

**JOURNAL FOR A**

#07 - JANUARY 2016

ISSN 2295-6301

# PROGRESSIVE ECONOMY

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The  
**TECHNOLOGICAL  
REVOLUTION**



PROGRESSIVE  
ECONOMY

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**The Progressive Economy Initiative was launched in 2012  
and is supported by the Socialists and Democrats Group in  
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# WHAT IS PROGRESSIVE ECONOMY ?

**P**rogressive Economy is an initiative launched by the S&D Group in the European Parliament in 2012 with a major objective: to generate a truly public and informed debate on **economic, social and environmental policy** at national, European and global levels and actively promote progressive thinking at academic and at political levels.

Initially a purely economic initiative, the scope has broadened to encompass the idea of sustainable development. We focus on the interplay between economic, social and environmental policies and how they work together in our progressive vision for Europe's economy.



### Generating ideas

In order to achieve this we organise **internal workshops** exploring the key issues in these workstreams, bringing together leading progressive academics, experts and politicians, both in the European Parliament and in national capitals across Europe. Alongside this we organise a number of **public conferences**, our largest being the **Annual Forum** which is attended by hundreds of people and webstreamed by thousands. We commission the **Independent Annual Growth Survey** to be carried out by renowned economic institutes. It gives our political group a sound and credible basis with which to discuss the Commission's Annual Growth Survey. We also produce a quarterly **Journal** meant to promote and publicise progressive ideas and have an active online presence through our website, Facebook and Twitter pages.



### Scientific Board

Alongside our political network we have built a large **academic network**, led by our Scientific Board, which is co-chaired by Jean-Paul Fitoussi and Joseph Stiglitz. This network is always expanding, with more academics with expertise in sustainability and social issues joining as we widen the scope of our work.



### Parliamentary network

Through our work we have built and continue to build a **parliamentary network** of progressive MEPs and national MPs across the Member States of the EU. Through this we aim to strengthen the political cooperation between European and national parliaments to deepen the democratic input into European economic, social and environmental governance.



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# FOREWORD

by the **PRESIDENT** of the  
**S&D GROUP**

Dear friends,

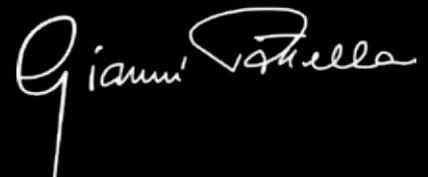
Welcome to this, the seventh edition of the Journal for a Progressive Economy, focusing on the technological revolution.

European societies have constantly been confronted with change, upheaval and revolution. The huge challenges we currently face; from terrorism, the effects of the financial crisis and the ongoing and urgent migrant crisis; must be overcome with our European and social values intact.

Similarly, as Europe and the rest of the world are swept up in the ever-evolving digital and technological revolution, we as Socialists and Democrats must ensure our values are at the heart of change. Advances in technology can be a huge opportunity for us to breathe new life into the European economy and reduce unacceptable levels of unemployment across the continent. But we must also be aware of the way that the technological revolution will change the nature of work, and make sure the right safeguards are in place to protect and support workers in this new labour market.

This edition of the Journal has been edited by my colleagues Maria João Rodrigues MEP and Josef Weidenholzer MEP, both Vice Presidents of the S&D Group. Maria and Josef begin the Journal with a discussion on the technological revolution, and have chosen a selection of experts from academia and European and national politics which should spark debate and bring new ideas to the table. I hope you enjoy reading it and continue to follow the work we are doing towards building a fairer, more sustainable progressive economy.

Best wishes



**Gianni Pittella MEP**  
*President of the S&D Group in the European Parliament*



## MARIA JOÃO RODRIGUES

MEP, S&D Group Vice-President  
in charge of economic and social policies

**M**aria João Rodrigues MEP, S&D Group Vice-President in charge of economic and social policies, was Minister of Employment in Portugal and has been a policy maker working in several posts in the European institutions since 2000, including in the leading teams of several Council Presidencies. The main outcomes she has been working for include the EU Strategy for growth and jobs, the Lisbon Strategy followed by the Europe 2020 Strategy, the EU agenda for globalization and the strategic partnerships with the USA, China, Russia, India and Brazil for a new growth model, the development of employment, education, innovation, research, regional and industrial policies, special EU initiatives: the new Erasmus for mobility, New Skills for New Jobs, the responses to the euro zone crisis and the final negotiation of the Lisbon Treaty.

In academic terms, she was professor of European economic policies in the European Studies Institute - Université Libre de Bruxelles and in the Lisbon University Institute. She was also the chair of the European Commission Advisory Board for socio-economic sciences.

She is author of more than one hundred publications, notably the books:

***The New Knowledge Economy in Europe – A Strategy for International Competitiveness and Social Cohesion***, Edward Elgar: Cheltenham, UK and Northampton, MA, 2002.

***European Policies for a Knowledge Economy***, Edward Elgar: Cheltenham, UK and Northampton, MA, 2003.

***Europe, Globalization and the Lisbon Agenda***, Edward Elgar: Cheltenham, UK and Northampton, MA, 2009.

***Europe is Still Possible***, Xlibris-Penguin Group, UK and USA, 2013.

***Eurozone Crisis and the Transformation of the EU Governance***, edited with Eleni Xiarchogiannopoulou, 2014



## JOSEF WEIDENHOLZER

MEP, S&D Group Vice-President in charge  
of the digital agenda

**J**osef Weidenholzer, born in 1950 in St. Florian/Inn, is an Austrian Member of the European Parliament. As a member of the *Committee on Civil Liberties, Justice and Home Affairs* (LIBE), he concentrates on digital issues, including privacy, net neutrality and data protection.

Mr. Weidenholzer is Vice President of the *Progressive Alliance of Socialists and Democrats* (S&D), responsible amongst other things for the *Digital Europe Working Group* (DEWG) and he is a member of the steering committee of the "*Digital Agenda for Europe*" intergroup within the European Parliament. In addition, Mr. Weidenholzer is concerned with the issue of immigration and refugees, both in the context of LIBE and his membership in the *Subcommittee on Human Rights* (DROI). Given his academic background as a professor for sociology at the Johannes Kepler University (JKU) in Linz/Austria, his scientific priorities are social policy, the theories and international comparison of welfare systems, as well as political cultures and history. After several lectureships in Europe and overseas and research stays in the UK, Mr. Weidenholzer was visiting professor at the Staffordshire University. He has been professor emeritus since 2015 and he is a member of the advisory board of the scientific open access journal *Momentum Quarterly*.

## DISCUSSION WITH MARIA JOÃO RODRIGUES AND JOSEF WEIDENHOLZER, VICE-PRESIDENTS OF THE GROUP OF SOCIALISTS AND DEMOCRATS

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**S**ome years ago, the EU set being the most competitive knowledge-based economy in the world as an objective; where are we now? Did we miss the technological revolution, compared to the US and emerging markets?

**MJR:** In 2000, the European Union did indeed adopt this goal of becoming a high-level, competitive, knowledge-based economy. I was involved in this, and the idea was to make knowledge a new source of competitiveness, leading to more and better jobs. Now there is a very new revolution, the digital one; this means that knowledge can be introduced almost everywhere. This will have a big impact on all of us; we will be surrounded by smart objects and services. This will take place in our working places, in our cities, in our homes and even leisure time. This means that there is a very strong potential to make the best out of human knowledge. Therefore the digital revolution should be used in Europe to make the best of human knowledge in order to improve the quality of goods, services and jobs.

**JW:** Europe absolutely has made some progress towards the aim of becoming a knowledge-based economy, but we still lag behind. We are not the US in regard to the digital economy. However, that does not mean that we have to copy the US in order to catch up. Europe needs to become a technology leader by creating its own rules. These have to include high standards of data protection, privacy and modern copyright rules, in order to guarantee our competitive edge and real innovation. At the same time, we must streamline the technological and regulatory processes at a European level in order to not bring unnecessary delays in the roll-out of new technologies. We cannot afford to have different national regulations that are not interoperable if we want to ensure a working digital single market.

**MJR:** I completely agree that we should not simply copy the US, because the digital revolution should be aligned with our way of life. And our way of life in Europe is different from the American way of life. For example we are much more concerned with sustainability. Digital technologies can be used to improve sustainable systems; in energy, in environment, in welfare, and so on. So I believe that this will lead to new digital solutions. Europeans can invent new digital solutions, because our starting point is our way of life which is different from the American one.

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**H**ow are Socialists and Democrats across Europe managing the technological revolution? Are we equipped to face this challenge?

**JW:** In general, Socialists and Democrats have a positive outlook on the technological revolution. Progress is on everyone's agenda. However, there are differences between Socialists and Democrats across Europe on how to handle the changes. We can discern national preferences that put different emphasis on the different aspects of data protection,

innovation and economic growth. For me, the citizens' right to privacy is paramount. Innovation should not rely on utilizing our data, but on protecting it. We as Socialists and Democrats need to find common principles for managing the technological revolution, so we can shape it in a way that reflects our values.

**MJR:** I would like to add that we also need much more investment in order to reach the full potential of the digital revolution. That's why we have been pushing the Investment Plan for Europe in the European Parliament. Another area where the Socialists and Democrats are working hard is the area of skills and education, because new jobs connected with new digital solutions of course require a completely different set of skills. That is why we need to ensure that all citizens will be equipped with basic digital skills, providing a solid basis for learning more advanced skills.

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**M**any have talked about the risks to employment posed by robots, automation and crowdsourcing of work - what are the risks and how can they be mitigated?

**MJR:** Yes, we need to recognise this risk. The digital revolution can also destroy many jobs. Jobs that will no longer be necessary because human tasks can and will be replaced by digital activities. Nevertheless digital technologies can also create new jobs in new areas. In the first place jobs in the digital field, because we need to make the best use of the solutions that digitalisation can give us. Secondly, there are some tasks we cannot digitalise. For example in the area of creative industries, because creativity remains ultimately a human activity. A second example

would be in all kinds of care services; human relationship is crucial and cannot be replaced, even if we have robots to assist people at home. Nevertheless we should also be prepared for the possibility of a kind of growth which is less job-intensive; we should discuss how we can share the available jobs amongst citizens, improving work-life balance for everyone.

**JW:** On the one hand, robots and automated processes are a key factor if Europe wants to compete globally, and if we want to bring industrial production back from overseas. On the other hand, there will be a shift in the employment sector away from manual work, towards skilled digital tasks. The problem we face is the question of how do we ensure that people losing their jobs to robots can be trained to fill the open positions in the IT sector. For the progressive forces in Europe addressing this skill gap has to be a central pillar of handling the technological revolution.

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**O**thers are very positive about the potential for the technological revolution to increase job creation and promote economic growth. Is this a true gold mine or just a chimera?

**JW:** There is no doubt that the IT sector creates new jobs. The numbers are impressive with two digit growth rates. However, as mentioned before, other jobs will be lost. We have to be aware of these developments in order to address them. The topic has also to be acknowledged in the education sector, in order to ensure that young people leave school and university with the necessary IT skills.

**MJR:** Making an accurate estimate is really hard here, but yes, the digital revolution can lead to overall job creation in some circumstances. First of all because it enables companies to become more competitive in the sector where they are operating. Secondly because digital solutions will allow us to address new needs, it will allow us to invent new products and new services and this

is very important. The technological revolution is not only about processes, production of existing things in a more effective way. It is also about launching new products and new services, and this can indeed create many new jobs.

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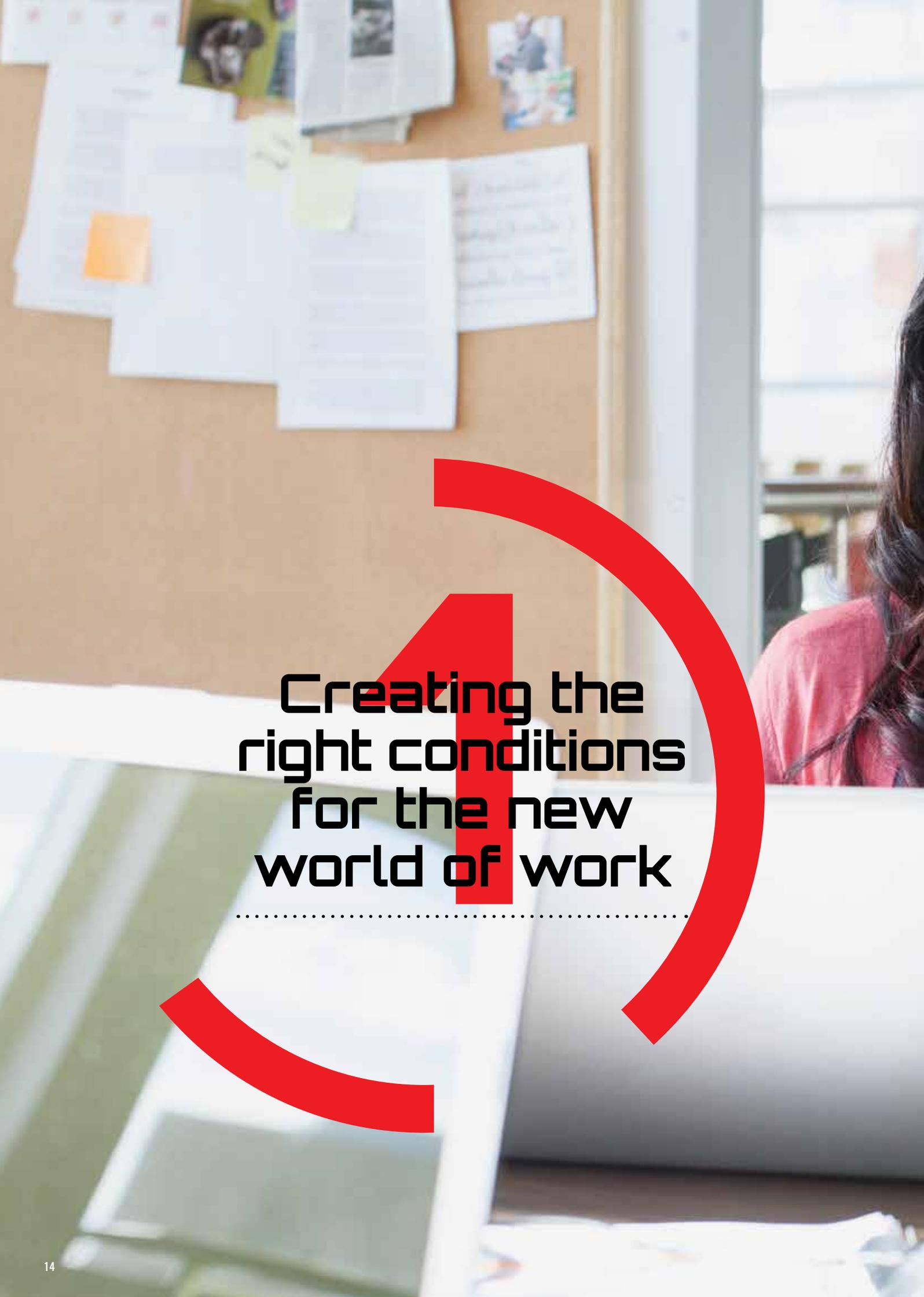
**H**ow can we ensure that all parts of society can participate and benefit from digitalisation? Are there currently age, gender and socioeconomic gaps that need to be addressed?

**MJR:** Indeed this is our major concern as Socialists and Democrats because the risk of a digital divide is there and can increase over time. We could reach a situation where citizens, regions and companies are left behind and we need to fight against this. That's why we need to have inclusive policies to promote the digital revolution. First we need to make sure that everybody can have access to the necessary skills. Second we have to make sure that all regions are connected with broadband internet and can have access to all services provided by internet. Third we need to make sure that all companies have a real chance to modernise themselves. We need to invest financial resources so that we in the European Union can make the best of the digital revolution; this is really a precondition for us to have a digital revolution which is also creating new opportunities for all.

**JW:** I agree, it is important that all members of society have access to the benefits of digitalisation. As in other sectors where there exists a gender gap, tailored programmes and projects should encourage girls to pursue an IT based career. Similarly, we should make access available for older people as well. Because medicine and care are two sectors where digitalisation will bring major changes, older people do need some basic digital skills. At the same time, developers need to adapt hardware and software to incorporate the needs of the elderly. With further developments in network infrastructure and hardware and with the competition in the digital single market, access to the internet should become affordable to all members of society. However, this access has to be underlined by legislation for an open and free internet. Special fast lanes for those who can afford it are not acceptable.

**MJR:** What you just mentioned on net neutrality is very important, we do need to make sure that everybody can benefit from the digital revolution. The same way in the past we had targeted access to education and to culture, this is something equivalent. Otherwise it could become a major factor in increasing social inequality, and we are very much against this ■





**Creating the  
right conditions  
for the new  
world of work**

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# WORKING CONDITIONS in the **digital age**

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*by Andrea Nahles*

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In the past two decades, information technology has significantly changed our lives. We see a new generation of technological innovations – from Big Data to mobile internet to 3D-printing – being translated into new business models. In our private lives we enjoy online shopping and “on demand” services and products. The so-called “digitalisation” currently underway has significant implications for the way we work. Even more: work is proving to be a key locus of this transformation. Although many scholars, conferences and media outlets have taken up the issue, the picture of the future world of work is still quite foggy.



**ANDREA  
NAHLES**

**German Minister of Labour  
and Social Affairs**



## Technology alone will not create good jobs for everyone.

To help understand and shape the future world of work, the German Federal Ministry for Labour and Social Affairs launched the Dialogue Process “Work 4.0” in April 2015. We want to exchange ideas about the future of work with experts from academia, business associations, and unions, with practitioners, and with the public at large. To get the ball rolling, my ministry has published a Green Paper Work 4.0 outlining the major challenges. This paper is the basis for the discussions we are currently having with all key stakeholders. In late 2016 we will bring together the

results of these discussions in the form of a White Paper. While I am aware of the risks, I am also interested in the opportunities digitalisation offers for our economy and for employees in Germany.

At this point, we have come to realise that technology alone will not create good jobs for everyone. I believe that a successful transformation towards a digitalised world of work may offer enormous economic and social benefits. However, the process is not a matter of course: it must be shaped by all stakeholders. Particularly unions and

**A**ndrea Nahles, Member of the German Bundestag, is Minister of Labour and Social Affairs. The literary scholar attracted nationwide attention for the first time when she was elected Federal Chair of the Young Socialists in 1995. In 1998, she joined the German Bundestag. From 2009 to 2013, she was leading the SPD as Secretary General. She was born in Mendig in 1970 and lives with her husband and her little daughter in her home country, the Eifel region.



employer associations have to play a central role in shaping the working world of tomorrow. Today - wherever possible - workers' councils and unions on the one side, and companies and their associations on the other, find socially and economically viable compromises. That is not always without friction, but it has stood the test of time and guaranteed innovation and prosperity.

In my view, the current debate on the future of work raises four crucial points on creating the right working conditions in the digital age:

**First point:** At the moment, the public debate is split between the argument that we are facing the "end of work" and fears of a shortage of workers and skilled labour. A much-discussed Oxford University study on the automation of jobs suggests that almost one in two jobs in the US are in danger of disappearing over the next ten to twenty years as a

result of automation. But there are also other studies that suggest the exact opposite. The "end of work" has been repeatedly predicted in the past, and in all probability work will not come to an end this time either. Reality has so far always proved such predictions wrong. The digital economy is creating diverse new employment opportunities. And with the help of technology and new working arrangements, it offers new chances for improvement in the labour force participation of certain groups, such as people with disabilities or people -who have to juggle work and family commitments in a difficult life phase. Therefore, it is also possible to see the technological potential of machines and algorithms as an opportunity. Auxiliary robots can reduce monotonous, unhealthy and highly strenuous work and maintain peoples' employability. It might even be a competitive advantage for high-wage countries. This is a defining moment: we need to come up with

forward-looking ways in which the innate capacities of human beings - namely creativity, empathy and judgement - can be sensibly combined with what new technologies offer, so that in the end human beings remain in the driving seat and shape their own work for the better.

**Second point:** The digitalisation of work entails greater demands regarding people skills. In tomorrow's world of work, the right training is needed for workers to keep pace with the development of technology. In manufacturing, for instance, IT and engineering are fusing. To meet these new requirements, we need more opportunities for counselling on further training throughout a worker's entire working life and better access to further training, especially for low-skilled and older workers. In other words, preventive support is likely to be necessary not just when the risk of unemployment looms, but also at a far earlier stage, with regard to professional flexibility and continuing vocational education and training.

**Third point:** Digitalisation breaks down the space, time and organisational boundaries of work. This has a significant impact on how we conceive and organise work. We are seeing borders disappear: between work and leisure time, between dependent employment and self-employment. Flexible and mobile work arrangements provide greater freedom and self-determination and make it easier to reconcile work and private life. At the same time, there has been a change in companies' time requirements. Just-in-time production and globalisation are increasing the pressure on businesses to make more flexible use of labour. In many companies, employees are now expected to think and act in an entrepreneurial manner. Performance is now often judged by results, rather than the work involved. This can result in work intensification and time-related stress. There has been an increase in people working in the evening, at night and at the weekend. For many employees,

having more flexible work schedules does not mean that they gain more freedom, but rather that it is harder for them to plan their working hours and leisure time, and that they have to be reachable even outside their standard working hours. Corporate mechanisms and collective agreements offer scope for tailor-made solutions, but they are not universally applicable. Therefore, we need a new definition of what constitutes a standard employment relationship. To this end, the social partners and policy-makers should strive for a new compromise on flexibility that enables workers to use working-time models based, for example, on a life-phase approach.

**Last Point:** In the context of the growing digitalisation of the economy and the world of work, many people are predicting a further rise in solo self-employment, which has already increased significantly in recent decades. Also phenomena such as crowdworking are being frequently discussed, often with reference to the United States. Less stable

The time where the "work of the future" could be conceptualised from a purely national perspective has long passed, because the companies in question are active around the world. A lot of them are borderless by nature. Many subsequent challenges set by these developments require supranational answers on a European level. The Digital Single Market strategy by the European Commission is a good start. It not only fosters European integration and worldwide competitiveness, but it is also necessary given the legislative competencies of the EU. All stakeholders must be actively involved in shaping the process of digitalisation - not just policy makers but also, and above all, the social partners - on all levels.

Because, in the end, it comes down to a question of remaining economically and technologically successful, but also of maintaining our European social and societal values. I am hopeful that digitalisation can offer Germany and Europe the opportunity of new and

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## All stakeholders must be actively involved in shaping the process of digitalisation.

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work histories pose a challenge for our social insurance systems. Gaps in people's work histories can put them at risk of not having an adequate income in retirement. Therefore, we have to examine how existing social insurance law applies to these forms of work, and what new responses to this transformation should be developed. This applies both to social protection for gainfully active persons and the financial viability of the individual social security system.

better jobs. But it is important that we foster these better jobs, and that we make sure that nobody falls by the wayside in the process. The point is to proactively shape the social conditions and rules of play of the working society of the future on the basis of the guiding principle "good work". Because healthy, secure and fairly remunerated work is the best foundation for innovation and competitiveness ■

# The **changing nature** of **work** in the **technological age:** **THE CASE OF ADVANCED COUNTRIES**

*by Iyanatul Islam*

**C**oncerns about the changing nature of the world of work are happening at a time when there is considerable disquiet about future prospects at the individual and household level. Thus, global surveys of public attitudes by the renowned Pew Research Center suggest that the majority of those surveyed in advanced economies (65%) ‘...think children in their country will be worse off financially than their parents’. More than half of the respondents worry a lot about growing inequality, but well over 70% worry a lot about lack of appropriate job opportunities.<sup>1</sup>

Such disquiet about the future is happening at a time of lack of growth and lack of jobs, especially for young people, in various parts of the developed world. High unemployment and sluggish growth can, at least partially, be explained by current economic policies, with their emphasis on fiscal consolidation programmes. But current policies have future ramifications, given that there is path dependence: slow growth today stymies growth tomorrow; high unemployment leaves ‘scarring effects’ that can last for decades, especially among young people. Hence, one of the ways in which governments in advanced economies can shape the future of employment is to review and revisit their fiscal consolidation programmes. Beyond that, there are, of course, broader structural issues, in particular the role that technological innovations play in shaping employment prospects for the future across industries, occupations and countries. It is this particular issue that is the subject of discussion for this article.

The potential scope of automation – driven by computerisation and intelligent robots – has increased significantly in recent years and will continue to do so. Not surprisingly, this is changing the world of work in advanced economies. New evidence compiled by Bruegel



<sup>1</sup> <http://www.pewglobal.org/2014/10/09/emerging-and-developing-economies-much-more-optimistic-than-rich-countries-about-the-future/>

“ ... the majority of those surveyed in advanced economies (65%) ' ... think children in their country will be worse off financially than their parents'. ”



**IYANATUL ISLAM**

**Chief of the Employment and Labour Market Policies Branch at the ILO in Geneva**

Iyanatul [‘Yan’] Islam currently holds a director-level appointment at the International Labour Organization (ILO), Geneva, Switzerland with supervisory responsibility as Chief, Employment and Labour Market Policies Branch, Employment Policy Department, ILO Geneva.

He is also Adjunct Professor, Griffith Asia Institute, Griffith University, Brisbane, Australia.

Prior to joining the ILO in November 2008, Yan held the position of Professor of International Business, School of International Business and Asian Studies, Griffith University, Nathan Campus, Brisbane, Australia. He is an international development economist educated at Manchester [Bachelor of Arts in Economics, First Class Honours and Richard Cobden Prize Winner], Western Ontario [Master of Arts in Economics], Cambridge [PhD, Economic Development]. Since the mid-1980s, he has worked as an external expert for the ILO and, on some occasions, for the UNDP. He is the author and co-author of more than 100 publications consisting of refereed journal articles, books and edited volumes, book chapters, working papers, policy reports (principally for the ILO) and commentaries in leading on-line journals (voxeu.org and Social Europe Journal). He is one of the founding editors of the *Journal of Asia-Pacific Economy* [Routledge, London and New York].



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## “ This process of automation is exacerbating inequalities within the labour market...

... as the traditional employer-employee relationship comes under threat in the future, upholding core international labour standards becomes even more relevant. ”

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for Europe suggests that a significant share of jobs in many industries in Europe is at risk of being replaced by labour-saving technology. The numbers range from 47% to 62%. In the USA the corresponding number is 47% as estimated by some studies. Within certain industries, the numbers are even higher. For example, in accommodation and food services, the probability of jobs (as currently defined) being replaced by labour-saving technology is as high as 87%. In other cases, such as in educational services, the employment risk is a moderate 17%.<sup>2</sup>

The prospect of ‘machines killing millions of jobs’ is real; it is also industry-specific even within the same country. This process of automation is exacerbating inequalities within the labour market - often referred to as the phenomenon of ‘polarization’. The job distribution becomes bi-modal, with large shares of employment opportunities concentrated in the low education-low wages segment and high wages-high education category resulting in a hollowing out of middle-class occupations.

There are of course prominent scholars who question whether automation will lead to large-scale job losses.



A good example of this critical view is MIT scholar economist David Autor. He maintains that the ‘...extent of machine substitution for human labour’ has been exaggerated because ‘...the challenges to substituting machines for workers in tasks requiring adaptability, common sense, and creativity remain immense’. He draws on company-specific examples of global icons (such as Google, Amazon) to buttress his case. More

importantly, he suggests that the labour market woes pertaining to the

US (and, by inference, other advanced economies), such as lack of good jobs, polarization and so forth might be driven by factors other than technological change. He speculates that ‘...the deceleration of the U.S. labor market after 2000, and further after 2007, is more closely associated with two other ...events. A first is the bursting of the dot.com bubble, followed by the collapse of the housing market and the ensuing financial crisis, both of which curtailed both investment and innovative activity. A second is the employment dislocations in the U.S. labor brought about by rapid globalization, particularly the sharp rise in import penetration from China following its accession to the World Trade Organization in 2001.’<sup>3</sup>

### LESSONS LEARNT

What have we learnt so far? The state-of-the-art evidence suggests that, at least in advanced economies, the process of automation is likely to put significant shares of jobs in different industries at risk of being replaced by highly productive, labour-saving technology. Of course, new industries and occupations have emerged – and will

<sup>2</sup> [http://www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf)

<sup>3</sup> <http://economics.mit.edu/files/9835>

continue to emerge - to at least partially compensate for such prospective job losses, but the experience from the US, the global leader in such new industries and occupations, suggests that the employment share in new industries is rather small, amounting to no more than 0.5% of the US work-force. Hence, relying passively on the private sector to resolve the risks of joblessness in the future will not be enough. This is where a renewed commitment to full, productive and freely chosen employment is essential. This will respond to growing global concerns about economic disparities and lack of good jobs. Furthermore, as the traditional employer-employee relationship comes under threat in the future, upholding core international labour standards becomes even more relevant. There should be continued commitment to maintaining comprehensive social protection systems as well as the appropriate skilling of the work-force. The aim is to strike the right balance between labour rights, economic security and the imperatives of the labour market ■

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# Platform labour: SHARING ECONOMY OR VIRTUAL WILD WEST?

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*by Ursula Huws*

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**E**ver since the implications of the ‘silicon chip’ for work first penetrated public awareness back in the 1970s, commentators have prophesied the end of the 20<sup>th</sup> century post-war model of stable, full-time, permanent employment. At first, attention focused on the deskilling effects of digitisation and the mass unemployment that might result from computerised automation. In the 1980s attention shifted to the potential of communications technologies to relocate employment in the form of teleworking. By the 1990s, when global telecommunications networks were in place and the Internet was born, the discourse opened up to encompass worries about offshore outsourcing of digitised services. Now, in the 21<sup>st</sup> century, there are similar fears: on the one hand, a resurfacing of concerns that the use of robots will destroy skilled jobs, and, on the other, apprehension about the implications of a development for which there is not yet even an agreed name: the exponentially spreading use of online platforms for managing work.

The variety of terms used to describe this phenomenon reflects a confusion in public attitudes. Phrases like ‘sharing economy’, ‘digital commons’ and ‘peer-to-peer networking’ reflect a Utopian vision in which the Internet enables individuals to connect with each other co-operatively, to provide each other with services (and, using 3D printing, even goods) for mutual advantage. For some idealists, this is even seen as a way to bring about a post-capitalist society. Others, using terms like ‘workforce on demand’, or ‘liquid labour’ see it as a way of creating a just-in-time workforce, sometimes described as a ‘human cloud’ or ‘crowd’, that is available on tap for specific tasks. Terms like

‘platform capitalism’ are new coinages that struggle to capture the character of an interconnected global economy in which labour is increasingly organised via open market-type relationships mediated by online platforms. Across all these different discourses runs a common theme: work is being changed irrevocably and new legal and political frameworks will be needed to accommodate these changes.

But how seriously should politicians take such prognoses? There have, after all, been four decades of scaremongering about the impacts of technological change on work. Yet on the whole, much



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## Work is being changed irrevocably and new legal and political frameworks will be needed to accommodate these changes.

‘crowdsourcing’ or ‘cloudsourcing’ link this concept to existing organisational practices of ‘outsourcing’ or ‘global sourcing’ whereby the world is scoured for the cheapest sources of appropriately skilled labour. Switching the focus from the needs of the corporation to the reality for workers, we find phrases like the ‘gig economy’, drawing on the experiences of workers in the creative industries to describe the reality of a working life made up of unpredictable hops from one short-term engagement to the next. At the aggregate level, ‘mesh economy’ and

employment has remained obstinately traditional in its form. According to Eurostat, only 15% of the European workforce is self-employed, a proportion that has changed little in decades. And less than 15% have a contract of limited duration. Might not this just be another case of crying ‘wolf’?

In my opinion, this time round we really are facing a sea-change in work organisation. This is not so much because an entirely new phenomenon is emerging (although it undoubtedly is) but precisely because

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Ursula Huws has been carrying out pioneering research on the economic and social impacts of technological change, the telemated relocation of employment and the changing international division of labour since the 1970s. She has directed a large number of international research projects in Europe, Asia, North America, Latin America and Australia and carried out consultancy for government bodies in Europe, Asia, North America and Australia. An internationally recognised expert on offshore outsourcing, she has authored many research reports for international and national government bodies as well as writing and editing books and articles aimed at more popular audiences. Her work has appeared in translation in a number of languages including Chinese, Swedish, German, French, Italian, Greek, Hungarian, Danish, Portuguese, Turkish, Spanish, Hindi, Japanese, Korean and Serbo-Croat. She is currently Chair of COST Action IS 1202, *the Dynamics of Virtual Work*. Her latest book, *Labor in the Global Digital Economy: the Cybertariat Comes of Age*, was published in 2014 by Monthly Review Press (see: <http://monthlyreview.org/books/pb4635/>)



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**By 2020 contingent workers will make up nearly half of all US workers and 11% of these will be working for on-demand platforms.**

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of the cumulative impact of all the other changes that commentators have been noting over the past forty years. Sector by sector, occupation by occupation, company by company, disparate trends have reached critical mass, converging to produce a kind of snowball effect in which each change induces others, with the potential for generating an avalanche.

What are these trends? One is standardisation, making it possible for processes and tasks to be counted and used to generate targets and performance indicators. Linked to this is modularisation, enabling work to be broken down into units that can be separated from each other spatially and contractually. Connected by

telecommunications and co-ordinated by online platforms, tasks can be mixed and matched in innumerable configurations, leading to the atomisation of a workforce that must adapt to ever-changing circumstances. Whether formally employed or not, workers must now keep their skills and CVs up-to-date and repeatedly 'pitch' themselves for new jobs, promotions, grants or opportunities to participate in short-term project teams. They are also increasingly expected to be available round the clock to respond to emails, text messages or app-generated notifications of new tasks that await them.

These are some of the trends that have been unfolding in the formal economy.

But the novelty of the current wave of online platform development is that it also encompasses informally organised work. In the past, cleaners and gardeners might have found work through word-of-mouth networks in their neighbourhoods, translators or proof-readers by using specialist agencies, plumbers by advertisements in the *Yellow Pages*, taxi drivers by obtaining official licenses to wait in designated ranks or creative artists by cultivating personal contacts with wealthy patrons. These are now swept aside. The customer's first port of call when looking for a worker is now most likely to be a Google search. Here, the highest ranked item is likely to be a global platform such as Uber, Helping, Elance or Freelancer. With their

<sup>1</sup> <https://medium.com/the-wtf-economy/how-big-is-the-gig-economy-e674c7986a28>

<sup>2</sup> [http://www.mckinsey.com/insights/employment\\_and\\_growth/connecting\\_talent\\_with\\_opportunity\\_in\\_the\\_digital\\_age](http://www.mckinsey.com/insights/employment_and_growth/connecting_talent_with_opportunity_in_the_digital_age)



traditional sources of work drying up, self-employed workers are increasingly driven into the arms of such companies. On the plus side, this makes it easier for new workers to enter these markets, many doing so in search of an additional source of income rather than as a main job. More negatively, freelance workers face new constraints. Quality is assessed based on customer ratings, specific to each platform, so carefully-nurtured personal reputations count for nothing. Tasks are more likely to be predefined and pre-costed than negotiated individually with clients. Cash-in-hand payments are a thing of the past and all activities are tracked electronically. If they need work, platform workers must remain permanently logged on, ready

to respond at a moment's notice to a request to 'accept' a new task.

Platform labour is growing exponentially. The Intuit management consultancy reckons that by 2020 contingent workers will make up nearly half of all US workers and 11% of these will be working for on-demand platforms.<sup>1</sup> McKinsey estimates that by 2025 'online talent platforms' could boost global GDP by 2.7 trillion US dollars.<sup>2</sup> Accurate figures are hard to come by because so far no definitions exist that can be captured in official statistics. In fact nobody is even clear what kind of legal entities online platforms are. Should they be regarded as markets, temporary work agencies, labour exchanges, social enterprises,

suppliers of services, advertising platforms, online directories or private employment agencies?

Determining their status will be a first step towards measuring their growth. But it is also a necessary prerequisite for deciding whether and how they should be regulated. How should their users be insured? How should disputes be arbitrated? Who is legally liable for verifying the credentials of workers and rectifying mistakes? Should accidents be regarded as issues of consumer protection, public safety or worker protection? What body should be responsible for inspection? How and in what circumstances should EU directives and national labour regulations be applied?

These are just a few of the regulatory issues raised by these developments. But platform labour also raises broader questions for policy makers: What kinds of social protection systems are suitable for workers who do not know from one hour, day or week to the next when they will next be working, and for how long? How can the rights of self-employed workers be brought into line with those of employees?

And, if platform labour spreads as quickly as predicted, what are the long-term implications of a situation in which a percentage of the cost of each transaction ends up in the coffers of a company which may be based on a different continent and is highly unlikely to be making any contribution to the cost of the worker's education, health, housing, childcare, pension or the infrastructure of the region where she or he lives? Maybe we should be looking for new ways to exploit the potential of online digital organisation to create local platforms in Europe that combine flexible ways of linking workers with clients while protecting these workers' basic rights and ensuring that the profits from their activities remain in their local economies ■

# TECHNOLOGY and LABOUR systems: The role of place-based EU impact finance instruments

by Eugenio Leanza, Gianni Carbonaro

## THE SPATIAL ARCHITECTURE OF THE EU LABOUR MARKET

The EU labour market operates mostly through a system of cities and towns, where Europeans live and work. This network of functional urban areas is undergoing dramatic changes due to the consequences of ageing, migration, disruptive innovation and globalisation, putting at risk a significant share of Europe's physical and human capital and calling for smart, adaptive investment.<sup>1</sup>

Since the latter part of the 20th century, employment in advanced industrial economies has increasingly relied on services and high-value manufacturing, while most traditional manufacturing has moved to emerging economies. For decades, service industries have been labour intensive and have created enough jobs – particularly in those urban areas that have succeeded in moving from traditional manufacturing to a diversified service economy – to compensate the employment losses in manufacturing.<sup>2</sup>

However, even these “urban winners” now face major challenges: many skilled service tasks can be increasingly performed by computers, robots and digital machines, while financial industry, health-sector and retail jobs are challenged by organisational reshaping and automation.<sup>3</sup> Moreover, in spite of



<sup>1</sup> For the role of place-based factor in job creation, see Moretti, E. (2012). *The New Geography of Jobs*. Houghton Mifflin Harcourt, New York.

<sup>2</sup> Spence, M. (2011). *The Next Convergence. The Future of Economic Growth in a Multispeed World*. Farrar, Straus and Giroux, New York.

<sup>3</sup> Brynjolfsson, E., McAfee, A. (2014). *The Second Machine Age*. W.W. Norton & Company.



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**A**fter working as a consultant and an academic in the United States, the UK and Italy, Mr Carbonaro joined the EIB in 1987. At the EIB he worked in multi-professional teams covering the economic and financial assessment of large-scale infrastructure and urban development projects, within the EU and the partner countries. In 2007 he joined the Bank's JESSICA Task Force (Joint European Support for Sustainable Investment in City Areas) and later was responsible for the Municipal and Regional Unit within the Advisory Services Department. He left the EIB in 2015 and is currently Fellow at QASER Lab, University College London.



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# Developing locally based investment instruments designed to provide tailored support to territorial labour systems is important for building resilience.

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the innovative content and potential efficiency gains engendered by the 'sharing economy', the rapid growth of internet retail platforms and remote/on-demand work is turning many previously solid, skilled long-term jobs into precarious ones. All this affects aggregate demand for traditional urban space and – if not addressed - the overall sustainability of western urbanized societies in terms of lasting economic growth, demographic reproductive balance and fiscal strength.

The "prime" labour market of Western cities is weakening. Even in the knowledge-driven high-tech economy of the US, which quickly overcame the Great Recession with heavy fiscal and monetary stimulus, participation rates and overall job creation in the 25-54 age group remain disappointingly low for both men and women. Raising a family becomes increasingly difficult, particularly for the younger generations of low-paid workers in American conurbations.<sup>4</sup>

Active policies to "re-shore" manufacturing productions have mostly not succeeded in re-importing jobs, as most of the latter have been substituted through automation and labour-saving innovations. For instance, the labour content of US exports went down around 17% in the past four years, even though more US companies expanded production inside America.<sup>5</sup> The reason for this reduction is most likely due to the

joint effects of automation-digitization, the system of incentives faced by investors - namely the low cost of capital and the structure of tax systems - and innovation biased against low-skilled jobs which are negatively affected, particularly in the industrial sectors. These trends support demand for highly trained, flexible elite and skilled workers, while the demand and compensation for traditional technicians and mid-tier workers, including in the service sector, suffer significantly. In addition, cities' job creation potential is under pressure from aggressive international competition for talent and mobile resources, which is accelerating urban growth and decline dynamics.<sup>6</sup>

Cities absorb most economic investment and achieve high per capita production. In situations of debt-funded growth, land price speculation and growing maintenance costs, urban GDP, often fuelled by expenditure in public infrastructure and amenities, is however a misleading performance measurement.<sup>7</sup> Over time, the traditional urban investment paradigm may lead to low flexibility, poor resilience and insolvency in case of economic shocks. In this respect, some of Athens's problems can be seen as the result of a past investment policy based on a continuous, poorly managed accumulation of physical investment into a capital-town, exacerbated by distortions in the capital and banking markets.

The prevalence in the long term of low interest rates as a way to stimulate a sturdily unresponsive economy may prove disruptive. The impacts of technology and the uneven transmission of central monetary policies create additional divergence in economic and employment performance: labour markets in Southern European cities and towns are particularly affected by the banking de-leverage, as the profitability of many investment projects in a low-growth environment cannot meet the banks' risk-weighted capital returns. The brain-drain of younger talents and specialised workers adds to the vicious circle of demographic decline, making attractive financial returns on private investment hard to achieve, while public investment is constrained.

Since the creation of the Euro, the spatial reorganization in Europe has accelerated to the advantage of job systems in the more productive regions, mostly in the northern "core" or even in new Member States. In the automotive sector approximately 17% of the overall car assembly capacity utilization has moved towards the industrial poles of Germany, the Czech Republic and Slovakia since 1999. These movements have an important impact on the structure and adaptability of European cities and territories. Increasingly, southern cities have to address an excess of obsolete

<sup>4</sup> Wolf, M. (2014). *The Shifts and the Shocks: What We've Learned-and Have Still to Learn-from the Financial Crisis*. Penguin Press.

<sup>5</sup> Tett, G. (08/01/2015). *US export economy fails to import jobs*. FT.

<sup>6</sup> Glaeser, E., Abha J-G. (2015). *The Urban Imperative. Towards Competitive Cities*. Oxford University Press. Oxford.

<sup>7</sup> Storper, M. (2013). *Keys to the Cities. How Economics, Institutions, Social Interaction, and Politics Shape Development*. Princeton University Press. Princeton and Oxford.

## NEW FINANCIAL INSTRUMENTS FOR QUALITY EMPLOYMENT

fixed capital, with high maintenance costs, ageing population and fiscal imbalances.<sup>8</sup>

Low interest rates are a powerful incentive to introduce capital-intensive production processes or to carry out extraordinary financial M&A operations, often with heavy implications on demand for labour and, in turn, for physical space. In this context, improvements in the *quality* of capital expenditure and how these are combined with labour and human capital resources are more relevant than the sheer size of investment.

Europe should try to improve the total factor productivity of its urban areas, a task which requires customised approaches to fostering city economies as integrated job systems. This requires institutional and governance innovations to enable proper capital allocation and the effective deployment of tailored “place-based policies”, allowing a better integration between technological opportunities and employment generation, for instance by embedding learning and human capital enhancement into technology implementation. In this context, expansion of EU public guarantees and incentives in favour of the private sector should be carefully thought through, given the risk of over-dependence on a financial system which has shown serious limits in its ability to allocate capital in a long-term perspective.

The power of monetary policy in boosting employment is limited, as is the scope for a robust coordinated European fiscal policy. Therefore developing locally based investment instruments designed to provide tailored support to territorial labour systems is important for building resilience into Europe’s economy.

A lot is in fact already happening spontaneously, given that universal banks undergoing severe restructuring are not in the position to reactivate sizable, well-functioning, and resilient job markets.<sup>9</sup> New players have emerged at the local level – territorial credit institutions, fin-techs, crowd-funding platforms, impact and circular economy financiers, time banking operators, complementary currency systems and the like, providing an increasingly important complement to EU financial markets. Furthermore, revolving financial instruments supported by EU Structural and Investment Funds are beginning to play a useful role given their ability to support socio-economically useful investments whose financial returns are too low for the private sector, particularly in a context of weak supporting macro-strategies.

Innovative “labour-focused” financial instruments can achieve greater employment creation effects than mainstream private investment. These vehicles should not invest exclusively in enterprises, but also very much in human capital and social inclusion. Employment-friendly investment strategies also require re-thinking how the “built environment” should develop. Enhancing the resilience of territorial job systems need not imply accumulation of further physical capital, but rather greater focus on energy and resource-efficiency and on maximising added value from labour. The new generation of EU-supported investment instruments should be highly customised to local conditions, as cities and regions differ in features, needs, sophistication, financial skills and institutional capabilities. This new approach should also include recruitment of specifically trained “place-based” impact fund managers and labour specialists as well as

development of new incentive structures for them, rewarding not only financial performance but also employment and environmental outcomes.

Having recourse to the EU Structural and Investment Funds, in combination with the European Fund for Strategic Investments, these impact finance vehicles could operate in situations where equity resources cannot normally achieve financial returns meeting market expectations, but where the impact on labour systems, the performance of investments and the professional expertise of fund managers can be coherently assessed by potential stakeholders (e.g. national pension bodies), taking into consideration the overall capacity to underpin the long-term impact of public and private investment in the local economy. Such labour-focused instruments would not be important only for the EU or the Eurozone peripheral countries, but could also be employed to address imbalances in the many “internal peripheries” of the “core countries”. Special vehicles could bolster job-creation and resilience in the distressed “banlieues”, or in those smaller centres drained by the attraction exerted by the capital-town magnets, where young people remain economically and socially marginalised.

In our view this innovative approach needs adequate EU political backing, at least in terms of research, organisation and pilot applications - in order to bring together different stakeholders and experiences, where long-term investors can engage in strategic impact investing to generate lasting employment in our cities and towns, finding common ground with the voluntary sector, charities and family/corporate foundations, in cooperation with the local communities ■

<sup>8</sup> Leanza, E., Carbonaro, G. (2015). *Socially Inclusive Urban Transformation after the Great Recession. Towards a New Civic Economy Model*. Human Smart Cities: Rethinking the Interplay between Design and Planning. Springer International Publishing AG, Cham.

<sup>9</sup> Reed, J. (12/11/2015). *Our Universal Banking Mistake*. FT.





# An equal revolution?

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# The **DIGITAL REVOLUTION** and **INEQUALITY:** HOW SHOULD **governments respond?**

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*by Henning Meyer*

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**“ Analytical and creative capabilities will, however, be the core ingredients of successful careers in the future. ”**

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**A**fter more than half a decade of debate dominated by the global financial crisis, we have recently witnessed a departure from this singular focus. Thomas Piketty started a global discussion about historical patterns of inequality and their negative repercussions. And looking to the future rather than back in time, *The Second Machine Age* by Erik Brynjolfsson and Andrew McAfee of the Massachusetts Institute of Technology showed how the digital revolution is about to transform our economic and social lives. The key problem for policymaking is that new technology-driven developments are almost certain to further increase existing inequalities and to create new ones at a time when, as Piketty has shown, we have already returned to historically high levels.

Labour markets in particular look exposed to the forces of progress because many ‘middle-class’ jobs will be vulnerable as a result of technological change, either through automation or as a result of more polarized global competition. A significant proportion of tasks embedded in white-collar jobs can and will be automated in the years ahead. Studying the structure of work in the US, Carl Benedikt Frey and Michael Osborne came to the conclusion that as much as 47 per cent of total US employment is at risk, while the equivalent figures for European countries, calculated by the Brussels-based think tank Bruegel, range from about 47 per cent in Sweden and the UK to 62 per cent in Romania.

The Pew Research Centre in the US canvassed almost 2,000 experts about their expectations for the coming decade. About half of the respondents think there will be significant job losses while the other half opined that job creation will compensate for the effects of the digital revolution. Although predictions about the end state vary, there seems to be little disagreement about the path we are on: there will be disruption and there is a significant role for public policy to shape this transformation.

There are big political problems on the horizon. When large parts of the middle classes are threatened with unemployment



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## “ A public job guarantee could be introduced so that everyone looking for a job could find one. ”

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through no fault of their own, the political pressure will rise. At a time when the political process is more and more focused on the short term and citizens feel more and more insecure, long-term policy thinking really has to develop convincing answers to channel the forces of change. I would like to make three suggestions as to what a framework for this kind of policy thinking might look like.

First, when jobs are replaced, job descriptions change beyond recognition and completely new types of work might arise, a proactive educational policy is essential. This is common sense and should lead to an immediate rethinking of educational policy. Much of today's standard education still relies heavily on committing facts to memory rather than on building analytical and creative capabilities.

Analytical and creative capabilities will, however, be the core ingredients of successful careers in the future, as they are transferable and can be applied to new contexts. At the very least, the digital revolution will demand that workers are more flexible and adaptable, and our educational systems need to reflect this much more than they do currently.

The second suggestion concerns the distribution of work. In a sense we are back in 1930 when John Maynard Keynes wrote about *The Economic Possibilities for our Grandchildren*. In his seminal essay, he predicted that economic progress would mean that, for the first time, future generations would be freed from taking care of pressing economic needs. He was certainly right about the degree of economic development but wrong about the 15-hour working week that he predicted. Keynes believed that with most economic needs fulfilled, people would opt for more leisure time rather than the diminishing marginal returns of increasing income. This has not been the case and inequality is an important part of the reason why.

One policy goal should therefore be creating the economic preconditions for and incentivizing the reallocation of work. Our lives are becoming more complex and the division between work and leisure is becoming increasingly hard to draw. Creating a framework in which work is distributed more efficiently would therefore be very welcome.

My third suggestion concerns people who cannot benefit from better education or a reallocation of work and still find themselves unemployed. In *The Second Machine Age*, Brynjolfsson and McAfee warn about defective aggregate demand in the economy as a result of high unemployment, but they stop short of making a direct policy recommendation. Instead, they suggest that the idea of a basic income should be revisited while acknowledging the fact that work also has important social purposes beyond simply earning a living.

Without going more deeply into the debate about the basic income, there are at least three major drawbacks to this solution. The first is the one acknowledged by Brynjolfsson and McAfee: work does not just generate income but is also a source of fulfilment

and self-esteem and an important part of our daily social interactions. This important function cannot be replaced in a change to 'handing out money' so that people can remain functional consumers.

The second aspect is that, by its usual definition, a basic income is paid to everybody, including the 'winners' of the brave new digital world, and therefore represents an inefficient use of scarce public resources. It is often said that money paid to the rich can be reclaimed through the tax system. This is easier said than done. If recent experiences with taxing the rich are a guide one can expect significant difficulties in reclaiming money, especially given that the tax system will already have to deal with new challenges as inequality becomes even more pronounced.

The third aspect is that a basic income is probably unviable in the European Union (EU) under the conditions of free movement and non-discrimination. There is no real evidence for welfare tourism in today's EU but if, say, Germany were to introduce a relatively high basic income why wouldn't people move to Germany to claim the free income if they have the legal right to do so?

A much more focused way of addressing unemployment would be to take the basic idea of the European Union's youth guarantee and apply its principles to the general labour market. There is no apparent reason why this principle and the various implementation lessons currently being learned across Europe – good and bad – cannot be transferred to the wider labour market.

A public job guarantee could be introduced so that everyone looking for a job could find one. This would concentrate public resources on the people most in need, preserve the social functions of work, and guarantee that people are protected not just from economic poverty but also from socially poorer lives.

There would be another public policy benefit as well: given that governments would guarantee employment, they could set incentives in such a way that hitherto underserved areas receive the labour injection they require. Against the backdrop of ageing societies, the whole area of old-age and health care, for example, is likely to require more workers in the future, and a public job guarantee could make sure that the supply of workers keeps up with rising demand. There is the added consideration that care and other personal services, as well as work depending on social capital, are areas that are less likely to be significantly affected by the digital revolution, and so represent an opportunity for sustainable employment and job growth.

We are only at the beginning of this discussion. Nothing is set in stone and the full implications of the digital revolution are yet to become clear. It is, however, imperative to think about sustainable policy solutions now, in order to be prepared to minimize the adverse effects and take full advantage of the extraordinary opportunities the digital revolution will undoubtedly bring ■

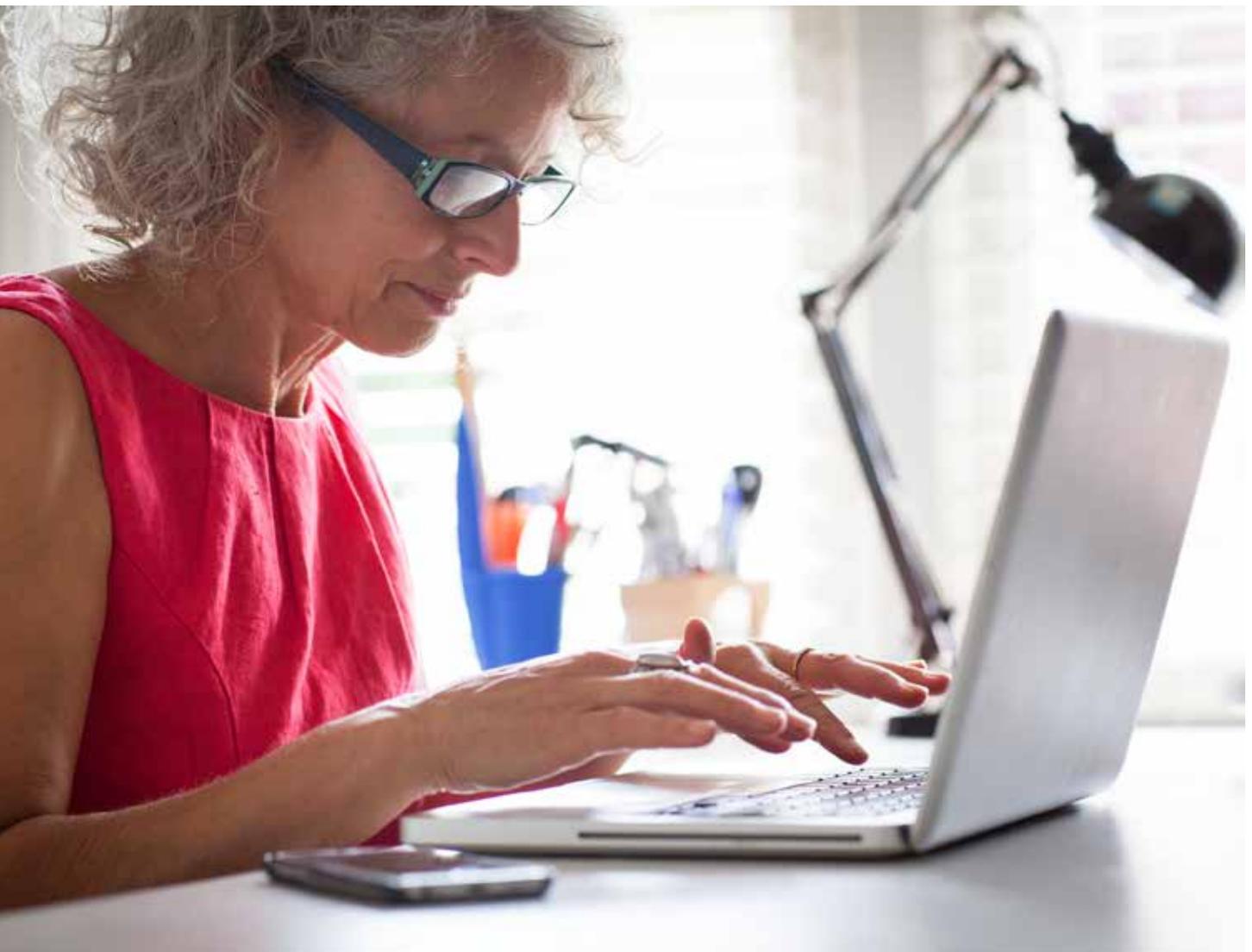
# Women

in the **TECHNOLOGICAL**  
**REVOLUTION**

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*by Chi Onwurah*

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**“ I am determined that we will not have to spend another quarter of a century with women locked out of science and engineering. ”**



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**F**ive years ago I entered politics for the same reason I went into engineering almost a quarter of a century earlier – I wanted to make the world work for everyone, not just a lucky few. I saw technology as progressive - enabling, protecting us, automating mundane chores to free our creative potential, building bridges and connecting people, the very definition of a ‘caring’ profession – what could be more caring than to ensure people had clean water to drink?

However I soon realised that such a perspective was an exception, particularly for a woman.

When I started at Imperial College in 1984 there were only 12% of women on my Electrical Engineering course. We were assured that we were the brave pioneers of what would be a huge wave of women - just as we had seen in medicine, law, accountancy.

Yet when I was elected to Parliament in 2010, the proportion of women studying engineering was exactly the same.

Parliament is the most diverse environment I have ever worked in. That surprises people because our representative body is

not known for its representativeness, but in comparison to technology it is a model of diversity.

As an MP, and now Shadow Minister for the Digital Economy, I am determined that we will not have to spend another quarter of a century with women locked out of science and engineering.

Britain is especially bad at attracting and retaining girls and women in STEM;<sup>1</sup> we have the lowest proportion of female professional engineers in Europe at 5.5% and only 1% of electricians are women. However Western Europe as a whole does badly, as a recent report from the British Computer Society shows.<sup>2</sup> In many emerging markets such as China, India

**F**rom Jan 2013 - Sept 2015 Chi was Shadow Cabinet Office Minister leading on cyber security, social entrepreneurship, civil contingency, open government and transparency. From Oct 2010 – Jan 2013 Chi was Shadow Minister for Innovation, Science & Digital Infrastructure working closely with the Science and business community, with industry on Broadband issues, and on the Enterprise and Regulatory Reform Bill. Chi continues to encourage women in STEM.

Prior to Chi’s election to Parliament in May 2010 she worked as Head of Telecom’s Technology at the UK regulator Ofcom focussing on the implications for competition and regulation of the services and technologies associated with Next Generation Networks.

Prior to Ofcom, Chi was a Partner in Hammatan Ventures, a US technology consultancy, developing the GSM markets in Nigeria and South Africa. Previously she was Director of Market Development with Teligent, a Global Wireless Local Loop operator and Director of Product Strategy at GTS. She has also worked for Cable & Wireless and Nortel as Engineer, Project and Product Manager in the UK and France.

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<sup>1</sup> Science, Technology, Engineering and Mathematics

<sup>2</sup> <http://www.bcs.org/upload/pdf/Women%20in%20IT%20scorecardv2.pdf>

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# “ If we are going to thrive in the face of challenges such as climate change, globalisation, an aging population and growing world population, we need to draw on the talents of all our citizens. ”

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and Nigeria, parents want their daughters to grow up to be engineers but here it is still seen very much as a male profession. When I asked ARM, the UK chip manufacturer, about their gender balance they candidly said the proportion of women was higher in its divisions outside the UK, especially India.

Female literacy in India is just 65% as against 82% for men so the fact that they are doing better than we are on ICT gender balance is particularly striking.

As a woman who did enter engineering, I have thought long and hard about the reasons for the continuing gender imbalance, and studied the many different and sometimes competing initiatives there have been over the years to address it.

There is good work going on - the Royal Academy of Engineering's 'How many engineers does it take to make a tin of baked beans'<sup>3</sup> is a great new resource; the Royal Society Wikipedia edit-a-thons<sup>4</sup> aim to blow more female STEM trumpets

and Engineering UK's Big Bang<sup>5</sup> celebrates science and engineering for everyone.

But on the negative side we have the increasing pinkification of girlhood and gender segregation of toys, sexualisation of young women, the everyday sexism experienced by girls and women and the rise of neurotrash, the sometimes publicly funded research which is presented as proving that male and female brains are just wired differently (they aren't).

So are we going to remain trapped in an all-male techniverse? That would be unacceptable for a number of important reasons.

Firstly there is the social justice argument. My career in engineering was both financially rewarding and incredibly satisfying: I worked all over the world, building networks which helped solve people's problems, enabling midwives to be called for pregnant women, farmers to know how much their products were fetching hundreds of miles away, businesses to share ideas across the



<sup>3</sup> [http://www.tomorrowseengineers.org.uk/\\_resources/documents/rae-how-many-engineers-does-it-take.pdf](http://www.tomorrowseengineers.org.uk/_resources/documents/rae-how-many-engineers-does-it-take.pdf)

<sup>4</sup> [https://en.wikipedia.org/wiki/Wikipedia:WikiProject\\_Royal\\_Society/Women\\_in\\_Science\\_Wikipedia\\_Edit-a-thon\\_at\\_the\\_Royal\\_Society,\\_March\\_2014](https://en.wikipedia.org/wiki/Wikipedia:WikiProject_Royal_Society/Women_in_Science_Wikipedia_Edit-a-thon_at_the_Royal_Society,_March_2014)

<sup>5</sup> [http://www.engineeringuk.com/The\\_Big\\_Bang/](http://www.engineeringuk.com/The_Big_Bang/)



world... Why should women be excluded from those kinds of opportunities because of cultural gender assumptions?

Secondly it is bad for our economic productivity. If we are to rebalance our economy, as we almost all agree needs to happen, if we are going to thrive in the face of challenges such as climate change, globalisation, an aging population and growing world population, we need to draw on the talents of all our citizens. As well as being overwhelmingly male, STEM professionals are much more likely to be white and middle class than the population as a whole.

It also impacts our global competitiveness in other ways. Studies, by McKinsey and others, show that more diverse companies are more successful and more resilient. That is common sense. We know that it is through exchange that human beings innovate and progress.

If everyone in a company or a sector is from the same background then that limits the creativity and resilience. The financial crisis should have taught us the dangers of group think.

And who knows what kind of tech we'd have if techies as a group were not so

very male. It represents a loss to society of the types of technology that might come from non-male minds. I do not hesitate to say that having a technology workforce more representative of humanity must result in technology which is more humane. All too often technology is imposed on us aggressively and before it is fit for purpose. That degrades the image of technology and reduces its potential.

And there is an additional, intangible, but hugely important loss: many of the challenges we face as a society – climate change, a population that lives longer and has more health needs, a world of seven billion people – many of these challenges have technology at their heart.

But we are handicapped in addressing them, because technology does not have a place in our hearts.

And technology will never have the position it merits at the heart of our society and economy if it remains the preserve of a narrow section of society.

A progressive future demands gender balanced technology ■

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**... more diverse companies are more successful and more resilient.**

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# Innovation in the digital single market

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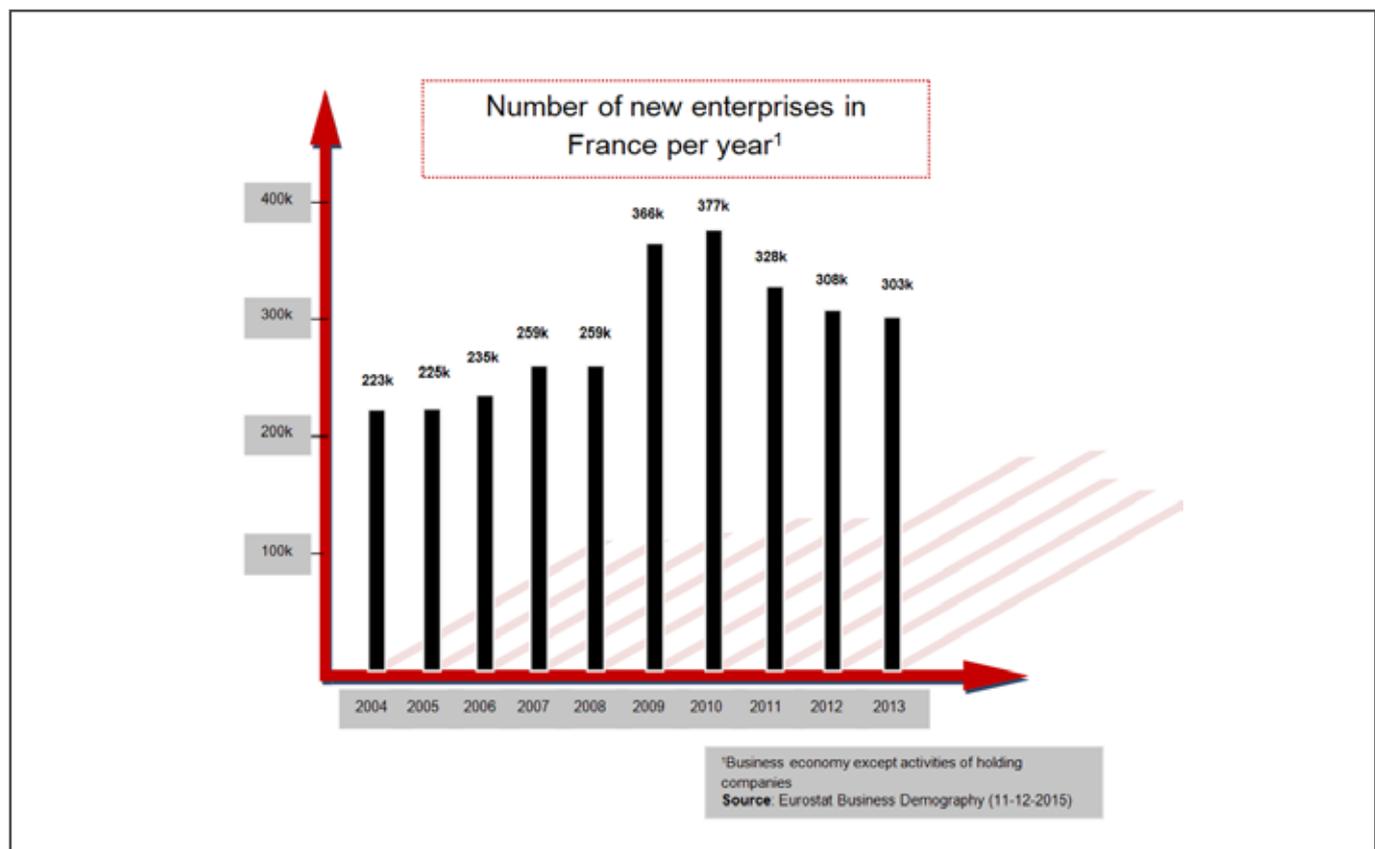


# Startups

as the **DRIVER**  
for **FUTURE GROWTH**

by Axelle Lemaire

**T**he digital economy releases innovation. Thus, it has become an important vector of growth in an economy in crisis. Unlike other industries, it does not require heavy investment, and a public computer is sufficient, in many cases, to develop a new service, which can then evolve in a flexible manner and scale without any difficulty.



“ Sharing, collaboration, innovation and technology must serve everyone, everywhere. ”

Short cycles of innovation, often driven by startups, have made the rise of a thriving digital economy possible, in just a few years' time, creating jobs and wealth. But beyond startups, the whole economy must be involved in the digital revolution. Open innovation will allow large groups, in exchange with nimble start-ups, to rethink their models and their products. By abolishing physical distances, digital tools can promote the visibility and foreign sales of SMEs and their products. Heavy industry must invent the factory of the future, optimize its production and improve its competitiveness. Local merchants should manage their presence on social networks.

I do not believe there is an old and a new world, those who adapt and those who have disappeared.

Sharing, collaboration, innovation and technology must serve everyone, everywhere.

It is necessary to promote socially responsible digital initiatives for everyone at once:

- To push startups to be more engaged in job creation, empowerment, ecology and ethics and not only when it comes to economy or tax claims;
- To encourage associative actors, social enterprises and NGOs to better use digital technologies by applying the methods of startups, their tools and their modes of operation;
- To support the diverse ecosystems in their cooperation efforts to sustain exchange, openness and serendipity.

This will be the only way to create a brand new model of growth together. Sustainable, responsible and dedicated to human development ■



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**AXELLE LEMAIRE**  
**French Minister of State for Digital Affairs**

**A**xelle Lemaire has been the French Minister of State for Digital Affairs since April 2014. She calls her current position the “portfolio for imagination”.

Born in Canada in 1974, she studied political science at Sciences Po in Paris and law at the Sorbonne and King's College London. She worked as a researcher and international lawyer before entering politics as a parliamentary assistant in the House of Commons.

In 2012, Axelle Lemaire was elected to the French National Assembly to represent the French diaspora living in Northern Europe. As Secretary of the Law Committee and a member of the European Affairs Committee, her main areas of interest were the digital society and digital economy, the protection of human rights and gender equality, and European politics.

The mother of two children, Axelle enjoys reading, running, and travelling.

“ ... startups, have made the rise of a thriving digital economy possible. ”

# How **STARTUPS** are **disrupting** the **nature** of **BUSINESS** and **WORK** in the **technological age**<sup>1</sup>

*by Isidro Laso Ballesteros*

“This new startup is selling courses below the production cost. This is dumping and the Commission should file an antidumping case”. This is a comment I received three years ago from the dean of one of the top universities in Europe. One year later, the same university started producing its own Massive Open Online Courses (MOOCs). So, apparently, he was able to adapt the university to the technological disruption brought by this startup. However, has the university been turned into an agile and fast moving organisation?

In this article I will write about the disruptions brought by startups to almost every sector of the economy and how the future of Europe depends on the people behind these startups. These disruptions are derived either from new technologies or from new business models. However, the key aspect is not “new” startups versus “old” organisations. The key aspect is “fast” versus “slow”. The importance is not the “idea” or the “technology” but the “execution”. The importance lies in the people behind all these new startups.

In addition, this wave of disruptions brings tremendous challenges also for policy makers. Citizens are now more empowered than ever before. The advent of new technologies and new business models brought by the sharing economy is raising unexpected new questions about the role of public authorities. On the one hand the sharing economy

is making better use of, often idle, resources. On the other hand it disrupts existing industries dating from the last centuries. The initial reaction is frequently to forbid innovative startups that disrupt existing businesses. Is this sustainable? Will citizens allow public authorities to prohibit access to new innovative services in the long term?

## **A WAVE OF DISRUPTIONS**

Startups are currently disrupting all industries dating from the last centuries. It all started with the disruption of intangible goods-related businesses (e.g. music, movies, leisure, ...). But now startups are disrupting physical goods-related businesses. In most cases they are making a more efficient use of physical resources. From accommodation (e.g. Housetrip) to transportation (e.g. Shipeer) to parking (e.g. Justpark). While they have a positive impact on the use of limited

resources and bring citizens new sources of revenue, they also disrupt industries, with a potential negative impact on employment. In other cases, like Adyen, they bring efficiency and better services to users. Adyen is managing 2 to 3 million payments per day and has processed more than € 40 billion in payments.

The next wave of startups will affect sectors that are heavily regulated in Europe, like education and health. Most likely the disruptions will come from Asia or Silicon Valley. However they may have a big impact on Europe as well. How should we deal with these disruptions and ensure that they bring more positive than negative consequences to Europeans' quality of life? We should start by the assumption that the only way to increase positive impacts is to work closely with the startup communities across the world.

<sup>1</sup> Disclaimer: The views expressed in the article are the sole responsibility of the author and in no way represent the view of the European Commission and its services

**“ The survival of new – or current - champions will depend on the capacity of the organisations to stay agile and fast. Which ultimately depends on the team behind these new organisations. It is ‘fast’ vs ‘slow’. It is all about people. ”**

### **PERMANENT WAVE OR ONE SHOT?**

Disruptions by startups have started recently and it seems that they will continue until they replace the current big organisations we know now. But will the current startups be disrupted by future startups? In other words, is this wave of disruptions a one shot to replace current champions with new business models? Or will this wave become a new permanent phenomenon where business cycles will shorten so that any new champion will be replaced by another startup in a short period of time?

The survival of new – or current - champions will depend on the capacity of the organisations to stay agile and fast. Which ultimately depends on the team behind these new organisations. It is ‘fast’ vs ‘slow’. It is all about people. There are examples of existing organisations that are becoming agile and fast thanks to the acquisition of startups. For instance, Axel Springer has made 80 acquisitions of startups and currently 40% of its profit comes from them. This model is also used by the current large internet companies (e.g. Google, Facebook, Apple, ...) to stay agile and fast. And this co-creation model is the one that the Startup Europe Partnership<sup>2</sup> of corporates and startups is

testing. If the organisations of the future are able to stay fast, they will survive. If not, they will be replaced by new innovative and fast startups.

### **THE FUTURE OF WORK AND EUROPE**

To stay agile and fast the business organisations will need people with “startup” culture. People hungry for big challenges and able to react fast and bring innovative solutions. Solutions that will disrupt the socio-economic system and shape the future of Europe. These people are born in the startup ecosystems. Ecosystems that provide completely new working environments. New work practices and structures that empower workers and allow them to try, fail, improve and succeed. Therefore, the key to a bright future for Europe’s economy and society is a booming startup ecosystem in Europe. The main challenge to create this ecosystem is to build bridges between local hubs across Europe. This challenge is precisely one of the priorities that we are addressing at the “Startup Europe<sup>3</sup>” initiative of the European Commission ■



### **ISIDRO LASO BALLESTEROS**

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Isidro is also fellow (senior member) at Cambridge university and lecturer at Universidad politecnica of Madrid (UPM).

After graduating as an Engineer from the Universidad Politecnica de Madrid, he moved into engineering activities, working with Geographic Information Systems and design tools. Afterwards he became a strategic consultant to high-level executives (CEOs of large corporations), mainly in the telco and media sector.

He then moved to the ICT sector where he worked on research projects related to Workflow Management Systems and Internet Collaboration Systems. Subsequently he spent five months working for one of the Ministries in Spain before being seconded to the European Commission as a National Expert.

Since becoming a Commission official he has managed research projects and drafted research strategy objectives. From 2010 onwards he has been focused on creating a new endeavour within the EU institutions related to tech start-ups; the first output of this latest work is the Startup Europe initiative. Isidro has written several books and papers, some of which have been translated into other languages. Isidro is speaker in many international conferences as well as frequent lecturer in European universities.

<sup>2</sup> [www.startupeuropepartnership.eu](http://www.startupeuropepartnership.eu)

<sup>3</sup> [www.startupeuropeclub.eu](http://www.startupeuropeclub.eu)

# Completing the **digital single market** in Europe

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*by Evelyne Gebhardt*

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We, EU policy makers, have set ourselves the task to complete the single market in the digital sphere in order to boost growth and economic performance in the entire European Union. For this reason we are deliberating numerous steps to tackle the issue of market barriers, such as geo-blocking, as a priority. We are looking at the issue of market fragmentation from various angles and are considering all available means, including non-legislative approaches. We want stronger enforcement of anti-discrimination laws on the one hand and clarification of competition rules on the other. These complementary measures are indispensable to encourage and facilitate cross-border online trade. Furthermore, we have to ensure public and private funding of broadband in order to close the existing digital divide, especially in rural areas within the European Union.

But even more importantly, we are striving to come to terms with a new kind of economy which is rapidly emerging and which I would like to refer to as the Platform Economy. According to the renowned US political scientist John Zysman, this emerging economy is framing and channelling not only our economic but also our social lives.<sup>1</sup> Platforms provide marketplaces, search and social media tools, entertainment,



<sup>1</sup> Zysman, John. "Choosing a Future in the Platform Economy: The Implications and Consequences of Digital Platforms" (discussion paper presented at the Kauffman Foundation New Entrepreneurial Growth Conference, Amelia Island Florida), June 18-19, 2015.

## “ We want stronger enforcement of anti-discrimination laws. ”

housing, transportation, and create opportunities for earning income such as (low-cost) entry into markets for young entrepreneurs and people with disabilities. Yet, we have to ask ourselves whether the Platform Economy can deliver on its own the sort of economic recovery and growth the European Union needs in order to sustain or regain its prosperous economies based on the principle of solidarity. The buzzword we in Brussels hear repeatedly during these discussions on the Platform Economy is the “disruptive economy”. But this disruption has an entirely positive connotation and means that the respective disrupted business is not competitive and innovative enough to keep up with its digitised competitor. In truth, we fail to recognise all too often that we expect regulated businesses to compete directly and gain the upper hand vis-a-vis largely unregulated digitised businesses.

In my opinion, it would be completely wrong to assume that every traditional business model which fails to survive such an unequal competition can be deemed irrelevant and/or obsolete. I am instead arguing that we need a regulatory transition in order to ensure that the legislative achievements of the last decades and indeed century, such as consumer protection, health and safety standards, labour laws, parental leave and anti-discrimination laws, prevail. This

is not to say traditional businesses do not have to adapt to digital technologies and enter into competition with digital pioneers. However, I share the analysis of the German communication scientist Stefan Herwig, who argues in a recent article for the web publication Netopia that “[creative branches of the economy] only ask for a level playing field between content and infrastructure. Because only a level playing field will result in a fair value added chain and a fair split of the proceeds. Only a fair split of those proceeds would then create a just value added chain, a properly functioning market and sustainable innovation.”<sup>2</sup>

In order to create such a level playing field, we as EU legislators have to undertake tremendous efforts, as the rules will not adapt themselves. Irrespective of the regulatory outcome of this struggle we will need a societal dialogue during which uncomfortable questions need to be asked: Do we accept, as customers of virtual hotels such as Airbnb, that hosts are able to discriminate against potential clients on the basis of the colour of their skin, their faith or sexual orientation, while hotels are legally proscribed from discriminatory behaviour? Does it make a difference whether I am an employee or solo self-employed contractor? Do I need health and safety assurances during my Uber ride? - I do not claim to have



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**E**velyne Gebhardt studied linguistics, politics and economics in France and Germany and worked as a freelance translator. She has been a Member of the European Parliament since 1994 and is currently a member of the Committee on the Internal Market and Consumer Protection (IMCO), acting as the coordinator for the Group of the Progressive Alliance of Socialists and Democrats. As member of the IMCO committee, Evelyne Gebhardt was *inter alia* rapporteur for the Services Directive and is currently co-rapporteur for the Digital Single Market Act.

<sup>2</sup> Stefan Herwig, “A Critical Look at the #DigitalSingleMarket strategy” Netopia, Forum for the Digital Society, October 22, 2015, accessed November 19, 2015, <http://www.netopia.eu/market-epic-fail/>

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# The current over-simplifying endorsement of the Platform or so-called “Sharing” Economy might even stifle any meaningful discussion about the economic and societal implications.

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the answers to these questions. They might differ tremendously depending on generation, social class and cultural background, but I am convinced that the current over-simplifying endorsement of the Platform or so-called “Sharing” Economy might even stifle any meaningful discussion about the economic and societal implications. The stern conviction that any hurdles or barriers have to be removed might even harm Europe’s slow economic recovery as it might take away the safeguards from revenue-intensive traditional business models which employ large numbers of people. Ursula Huws, Professor of Labour and Globalisation, has for instance shown that unregulated digitization threatens even mutually beneficial working relationships. Large companies often now employ contradictory employment schemes. On the one hand they keenly guard their intellectual property rights in order to develop ever more unique and high-end products. On the other hand they try to save costs by simplifying and standardising intellectual labour processes in order to outsource them to highly-trained freelancers through online platforms. The very same companies which formerly acknowledged the value of highly skilled employees with superb wages and benefits, and whose employees remained loyal to them.<sup>3</sup>

Like Stefan Herwig I believe that the Platform Economy has not yet been able

to prove that it will accelerate growth and productivity to such an extent to justify the complete inactivity of the European legislator, particularly because only supra-national legislation can sufficiently and adequately regulate such globalised phenomena.

Finally, I am utterly convinced that we as legislators, not only in the European Union but worldwide, have to find a balanced approach to halt the decline of media and entertainment or content providers, not only to ensure fair remuneration for authors and creators but also to protect and guarantee cultural diversity.

I could elaborate much further on the obstacles we face to complete a digital single market within a still fragmented single market in the offline world, but the main obstacle we face at the moment is the belief in the magic wand of the digital economy, as well as the general perception that market failure within the digital economy is simply not an option ■

<sup>3</sup> SHuws, U 2015, ‘iCapitalism and the Cybertariat Contradictions of the Digital Economy’ Monthly Review, vol 66, no. 8.





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