLIAMENT'S EMPL OPINION "TOWARD A DIGITAL SINGLE MARKET ACT"

JUTTA STEINRUCK

Abstract

The Digital Revolution shapes new forms of life and work. For instance digital work comes with mobility and delocalization, which means that the digitalization enables more flexible working arrangements. Nevertheless, this advantage comes with risks as it facilitates more unstable forms of employment.

Many digital jobs require more complex skills. This might turn out to become a problem for the creation of new jobs and the EU's competitiveness, as Steinruck observes a "skill-mismatch" in EU countries.

Steinruck concludes that we have to ensure that employment and social policies "keep pace with the digital innovation". Furthermore, she states that we might not be able to hold back the digital revolution, but that we are able to shape it. Therefore, the assessment should include details on potential risks, job possibilities and new forms of employment. Attacks on the social security, the working environment and the employment protection have to be avoided.

When we talk about digitalisation, we are not only talking about technical changes and developments, but about one of the biggest transformations of our working world and our society. The Digital Revolution is going to dramatically change our lives in the coming years and we, as policy- and decision-makers, are asked to lay out a framework in order to shape this epochal transformation, in a way tothat benefits mostthe majority of people and reduces the dangersrisks associated with it.

In May 2015, when the European Commission came up with a proposal for a Digital Single Market Strategy, I was very surprised to see that its three pillars are only concerned with the technical aspects of the digitalisation. The Commission focuses solely on access, environment and economy. Don't get me wrong, I am very much in favour of equal access for consumers and businesses to digital goods and services across Europe and to create the right conditions and a level playing field for digital networks and innovative services to flourish. But I am afraid that maximising the growth potential of the digital economy does not hold any reference to workers and work conditions.

Digitalisation cannot just be seen as a technological or market issuen issue it is also about the transition of traditional analogue jobs to digital jobs. We can already see its impact on the way of working in the industry and the services sectors, but it is quite worrying that there is no motivation to analyse the social impact of digitalisation.

This is why I, in my role as the coordinator of the Employment Committee in the European Parliament, have asked that the strong voice of the Employment Committee is heard on this issue. . We have to take into account that the digital revolution is the key driver in shaping new forms of life and work, and therefore we need social considerations to be taken on board in the Digital

Single Market Strategy in order to take full advantage of the related employment and growth potential.

In my opinion "Towards a Digital Single Market Act", which was voted in the Committee on Employment and Social Affairs on 10th of November 2015, focused on the main aspects of digitalisation from an employment perspective.

Job creation

When the Commission speaks about the creation of "thousands of new jobs", they withhold the fact that it is not possible to make a living from the majority of these new digital jobs. Of course, start-ups are important drivers of net job creation across the EU. And I am aware that many Member States with high unemployment see the Digital Single Market as an opportunity for SMEs, micro-enterprises and start-ups to develop new businesses. But we need to take a closer look at their sustainability. If we create jobs just to keep people out of the unemployment statistics, we will only postpone the problem, not solve it.

Of course, there is a generation of new business models and new jobs, especially for high-skilled but also for low-skilled workers. But we should not hold back the fact that due to automation processes some jobs even disappear completely, especially in the medium-skilled labour sector.

We have to ensure that employment and social policies keep pace with the digital innovation and entrepreneurship in order to profit from the opportunities and manage potential risks which could be associated with it. If we do not defend workers' rights and establish sustainable jobs, we are creating a no-win situation for the employees.

Future labour market

The European labour market is already facing tremendous problems and challenges, such as youth and long-term unemployment, the integration of people with disabilities, social dumping and demographic changes. The Commission's Strategy for the Digital Single Market cannot ignore these issues.

And the policy decision makers cannot do this alone. A regular exchange of best practice of all relevant stakeholders, including trade unions and employers, should be implemented to discuss how such a European digital vision can be developed. Their experience on how digitalisation is changing the daily working routine can help shape the future digital Europe. We will only be successful in designing an industry 4.0, workplaces 4.0 and smart digital services in the European Union if we include the experts, the social partners, in the evolution of a clear roadmap.

The Commission should, in cooperation with social partners and the Member States, also regularly assess the impact of digitalisation on the number and types of job opportunities available. We need to identify new forms of employment as well as their effects on work and private life. What does it mean when you have flexible working times? Can you really chose your working hours or does this only allow your boss to contact you whenever he needs your help? What does it mean to work in a crowd? Does this give you the freedom to decide which jobs you want to accept? Or will you be forced to accept any working conditions in order to earn a minimum monthly salary? We have to ensure that those new forms of employment do not undermine existing labour legislation.

Education and further training

Another challenge is the need for a re-design of educational systems, training curricula and working methods in a holistic and ambitious way in order to address the challenges and opportunities of the digital revolution. Since job and skills profiles become more complex, new demands – especially regarding information and communications technology (ICT) skills – are being placed on training as well as on further education and life-long learning. We have to promote digital literacy and tackle the existing gender and generational gaps.

Once again, the social partners and various educational training institutions are being asked to bring course content up to date and develop skills strategies linking the world of education with the world of work. Otherwise, the skill-mismatch between supply and demand will be a problem for the development of the digital economy, the creation of jobs and the competitiveness of the European Union.

Public and private investment in vocational education and lifelong learning is necessary to ensure that the EU workforce – and I mean the complete workforce, including 'digital workers' working in non-standard forms of employment – is equipped with the right skills for the digital economy. We have to make sure that all workers have access to education and training. Lifelong learning for workers of all ages must be a standard in the digitalised area. And we have to find solutions abouton how to establish new funding opportunities for lifelong learning and training, especially for micro and small enterprises.

The Member States should make appropriations from all possible funds available to employers so that they can invest more in the

digital training of their less qualified staff or recruit low-qualified staff with the promise of further training which willto be financed from these sources. We also have some examples in the Member States to introduce rights that guarantee workers minimum entitlements to paypaid educational leave as a measure to improve workers' access to education and training.

Atypical work

When I talk to my colleagues from the other parties, I very often hear that my position hinders people from having more flexible forms of employment and thus impeding them from having a better work-life balance.

But actually the opposite is the case: I think that the Work 4.0 and the digital future could be important in creating a family-friendly work environment. But I would like to draw the attention to the fact that we also can see an increase in atypical and flexible employment relationships. There has to be a modernisation of social and employment legislation to maintain existing standards of protection in the workplace and also in the digital world of work.

I recognise that there are positive effects in relation to flexible working arrangements for some people, allowing them to achieve a better work-life balance, and I also see that digitalisation brings advantages for people from rural and economically less developed areas in joining the digital labour market.

However, the digitalisation-driven trend towards more flexible working practices may also give rise to unstable forms of employment. We need to ensure that current standards with regards to social security, minimum wages, worker participation and occupational health and safety are maintained.

New forms of self-employment

Furthermore, the Commission, the Member States and the social partners should develop strategies to ensure that persons performing work as if they are workers – regardless of whether their official status is self-employed or other – have appropriate rights under labour law. This also means that they must have the right to collective bargaining.

For me it is indispensable that we define 'self-employment' in a way to prevent bogus self-employment. Therefore, the Commission should promote an exchange between Member States on the various forms of self-employment, taking into account the mobility and delocalisation of digital work. Bogus self-employment with the goal of undermining existing labour and social security standards must be prosecuted by all means. This must be taken up as a task by the platform on undeclared work.

Crowd Worker

For some people, the protection of workers' rights sounds like an old-fashioned system which is only used to put a burden on companies and the employers. But the freedom of association, the right to conclude collective agreements and the right to organise workers are fundamental rights, which must apply in the context of new forms of employment in all sectors. These are achievements of an enlightened society. In service sectors particularly, such as in ICT, media, or administrative and support services, recent growth in self-employment has been substantial. Practices such as crowdsourcing (i.e. online platforms allowing companies to publish tenders for work assignments for which freelancers compete) are expected to lead to further growth in self-employment. Moreover, competition for job opportunities on such crowdsourcing plat-

forms is global, implying a competitive advantage for bidders from locations characterised by a low cost of living, low income tax rates and a low level of social security cover.

As a crowd worker you compete with jobseekers in Europe and worldwide on crowdsourcing portals. It is for the national social partners and governments to find solutions to this by means of constructive dialogue in order to guarantee a fair and inclusive labour market for all employment arrangements. Additionally the social partners have to provide adequate information to workers on working conditions and workers' rights throughout crowd working platforms.

Sharing economy

I do not want to blame people for using new taxi or accommodation, but as a politician and as a European tax payer I am convinced that the Member States need to adjust their legal framework to the hypercapitalistic practices of the sharing economy. The Commission, the Member States and the social partners have to develop strategies to ensure that all relevant tax information is available to national tax authorities and that all contributions are paid for all forms of work. If we have on the one hand entrepreneurs paying taxes and on the other hand people doing the same business without paying taxes, there is no fair competition at all.

Parcel delivery

The intended harmonisation of parcel delivery is another inglorious example of a challenge we are facing: the majority of the people in this sector are self-employed. Not because it is a profitable business, but it is cheaper for the parcel delivery services if the workers are self-employed rather than employing them directly.

With the upcoming European single market harmonisation, these self-employed people will have to compete with parcel deliverers from all Member States. We will end up with the lowest standards if the Commission does not make ensuresure that parcel deliverers, irrespective of their employment status are protected when it comes to social and working conditions. It is important to ensure that workers' rights in this sector concerning access to social security systems and the right to exercise collective actions are respected.

Data protection & Health and safety

We are also facing some challenges when it comes to data protection. The Commission must set high minimum standards under the basic EU Data Protection Regulation. But additionally, the Member States must be allowed to introduce more stringent measures that go beyond the high EU minimum standards. We need to develop employee data protection measures which cover new forms of data collection.

Due to the changing working conditions, there is also a need to adapt the existing health and safety measures accordingly. The proliferation of digitalised forms of work implicates major transformations of work organisation – enabling practices such as telework and crowdsourcing and facilitating freelance work. These developments challenge the traditional understanding of employment, working hours and place, and companies, and bring about specific health and safety hazards. It is necessary that we assess the effects of digitalisation on health and safety at work.

We have to be aware that work-related mental health problems, which are caused by constant accessibility and the erosion of traditional working time arrangements (for example burnout),

represents a serious risk for workers. There is a big demand for studies to be produced on the spillover effects of digitalisation, such as greater labour intensity on workers' psychological wellbeing and family life, and on the development of cognitive abilities in children.

And we have to focus our attention on the new working relations between humans and robots. On the one hand, robots provide opportunities for removing burden and providing backing for the inclusion of older and physically or mentally impaired workers. But on the other hand, we don't have enough experience to estimate the effects on the workers and on their mental well-being.

Social security system

The growth of new, non-standard forms of employment caused by digitalisation implies that a growing share of the workforce does not contribute to or benefit from established social security systems such as public unemployment, health and pension insurance. In some Member States this is already the subject of debates between social partners and governments. Combined with the decline in overall employment rates, such developments may erode revenue for, and thus the overall effectiveness of, established tax and welfare regimes that rely on revenue mainly generated through levies on wages and systems of employer-employee co-financing, and therefore depend on high rates of standard employment.

This loss of effectiveness would pose serious threats to the fabric of the European social model, which is built on strong public engagement in the financing and provision of services of general interest and effective social security nets. However, successfully mastering the process of digitalisation is largely dependent on the

effective provision of services of general interest, such as modern education systems and broadband infrastructure.

So we have to call on the Member States to ensure adequate social security for self-employed and freelance workers who are key players with regard to new forms of employment. They have to find ways to develop social security systems, together with the social partners and in accordance with national law and practice, in order to provide better social protection, particularly with regard to pensions, disability, maternity/paternity, sickness and unemployment.

Conclusion

It is impossible to hold back the digital revolution, but it is definitely possible to shape it. Digitalisation is not only a technical issue; we need to have the employment and social policy included in the Digital Agenda.

We need an assessment of the impact that digitalisation will have on the number and types of new jobs, and we need information on new forms of employment, for example crowdsourcing and crowd working.

Job and skills become more complex in the digital world of work. This means that regarding education and skills, we need a new system of training and further education. We need to have institutionalised life-long learning. The social dialogue must play an important role in bringing course content up to date and developing skills strategies.

The digitalisation-driven trend towards more flexible working practices may also see a rise in precarious forms of employment.

We have to ensure that this doesn't result in an attack on social security, working time, working location, worker participation and employment protection.

Self-employed persons with quasi-employee status should have equal footing under employment law.

Labour rights such as freedom of association must apply in the context of new forms of employment. And we need to develop employee data protection measures which cover new forms of data collection.

Last but not least, Member States and the social partners have to find new ways to establish social security for self-employed persons and also to protect the effectiveness of existing national systems.

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Since May 2011, Oliver Roethig has been the Regional Secretary of UNI Europa, the European service workers union with 7 million members. He is also a member of the ETUC Executive Committee and was a member of the Commission's High Level Group on Business Services. Digitalisation and the future of work is one of the key priorities of UNI Europa.

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Torben Schenk currently works as a policy adviser to a Member of the European Parliament. Previously, he was employed by UNI Europa where he focused on policy issues relating to the EU single market and digitalisation. The views presented in this volume are informed by Torben's work for UNI Europa.

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