European Commission

European **Political Strategy** Centre

October 2019

10 TRENDS SHAPING THE FUTURE OF WORK IN EUROPE

10 TRENDS SHAPING THE FUTURE OF WORK

FROM	TO
Gradual change	Work, redefined
Standard insiders	Empowering new outsiders
Wages and work in sync	Addressing wages and work decouplement
Study, work, retire	Lifelong learning to support transitions
Basic skills	Ensuring digital skills become basic
Time and place-bound work	Countering the blurring of when and where
Working with machines	Harnessing management by algorithms
Progress on gender equality	Addressing glass ceilings and new gender divides
Demographic time-bomb	Empowering the silver workforce
Falling behind on the global talent race	Crafting forward-looking migration and integration policies

Source: European Political Strategy Centre

EUROPE'S LABOUR MARKET
KEY FACTS AT YOUR FINGERTIPS

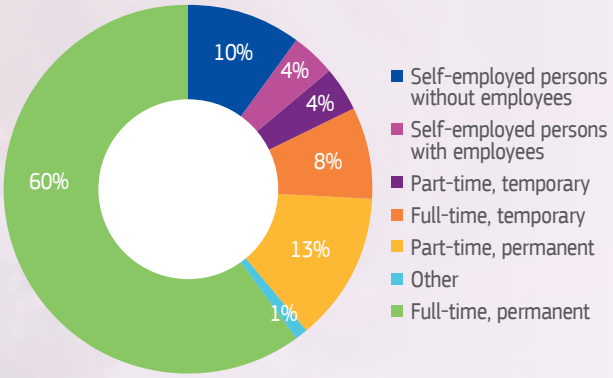
A demographic breakdown

In millions, 2019

Source: European Commission

The EU 28's labour market by employment type

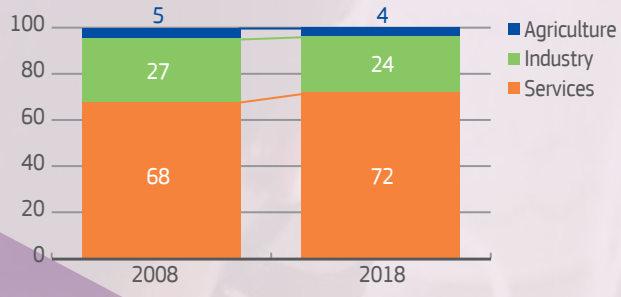
In percent, 2018



Source: European Commission

Job creation is primarily in the services sector

Percent of total employment, EU28

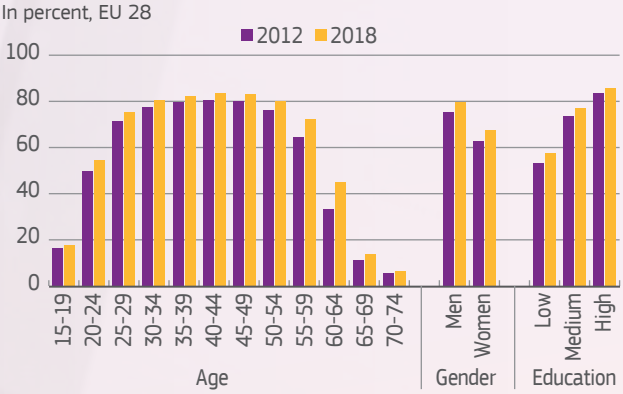


Source: European Commission

Employment rate is growing for all groups

Employment rate by age; by gender (20-64) and by skills (25-64)

In percent, EU 28



Source: European Commission

TREND 1

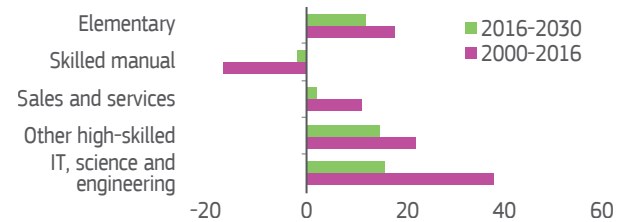
WORK, REDEFINED

Technology and new business models are changing the very concept of work

- The nature of work has always undergone profound changes, driven by technological progress, demographic shifts, labour market regulations, and macroeconomic fluctuations. But, what many are terming **the 'Fourth Industrial Revolution' has significantly accelerated the pace of change**, transforming **what** people do for a living; **how** they do it, **what skills** they need; **where** they perform their work; how **work relations are structured**, and how work is **organised, distributed and rewarded**.
- While there is yet no evidence of massive technological unemployment, the fast pace of **digitisation and automation, together with the sustainability imperative, are reshaping labour market needs across all sectors**.
- Going forward, job creation is projected to be highest among firms that are able to rapidly turn around their operations and continuously reinvent themselves, putting in place more agile, digital-based, customer-oriented, and networked business models,[1] as well as more **sustainable and carbon-neutral practices** (such as clean tech, waste management or sustainable banking, for example).[2]
- At the same time, jobs requiring relatively low levels of formal education – involving routine manual tasks and not requiring complex social interaction – are most exposed to automation.

Job creation is primarily driven by technological change

Net job growth, in percent



Note: According to the International Standard Classification of Occupations (ISCO), 'elementary occupationse consist of simple, routine tasks that require the use of hand-held tools and some physical effort.

Source: JRC based on Eurofound and Cedefop

- **The Internet and the spread of digital technologies, apps and online platforms, have also accelerated the splintering of work**, transforming it into an umbrella concept for tasks performed under different legal, functional and geographic frameworks.
- Jobs are increasingly broken down into projects or tasks that can either be outsourced to independent professionals and experts, or reconfigured into projects that assemble physical or virtual teams, across borders and time zones.[3] **This has created a dynamic environment in which temporary positions are more common** and organisations increasingly contract with freelance workers for short-term assignments.
- Still non-existent just a decade ago, **the online platform economy**[4] has expanded **the scope of 'work' to encompass activities formerly left out of the production boundary**, for example by enabling the monetisation of previously unpaid activities or personal assets – houses, cars or other – for personal gain.[5] Despite its relative novelty, **as much as 10% of Europe's adult population has used online platforms as a source of income at least once,** with 6% gaining a significant share of their income through platform work.[6]
- Contrary to conventional modes of outsourcing, where services are usually provided by companies of significant size, the on-demand, online economy enables the tasking out of both hyper-localised (e.g. food delivery) and specialised services (e.g. software development, graphic design, legal analysis or accounting) to **one-person micro-providers** anywhere in the world – most often mediated from start to finish by a third-party digital intermediary.[7]

TWO SIDES OF THE CHALLENGE

How to help businesses transition into the new world of work with a view to supporting the creation of more good-quality jobs?

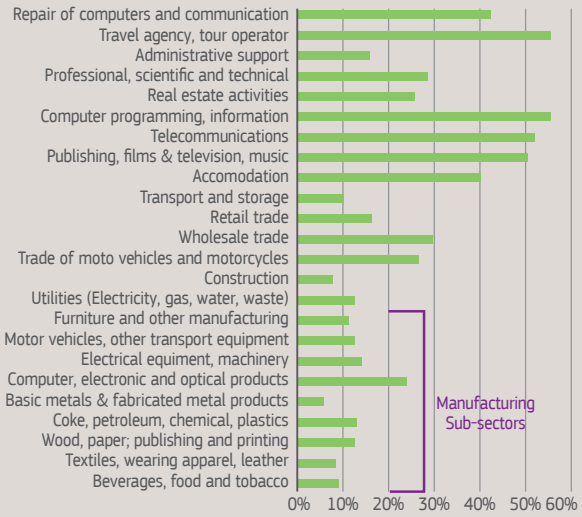
In this transformative context, charting a successful course in the world of work depends to a large extent on the quality of firms. **The challenge ahead lies in helping businesses across Europe – not just a few high-performing firms concentrated in a handful of European hubs – to transform their operations so that they can succeed in the digital age**.

Yet, to date Europe has proven comparatively slow, both in terms of integrating digital into existing sectors and in terms of taking advantage of the transformative nature of digital technologies. As a result, the emerging champions of the transition are today mostly found in the US and China. In this context, supporting the **diffusion and adoption of digital tools**, practices, business models in Europe, as well as a more dynamic business and economic environment will be critical.

The restructuring of sectors in difficulty towards future-oriented activities is also essential to remain competitive on a global level, to create and retain high-quality jobs in Europe, and to **support broad-based convergence** – both between Member States and between regions.

Most EU enterprises slow to integrate digital technology

% of enterprises with a high digital intensity index (>6), by sector



Source: Digital Transformation Scoreboard 2018

How to help Europeans transition into the new world of work so that they benefit from new jobs being created?

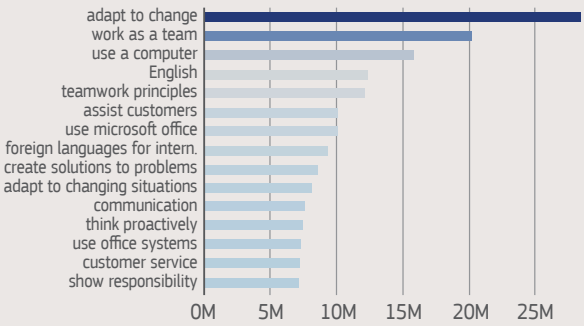
As economic restructuring progresses, the rapid redeployment of skills to emerging high-growth sectors and markets – such as the clean economy, ICT or health and care – will be key.

It is not always specific skills that are needed but rather the **ability of workers to adapt and reskill** so as to be capable of **moving from declining to growing sectors.** This is all the more true in the digital age, where **firms are increasingly looking to develop flexible, diverse and versatile talent bases to allow for maximum creativity**, and where tasks can be broken down and distributed even more widely, to a **global pool of workers**, **making competition steeper than ever**.

In this context, Europe urgently needs to **upskill** its workforce, concentrating on **essential horizontal skills** for the the digital age, which include not just **digital skills**, but softer ones such as **adaptability, entrepreneurship and multidisciplinarity**. **Multi-sector skilling partnerships and collaborations between education providers, governments, business and trade unions** can anticipate skills needs and help regions to develop those sectors where they have greatest potential for competitive advantage.

Soft skills more important than ever

Most sought after skills 2018-2019, (based on analysis of online job-vacancy data in 18 EU Member States). M=million.



Source: Cedefop's Skills-OVATE 2019

TREND 2

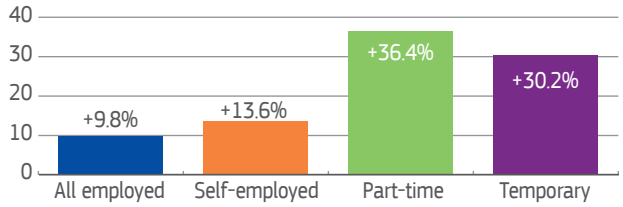
NEW OUTSIDERS

The rise of non-standard work requires an upgraded social contract

- While full-time, salaried employment with a permanent contract had become the norm in the 20th century, the majority (almost 60%) of all employment growth in OECD countries since the 1990s has been in the form of non-standard work.[8] As a result, some **40% of the European workforce is today engaged in 'non-standard' forms of work. Younger, female, and migrant workers are most concerned.**
- Non-standard work can take many forms, ranging from self-employment to part-time or temporary work, as well as contractors, freelancers, agency work, and on-demand or 'zero-hour' contracts.
- While self-employment itself has remained stable at around 15%, more and **more jobs are being created at the boundary between independent and dependent employment**.[9] In particular, the number of self-employed people on a part-time basis and without employees has grown. This reflects **a growing trend by businesses to resort to 'dependent self-employment'**, whereby workers perform services for them – sometimes as much as full-time – but under a services contract rather than an employment contract. This entails a shifting of risk and responsibility to the individual, while reducing labour costs for the employer.
- Non-standard work can offer benefits such as enabling a wider range of workers to enter the job market; facilitating the accommodation of family or personal obligations or activities; or enabling companies to restructure their activities or improve their performance. However, while initially considered a stepping stone towards the regular labour market, there is mounting evidence that suggests **people are being trapped in atypical employment contracts**.[10]
- Furthermore, as they are not formally part of an employment relationship, **workers on non-standard contracts generally do not benefit from social protections offered under national law**, such as minimum wage rates, social security coverage, paid sick or maternity leave, or entitlements to unemployment benefits and pensions.[11] **54% of self-employed Europeans, for instance, are at risk of exclusion from unemployment benefits**, while casual, seasonal or freelance workers can be formally excluded from benefits such as for sickness or maternity, among others.[12]
- This exclusion from the social contract also has implications for other aspects of daily life – from the standards of living that work enables for workers and their families, to the relationships forged within community life, and effects on one's self-esteem and social status.

New world of work driving growth in self-employed, part-time and temporary work

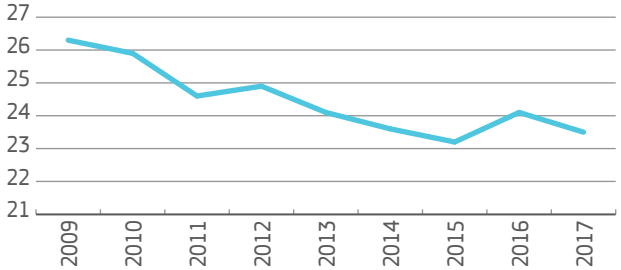
Change in number of employees (%) between 2000 and 2017, by professional status



Source: Joint Research Centre, based on Eurostat's LFS series

Trapped in transition? Fewer workers are today able to move from temporary to permanent contracts

Percent of workers moving from temporary to permanent contract between two consecutive years, EU28



Source: European Commission, 2018

- **As union membership tends to be lower among such workers, their fundamental working rights, such as freedom of association and the right to collective bargaining, are also challenged**. This is partly due to the difficulty of organising workers who have no common workplace or switch employers frequently, but also because many unions operate along **'insider' models** that seek to protect employees – often leaving labour market 'outsiders' and 'atypicals' outside of their radar.
- Moreover, the resulting contraction in overall union density affects all forms of work, as it comes with a decline in negotiating power and a deterioration in the coverage of collective agreements, generating profound change and **steady fragmentation in Europe's traditional mechanisms for social dialogue and collective bargaining** – the key tools that pioneered and secured social protections in the first place.

TWO SIDES OF THE CHALLENGE

How can the benefits of flexible and independent work be preserved, while reducing significant risks to earnings, protections and wellbeing?

For those in high-paying jobs with sought-after specialist knowledge, untethering from an employer and hiring out their skills to the highest bidder can be a liberating boon.

For others, however – often lower-skill or lower-status employees – **a more fragmented relationship with employers and co-workers translates into diminished pay and bargaining power, unstable and sometimes inadequate hours to secure an adequate income,[13] and limited access to social protections** such as pensions, sick pay, and anti-discrimination policies.

Public policy is beginning to respond to the risks that accompany this new world of work. This includes efforts to better classify employment relations and to widen the coverage of social insurance schemes. In effect, recent EU legislation has aimed for minimum rights for workers on atypical contracts and in non-standard jobs, such as gig economy workers.[14]

The establishment of the **European Pillar of Social Rights** is an integral part of wider efforts to build a more inclusive and sustainable growth model where economic and social progress are intertwined.

Going forward, it will be crucial to **monitor the application of these rules in Member States**, as well as **new developments in labour markets**, to ensure that all Europeans can benefit from adequate protections.

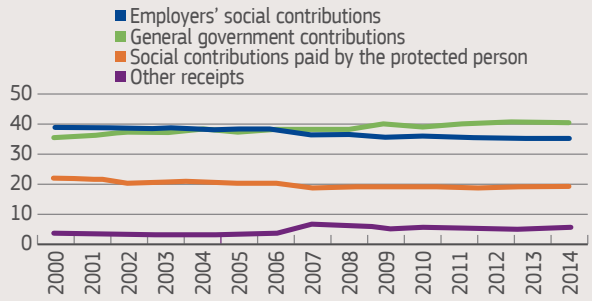
How can Europe's social model survive as the rise in non-standard work erodes public revenues?

Not only are **non-standard forms of work** often left out of the scope of social protection, but workers and employers are also **often not required to contribute (as much or at all) to public protection systems**.[15]

Yet, labour taxes (i.e. personal income tax and social security contributions) are a large source of government revenue for most advanced economies and the foundation of Europe's social model. **As this revenue erodes, so will the ability to continue providing welfare protection – all the more so as ageing societies are putting upwards pressure on the expenditure side**. Already today, an average 41% of EU28 government revenues are spent on social protection. Addressing this gap will require recalibrating **taxation** systems in order to shift the burden away from labour to new forms of taxation, and to ensure fairer corporate tax systems.

Decrease in employers' and workers' contributions to social protection puts pressure on Europe's social model

Social protection receipts by type (total = 100), EU25



Source: OECD, Future of Work, 2019

TREND 3

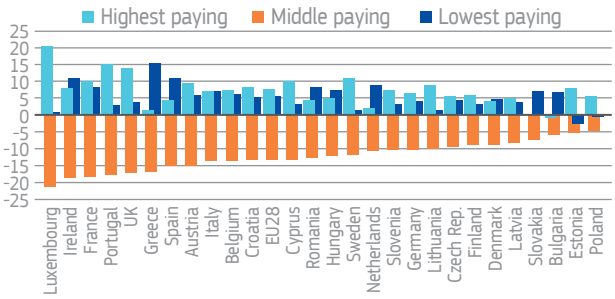
THE WAGE SQUEEZE

Middle-paying jobs are in decline

- The combined effects of heightened global competition and technological progress – but perhaps more importantly, stagnating productivity growth in Europe – have seen the share of middle-paying jobs decline across all EU countries and sectors since 2002.[16]
- In some countries – such as Austria, Germany or Sweden – this trend was already visible well before 2008. In others, in particular in Mediterranean and Eastern European countries, **the financial and economic crisis added to the stress**.[17]
- **Employment cuts in the public sector** due to tighter government budgets **also contributed to this hollowing out of middle-income jobs**.[18]
- Most EU countries have now bounced back, with the EU28 recording its **highest ever annual employment rate in 2018, at 73.1%**. But large segments of the workforce remain unable to benefit from the recovery,[19] due to **years of stagnating wages, which have only recently begun creeping up**.
- The long-lasting wage stagnation across Europe is a result of a multitude of factors[20] including: **gradual labour market deregulation**, coupled with **the decline of unions**; a **growing market concentration** in the digital era, which has enabled the rise of new monopolies and monopsonies, further distorting the ability of workers to negotiate market level pay; unregulated and **opaque wage-setting mechanisms** and an increased difficulty for workers to organise in the **platform economy**;[21] as well as **persistently high levels of 'underemployment'** (i.e. under-use of a worker due to over-qualification or involuntary part-time status), with one in four part-time workers in the EU wanting, but unable, to get longer hours.[22]
- These factors have contributed to the **proportion of employed persons at risk of poverty rising from 8.3% in 2010 to 9.4% in 2017** – meaning that, today, nearly one in ten employed people over the age of 18 in Europe are at risk of poverty after social transfers.[23]

Middle paying jobs are hollowing out

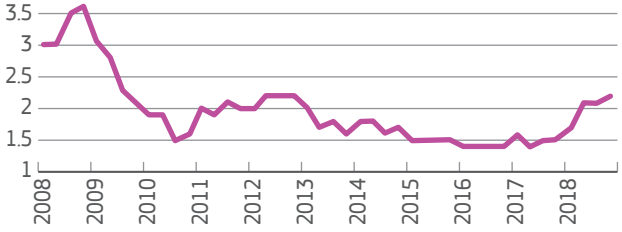
Change in shares of highest, middle and lowest paying jobs in the EU, from 2002 to 2016 (percentage points)



Source: European Commission, Employment and Social Developments in Europe 2018

Despite record high employment in the EU, long-stagnating wages have only recently started creeping up

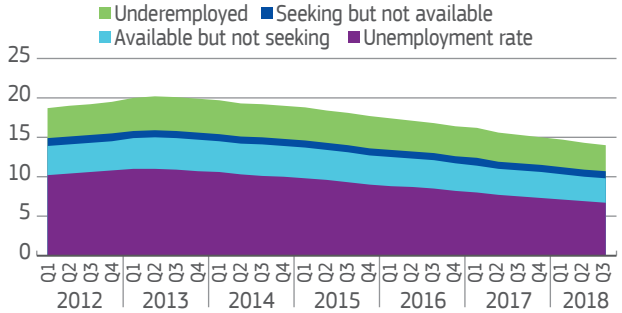
Negotiated wages in the euro area, annual percent change



Source: Financial Times[20]

Underemployment is falling but remains substantial

In percent of labour force



Source: Eurostat, LFS seasonally adjusted data

- At the other end of the affluence spectrum, those in high-wage jobs and/or with other sources of income (property, capital) weathered the crisis much better.
- '**Assortative matching**' then further exacerbates the gap between low- and high-wage earners, by concentrating rare skills and talent in firms that are able to attract them with high rewards[24] that smaller or mid-sized companies and the public sector cannot compete with.[25]
- Lastly, new business models have opened up **alternative opportunities for remuneration.** As an illustration, the rise of online activities such as 'influencer marketing,[26] whereby individuals can leverage social media to monetise their influence at scales that are no longer negligible. However, these new practices have further upended the link between employment and wages, as well as the notion that income progressively rises throughout a lifetime.[27]

TWO SIDES OF THE CHALLENGE

How to keep labour costs competitive without falling into a 'middle-income trap'?

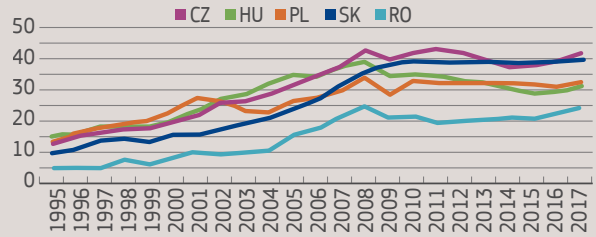
Wage moderation can help firms to expand by growing their labour force and production while containing labour costs. In the short run, this may boost growth and attract investment – as it has done for countries in Central and Eastern Europe.[28] In the longer term, **the availability of low-cost labour can disincentivise productivity-enhancing activities**, putting firms and economies at risk of falling behind competitors who invest in their human capital, as well as in their upgrading their equipment and processes.

Moreover, **wages that are lower than the economic potential of the labour force risk contributing to brain drain**, as educated workers seek opportunities to increase their earnings and prospects elsewhere.

The end result can be the stifling of an economy's innovation and growth potential, 'locking' it in to the production of goods and services that rely principally on low-cost labour, and challenging its ability to **move up global value chains**.

Wage convergence between East and West has flattened since the financial crisis

Nominal compensation per employee, percentage of German level



Source: ETUI 2018, based on AMECO database

How to ensure that work comes with a guarantee of decent living standards?

Most employment policies tend to focus on getting people into work – based on the standard belief that having a job improves people's situations. Yet, **the risk of in-work poverty will remain if insufficient attention is paid to incomes**.

Minimum wage-setting mechanisms can contribute to ensuring fairer working conditions, as well as providing greater incentives to work and combatting in-work poverty.[29] Sound working conditions are also strongest where **transparency and predictability in setting wages** go hand in hand with productivity considerations.

In addition, in an age where even a good income on the part of a single breadwinner no longer suffices to keep families afloat, **policies that better support the dual or multiple-earner structure are needed**. Indeed, countries with a **higher share of working adults** in households – and hence also with **a higher labour participation of women** – tend to have larger middle and upper classes.[30] Yet, the EU28 female employment rate remains **11.5%** lower than for men.

TREND 4

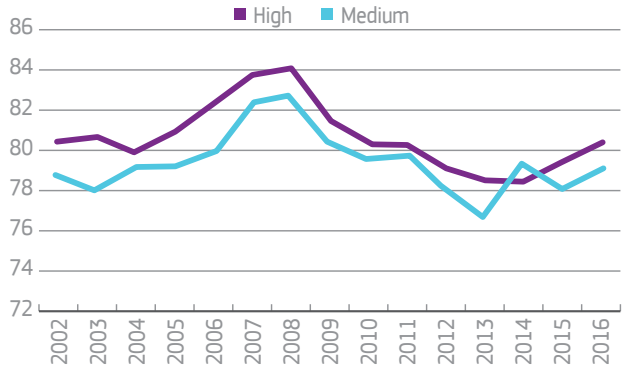
CONSTANT TRANSITIONS

Lifelong learning is the new normal

- Higher levels of education across Europe have tended to improve individuals' employability[31] and future earnings prospects. And yet, **the transition from study to work is increasingly challenged**.
- Many new graduates find it increasingly **difficult to obtain graduate-level work** – particularly in the field in which they have been educated. Moreover, **employers consider they lack skills needed for work** – even for entry-level work, raising questions as to whether many Europeans may be **over-qualified yet under-skilled.**[32]
- As for those who are already in the workforce, technological advances and industry-level restructuring mean that **job changes are more frequent than ever.** In the space of a generation, the average European worker has gone from having a job for life to having more than ten in a career, multi-tasking and zigzagging[33] rather than following a linear trajectory.
- In other cases, the **tasks contained within a job are being transformed.** 43% of adult employees in Europe report having recently experienced changes in the technologies they use at work, with **1 in 5 considering it likely that their skills will become outdated in the next five years.**[34]
- In this context of 'permanent transition', **life-long learning has become an economic imperative**. By 2016, 45.2% of adults of working age (25–64 years old) in the EU28 had taken part in formal or non-formal education or training over the past year, against just 35.2 % in 2007.[35] However, the figures are much lower among **those who need this type of training the most, namely lower-skilled and older workers, whose participation** in adult training schemes barely overtook 20% and 30% respectively. In addition, while some countries are able to experiment with new tools such as **Individual Learning Accounts, to better target these groups**, others Member States remain constrained by **limited resources** to invest in lifelong learning, despite high needs.

School-to-work transition is improving but is lower than it used to be

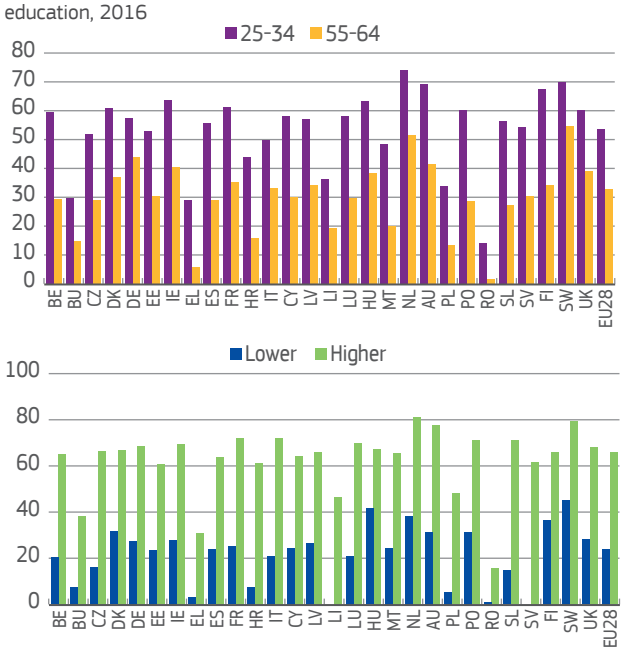
Employment rate of those who graduated in the last 3 years aged 25-39, by level of education; in percent



Source: Eurofound

Lifelong learning: those who need it the most, participate the least

Participation rates in education and training by age and level of education, 2016



Source: Eurostat

TWO SIDES OF THE CHALLENGE

How to ensure that all new graduates have equal opportunities in their first transition, from school to work?

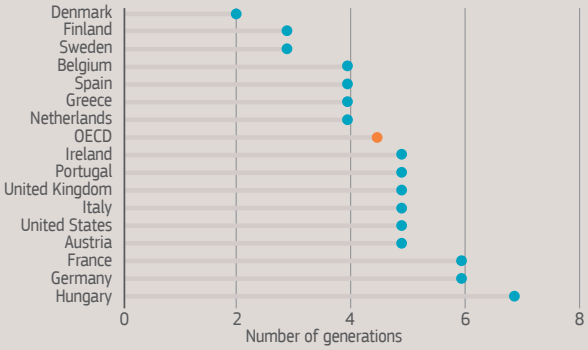
Despite great advances in education policies, latest PISA assessments reveal that education is failing to reduce initial inequalities linked to socio-economic statuses. In many Member States, children from the poorest 20% of households face significant skills gaps across reading, mathematics, and science compared to the richest 20%,[36] revealing that **Europe's education systems continue to be unable to break cycles of entrenched inequalities**.[37]

What's more, as even multiple degrees are today often insufficient to get an entry-level job, many graduates seek to enhance their employability by undertaking **multiple internships – many of which tend to be unpaid or paid very little**. This trend is already evident in the US for exaple, where the share of college graduates participating in at least one internship rose from less than 10% in the mid-1980s to over 80% in the mid-2000s. In parallel, the share of graduates getting their first full-time job through an internship rose from 5% to 30%.[38] Young Europeans are on a similar trajectory.

The challenge going forward lies in **levelling the playing field between those who can afford to gain such critical experience and those who cannot** – the latter often being those who already under-achieve at school due to their socio-economic background. **Ensuring that internships pay living wages**, as well as **developing inclusive schemes, such as degrees that integrate internships into the curriculum** and therefore provide on-the-job experience upon graduation, can have a positive effect in this context.

Education unsuccesful at closing inter-generational social mobility gap

Number of generations it would take for those born in low-income families to approach the mean income in their society



Source: OECD 2018, A Broken Social Elevator?

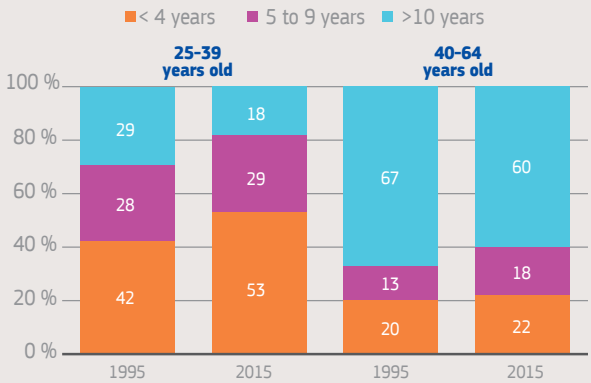
How to share the responsibility of up/reskilling between individuals, companies and the public sector, in a fair and effective way?

A significant conundrum is emerging: on the one hand, skills needs are becoming more complex and faster-changing, requiring sustained investment and re/upskilling. On the other, as workers change jobs much more frequently than before, and employers increasingly rely on temporary, contingent workforces, they have fewer incentives to invest in their staff. For instance, only 35% of 'own-account' workers (i.e. self-employed workers with no employees) participate in training yearly compared with 57% of full-time permanent employees.

Going forward, there is an ever pressing need for better concerted efforts between **governments** (to design financial incentives and favourable tax policies that are conducive to skills development); **education** providers (to foster skills and provide forward-looking career guidance); **employers** (to invest in motivating their workers to upskill); **labour unions** (to ensure that investments in training result in better-quality jobs); and **individuals** (to take advantage of learning opportunities and deploy their skills at work and in everyday life).

Both old and young workers are increasingly changing firms

Percent of workers employed in the same company by number of years; breakdown by age



Source: Eurofound

TREND 5

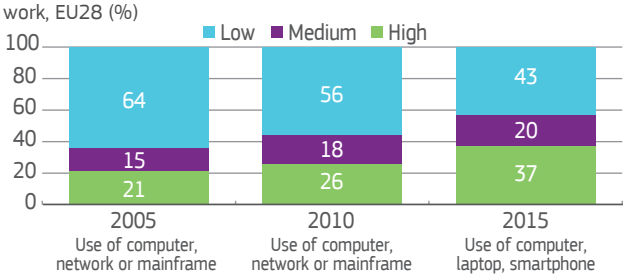
DIGITAL SKILLS AS A NEW BASIC

Basic skills still matter, and digital is now one of them

- As technology and digitalisation seep into all areas of the economy and society, **there is almost no job that does not require at least basic digital skills**. To illustrate, in 2016, half of European construction workers needed basic digital skills to perform their jobs.[39]
- At the same time, there is an **increased demand for advanced digital skills** across the economy: employment of ICT specialists grew by 2 million over the last 5 years in the EU.[40]
- Yet, in 2017, **35% of the EU's active labour force (employed and unemployed) still lacked such basic digital skills**. 10% had no digital skills at all (essentially because they do not or only seldom use the Internet), with some Member States home to as many as one in four workers with no digital skills.[41]
- **Older, lesser-educated and lower-income** individuals are least likely to have strong digital skills. In a context of **polarising labour markets**, with falling demand for middle-skilled work and rising competition for lower-paid jobs, these people risk having even **fewer opportunities to enter and remain in the labour market**. And, with the rise of e-government, online shopping, banking and smart mobility, lack of basic digital skills may lock individuals not only out of work, but also out of society.
- The lack of highly-skilled tech professionals is already holding back Europe's digitalisation and, with it, its economic growth. Over **70% of European firms report that lack of skills is hampering their investment strategies**,[42] while 46% of firms report difficulties in filling vacancies due to **skills shortages, for instance in the cyber-security field.**[43]

ICT skills increasingly needed in all jobs

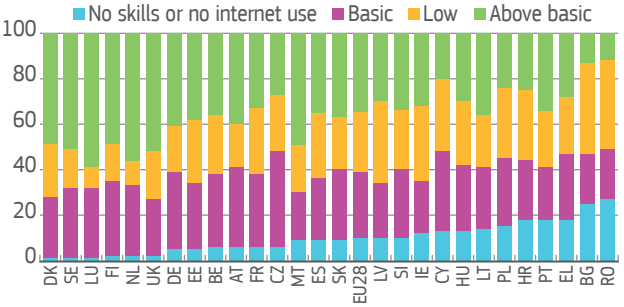
Share of workers reporting low, medium or high intensity of ICT use at work, EU28 (%)



Source: Eurofound and ILO 2017, drawing on European Working Conditions Survey 2015

EU labour force fares poorly on digital

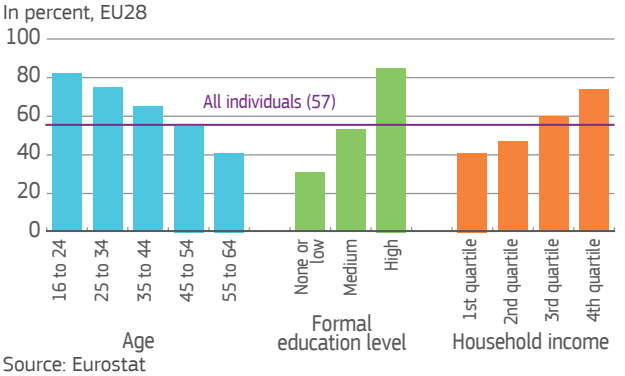
Digital skills of the EU labour force, 2017 (% of individuals, by skill level)



Source: European Commission, Digital Scoreboard

Europe's digital skills are unevenly distributed

In percent, EU28



Source: Eurostat

TWO SIDES OF THE CHALLENGE

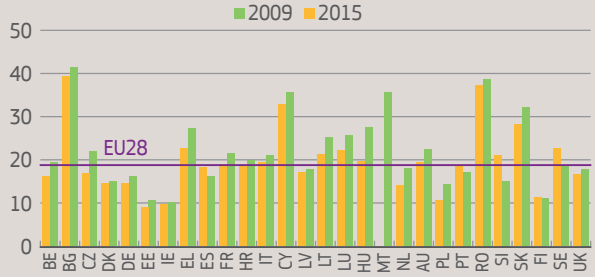
How can digital skills be enhanced for all without compromising on other core competencies?

Just as numeracy and literacy skills are fundamental for every citizen, regardless of discipline and profession, so too are digital skills in today's society and labour markets where ubiquitous connectivity is the new normal.

Yet, as public policy attention turns towards improving the basic digital skills of the wider EU population, it cannot afford to compromise on other core competencies, especially as one in five 15-year-old pupils still fails to meet minimum standards in reading, maths and science.[44] **The numbers are starker for students of migrant background.**

Educational systems need to adapt to better equip Europe's next generation with the full array of basic skills needed to function and succeed in a digitised society.

Share of under-achievers is increasing in nearly all Member States when it comes to reading



Source: Eurostat, based on OECD's PISA assessments

How to ensure Europe possesses the high-end digital skills necessary for future growth?

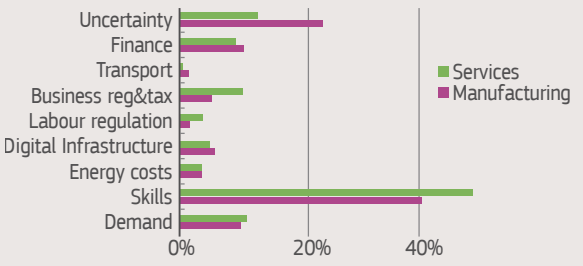
As the demand grows for tech-savvy engineers, computer scientists and statisticians, capable of coding, setting up and securing digital networks and infrastructure, developing programmes and apps, and applying data analytics to improve anything from healthcare and medical outcomes to urban planning and transportation systems, it is estimated that the EU will be home to 500,000 unfilled vacancies for ICT professionals by 2020.[45]

The lack of mid- to specialist digital skills is not only limiting Europe's current growth, but the repercussions down the road could be severe: In addition to ensuring that larger portions of the workforce master basic coding and data skills, Europe also needs to invest in specialist, high-end technical skills if it wishes to become a global leader in future technologies that build on digital, such as AI or quantum computing.

As these skills tend to be more frequent among younger individuals, matching offer and demand will require **rethinking labour markets based on seniority and years of experience**. Some employers in fast-growth high-tech sectors are, already foregoing the requirement of a 4-year degree as 'proof of abilities', and turning their recruitment priorities to **digital skills certifications**.[46] Others are experimenting with new ways of 'teaching' high-tech skills, focusing on peer-to-peer learning (42; Codam),[47] **data and coding boot camps**.[48] However, beyond these pockets of innovation, there is a need for **EU-wide digital skills strategies** that address the full range of digital skills that businesses need to thrive in an increasingly digital economy.

Lack of skills hampering EU digitisation

Percent of firms stating what is their main impediment



Source: OECD

TREND 6

BLURRING LINES

Work and leisure are increasingly overlapping in today's 24/7 streaming society

- Even though the introduction of the eight-hour working day enabled a secular decline in working hours across Europe in the 20th century, **the number of workers performing extreme working hours (50 hours per week or more) is increasing in most European countries** and the US. The phenomenon is strongest among high-skilled workers, and among men, as well as in the corporate and financial sectors, particularly in the years following graduation.[49]
- **This trend is being fed by the spread of digital and mobile technologies, that have enabled – and continue to facilitate – the decoupling of work tasks from the physical workplace.[50]**
- One in three enterprises now provides **portable devices** to at least 20% of their wokers, while **a growing share of employees use ICTs to work flexibly** at least occasionally. In 2015, 3% of EU workers teleworked regularly from home and 10% occasionally teleworked either from home or another location.[51]
- **Flexible and remote work technologies and policies have been linked to all sorts of benefits: increases in productivity**; reduced absenteeism; decreased stress levels among employees (particularly parents with children at home); greater inclusion of specific segments of the labour market that otherwise could not work, for example people having to care for others or with health or mobility problems; as well as reduced commuting time and expenses; lower levels of pollution in cities.[52] As such, they also serve to improve firms' ability to attract and retain valued employees, by granting higher levels of work autonomy and hence increasing job satisfaction.[53]
- Yet, at the same time, they have **fed a phenomenon described as 'workism'**,[54] due to the implicit expectation of being available for work – or at least responding to work-related messages – outside formal working hours, thereby no longer allowing for a clear distinction between work and non-work time.[55]
- As the link between workplace and working time has eroded, it has also blurred the line between work and leisure, with **consequences for private and family life, and also mental health**, leading to efforts to grant workers '**the right to disconnect**.'[56]

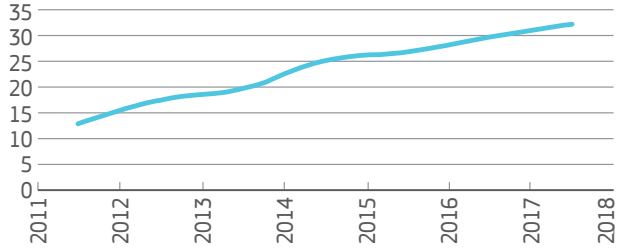
Extreme working hours among full-time employees by education group

Ratio of extreme working hours, in Western Europe and USA

Source: Burger 2015

More and more firms provide portable devices to their employees

Percent of enterprises providing portable devices to more than 20% of their employed persons, EU28



Source: European Commission, Digital Scoreboard

TWO SIDES OF THE CHALLENGE

How to counter the darker sides of blurring work-life patterns?

Despite **vast improvements in the legal frameworks protecting workers** since the industrial revolution, the shift from industrial production to service-oriented post-industrialism has been accompanied by an increase in extreme work and work intensity in most countries. It is nonetheless noteworthy that strong welfare states, such as the Nordic countries and France, have so far been able to counteract this phenomenon.[57]

This development is giving rise to a **new set of health issues** within advanced economies. Rising levels of stress, anxiety, fatigue and sleeping problems are being recorded, while there is a growing recognition of burnout as a result of work pressures and workplace culture.[58] Digitisation has also been associated with a growing sense of **loneliness** and **disconnect** from communities.[59]

Going forward, it will be important to ensure that the rise of 'high-performance' management practices, driven by the constant pursuit of greater productivity gains, does not ultimately have the counter effect of depressing productivity due to human fallout.[60] In 2013, the cost of work-related depression in Europe was estimated at 617 billion euro annually.[61]

In this context, policies that **protect and improve workers' physical and mental well-being**, including initiatives promoting health at work and work-life balance, will be key.

How to maximise the broader societal advantages of decoupling work tasks from the physical workplace?

In a broader context, working remotely also holds the potential to help address a number of structural challenges faced by the EU.

For instance, it can contribute to reducing greenhouse gas emissions and air pollution in major cities by reducing commuting traffic.

In regions or countries that face large-scale emigration and the fading out of local communities, it can help counter the phenomenon, by enabling workers to access better-paid jobs, without having to relocate. Similarly, it can help to alleviate pressures on overcrowded and congested cities. Some **cities and regions already offer incentives to encourage remote workers to relocate** and spend their money there.[62]

However, for this to happen on a meaningful scale, it would require the creation of a real digital single market, investments in relevant infrastructure and upskilling, as well as a rethinking of wider public services and taxation systems. Indeed, telework makes it difficult to identify where transactions take place and value is created, especially if gig-work platforms are reluctant to collect taxes or share data.

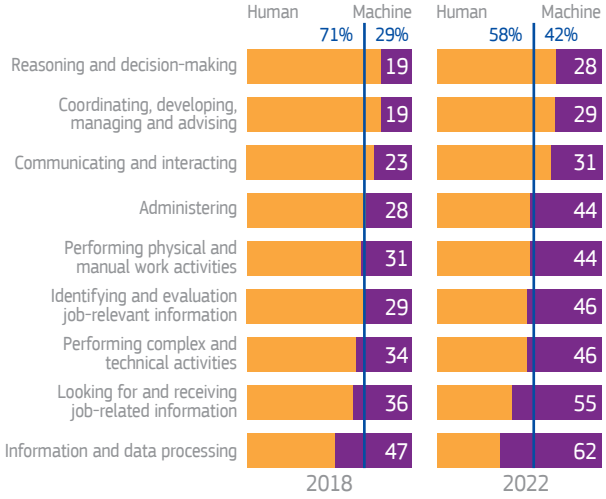
TREND 7

'SIRI, WHAT ARE MY TASKS FOR TODAY?'

Robots and algorithms are becoming integral parts of business culture

- Projections regarding the number and types of jobs and tasks that will be created or destroyed through automation vary widely. It could go either way. To date, although technology has replaced workers in some jobs, it is also estimated to have created **more than 23 million jobs across Europe from 1999 to 2016**.[63]
- What is clear, however, is that the transformative nature of Artificial Intelligence and automation will impact nearly all workers as the share of tasks that can be shifted from humans to machine increases fast. To date, as many as **6 out of 10 current occupations contain at least 30%** of activities that are technically automatable.[64]
- The **deployment of machines and robots** in the work place is gradually **freeing the human workforce from 'dull, dirty, dangerous work'**[65] – be it routine, tedious, physically-strenuous, or safety-critical tasks. **As these tasks are replaced, new ones are emerging**, such as those related to managing and troubleshooting automated systems – requiring the worker's skills profile to adapt accordingly.[66]
- In parallel, **rapid advances in Artificial Intelligence** mean that machines are becoming capable of outperforming humans in a range of work duties requiring cognitive capabilities – including in skilled professions such as radiologists, lawyers or accountants.
- Looking ahead, the spread of AI and advanced digital technologies across all sectors will lead to **a rise in human-machine interactions and the likely creation of an entire new range of human-machine employment prospects** – from AI-assisted healthcare technicians, to human-machine team managers or quantum-machine learning analysts. Social work may also take on new dimensions with possibly growing need for juvenile cybercrime rehabilitation counsellors, while lawyers may have to also serve as virtual identity defenders.[67]

Labour division between machines and human projected to shift fast



Source: World Economic Forum, Future of Jobs Report, 2018

Speed and accuracy are AI's strengths

Case		Accuracy	Average time
Spotting legal issues in 5 Non-Disclosure Agreements	AI	94%	26 secs
	20 Lawyers	85%	92 mins
Diagnosing brain tumours in 225 cases	AI	87%	15 mins
	15 Doctors	66%	30 mins

Source: LawGeex, Radiology Business

- **Automation and AI are not just changing the content of work, they are also transforming human resource processes**, from recruitment to rewards. 63% of recruitment professionals surveyed say that AI and big data have changed the way their organisation recruits, with 69% saying that it allows them to hire more qualified candidates and minimise delays in the recruitment process.[68] In a context of growing skills shortages in advanced economies, and an ever-larger global talent pool, **AI can help better connect talent with vacancies, not just by performing vetting, skill-matching and interview scheduling, but also the predictive analysis of candidates** based on speech characteristics and attitudes in interviews.

- Within firms, **algorithmic management** is also becoming more widespread, making use of big data analytics and AI to monitor workers or for automated or semi-automated decision-making. **Automated scheduling software[69]** can predict labour demand, making it possible for employers to adjust schedules and allocate shifts on short notice based on real-time data. **Workplace surveillance capabilities**, such as browser history retention of company computers, employer-provided mobile phones, phone apps, but also wearable or even implantable devices, facial and iris scanners, electronic or thermal sensors, or wearable fitness trackers, **give managers the possibility to oversee and monitor employee performance**, and to 'nudge' certain behaviours.

TWO SIDES OF THE CHALLENGE

Now that robots have learnt how to work with people, how do people learn how to work with robots?

As AI and robotics break new ground in undertaking cognitive and physical tasks, **humans are, in turn, having to adapt their skills and competences to cooperate with machines as team-mates**, as well as as tools.[70]

While the roll-out of machines frees up time for humans to engage in more meaningful, creative and safer work, there are also indications that **co-working with machines or under AI performance management can generate stress, unease, alienation**, or even disengagement, with staff reporting that they are losing their sense of purpose, accountability and ownership over their time allocation and work choices.[71]

Going forward, it will be important to pay attention to the impact that co-working with machines may have on people's well-being and sense of self-worth, as well as to ensure that it does not inadvertently result in a 'de-skilling' of workers.

How to protect people's rights and freedoms in the digital world of work?

As the benefits of AI and automation emerge, so do significant ethical issues.

For instance, while AI promises to make healthcare and surgery safer and more accurate, who would be to blame in the case of AI-misdiagnosis or a botched AI-operation? As algorithms are more frequently being used to support decisions on who gets a job interview or a promotion, the question of bias is central, with the risk of 'black-box' processes reinforcing structural societal injustices and discriminations, compromising fundamental rights and diffusing accountability.[72]

In addition, with roughly one in five organisations worldwide using employee-movement data or monitoring work-computer-usage or Microsoft Outlook- or calendar-usage data, employees are increasingly concerned over this invasion of privacy.[73] And rightfully so, as only 30% of business leaders are very confident that their organisation is using workforce data in a highly responsible way.[74]

A core challenge ahead will be to ensure that employers and employees alike are aware of the risks and potential misuses of AI. Rules, guidelines and processes will be needed to be able detect and mitigate biases or misuses, and assign accountability. Down the road, this could also result in new professions, such as algorithm bias auditors or chief trust officers.

TREND 8

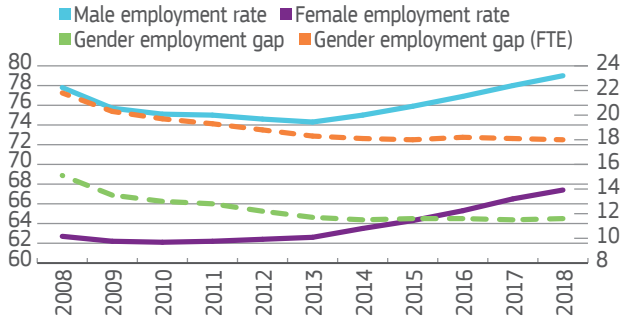
NEW GENDER DIVIDES

The service economy helped put more women to work, but progress is now stalling

- **The rate of female labour force participation has risen impressively** since the 1960s, namely amid changing societal norms,[75] and with the shift from manual work to services.[76] Today, 67.4% of women aged 20-64 are employed in the EU28. Though this represents a 5 percentage point increase in the last decade alone, the female employment rate is still 11 percentage points below the male one.
- **Gender differences are also still reflected in pay levels, as well as in the types of activities that men and women perform in the labour market**.
- While it varies widely across Member States, **the average EU 28 pay gap in 2017 still stood at 16% (against 17.1% in 2010**[77]). Women with a tertiary degree face an even higher pay gap of 25%.[78] The gender pay gap is also wider in the private sector than in the public sector and is widest in the financial and insurance sectors.[79]
- Key to explaining the pay gap is that **women are, on average, more likely to be stuck in part-time, non-standard, and/or low-paid jobs, with fewer chances of promotion**. For instance, 31.2% of working women in the EU28 are in part-time employment, against 8.2% of working men. 38% of women with two children are in part-time employment, against just 5.4% of men with two children.
- Furthermore, **despite the fact that more girls are now completing higher education than boys,[80] not enough of them are entering fields of education that result in higher-paying, future-oriented occupations, such as science, technology or engineering**.[81] In 2015, only 24% of graduates in engineering, manufacturing and construction, and 25% of graduates in ICT were women. Unsurprisingly, this is reflected in the workforce, where 8 out of 10 ICT specialists are men.[82]
- At the same time, **female-dominated jobs, such as teachers, nurses, or secretaries, tend to be less well remunerated** and offer fewer career development perspectives.
- Finally, even though women are increasingly present in the workforce, they are still more likely to put their careers on hold to take up family or caring duties in a world that is still tailored for families with one parent that stays home.[83]
- As a result of all this, **gender balance in leadership positions remains a challenge. Fewer than 1 in 10 companies have a female chair or Chief Executive Officer (CEO)**. Moreover, on average, only 25.3 % of board members of the largest publicly listed companies in the EU in 2017 were women. This marks a significant increase from 11.9 % in 2010 yet a deceleration in the pace of change has been recorded in the past couple of years.[84]

Female employment on a steady rise but the gender employment gaps persists

Employment levels of men and women aged 20-64 in percent (right hand axis), gender employment gaps (left hand axis)

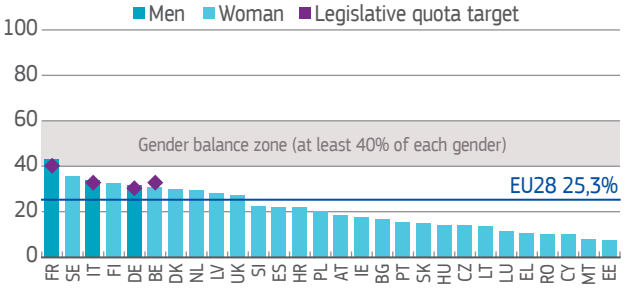


Note: FTE means Full Time Equivalent

Source: European Commission, 2018

Glass ceilings remain in most Member States

Representation of women and men on the boards of the largest listed companies in the EU, October 2017



Source: European Institute for Gender Equality, Gender Statistics Database

TWO SIDES OF THE CHALLENGE

How to ensure that non-standard forms of work provide flexibility without backtracking on gender equality?

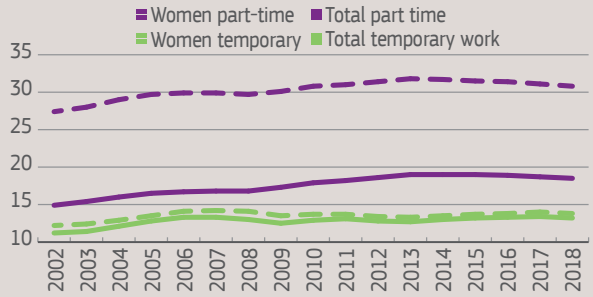
As women have a higher propensity to take on non-work care obligations, the flexibility provided by non-standard, temporary or part-time work can be attractive. Yet, these jobs often come with higher risks of exclusion from social protection – including hard-won safeguards against gender-based disadvantages, such as parental leave and childcare provision. Across the European Union, an estimated 46% of self-employed women aged 15-49 are at risk of not being entitled to maternity benefits.[85]

Work-life balance provisions are fundamental to encourage a better sharing of caring responsibilities and to ensure that women and men alike are able to choose how to balance between professional and personal demands.

In addition, a revalorisation of professions and duties that are becoming ever-more essential in Europe's ageing societies, and in the digital age, is needed. This includes jobs such as teachers, care providers, social workers – where women are a majority.

Temporary and part-time work: largely a female matter

As percent of total employment



Source: Eurostat

How to avoid new digital gender divides?

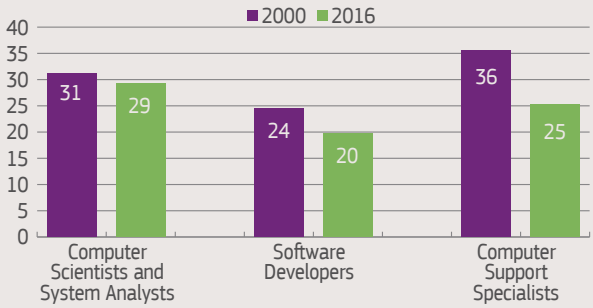
There is, to date, little evidence to suggest that the socio-cultural factors dissuading women from entering digital or tech fields are being overcome**:** At 15 years of age, on average across OECD countries, only 0.5% of girls wish to become ICT professionals, compared to 5% of boys, while twice as many boys as girls expect to become engineers, scientists or architects. Together with the fact that women are often faced with 'glass ceilings' curbing their professional ambitions, there is a strong risk that this will translate into persistent – or even amplified – labour market imbalances in the digital age.

As digital technologies and AI increasingly govern all aspects of work and daily lives, the repercussions for society at large could be even greater. Less than 14% of AI researchers are women – a result of an ongoing decline since 2009.[86] Yet, technologies built and designed by a homogenous group of people tend to discriminate favourably towards that group compared to others. **The lack of female developers in AI can lead to a replication or amplification of existing – often unconscious – gender biases**: Google's ad system, for example, was less likely to show women ads for high-paid jobs than men.[87] Conversely, there is evidence that **diversity brings tangible benefits**: AI research published with at least one female author tends to be more applied and socially aware, focusing on elements such as fairness and mental health.[88]

Ensuring that women are involved in shaping AI going forward requires **tackling imperceptible biases at all ages, from education to employment, so that more women enter digital and tech disciplines.** Gender hiring quotas, initiatives aimed at creating **equal career progression opportunities**, and **legislative quotas for gender balance on company boards** have already contributed to widening diversity and inclusivity in the workplace and in leadership, and could be considered more broadly.

Fewer women in IT jobs than before

Share of women employed in key IT occupations in the US (%)



Source: IWPR Future of Work database 2019

TREND 9

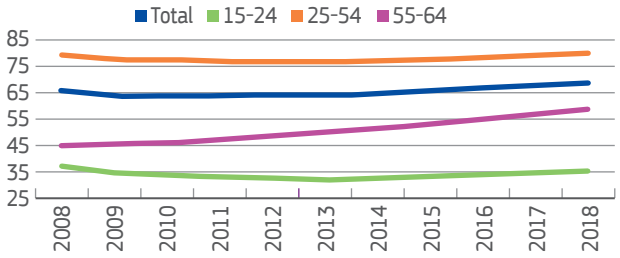
THE SILVER WORKFORCE

People are working longer but how long is long enough?

- Reflecting significant progress in public health, **life expectancy in Europe has increased to 81 years**. As a result, the old-age dependency ratio (people aged 65 and above relative to those aged 15 to 64) in the EU is projected to increase by 20 percentage points, from 30.5% today to 51.6 % in 2060,[89] while the number of people aged 80 years or more is expected to double by 2080, reaching 13% of the whole population.
- **Increasing longevity boosts opportunities for personal fulfilment post-retirement,** in particular as today's older adults are generally healthier than those of past generations. **But it also has far-reaching implications for the future of work and welfare** in Europe.
- Firstly, it is harder to maintain a **sustainable relation between working life and time in retirement, and hence, to build up sufficient entitlements for an adequate pension**. This is even more the case for women than men: currently, the average time spent in retirement for women is over half (56%) of that spent in employment.
- Attempts to address this growing imbalance have led to an increase in official retirement ages across the OECD: from an average of 60.9 in 2000 to 63.6 in 2017 for women, and from 63.1 in 2000 to 65.3 in 2017 for men.[90] These measures mean **Europe's workforce is gradually growing older**, with some 57.1% of people aged 55 to 64 in employment in 2017, and roughly one in ten 65 to 74 year olds still economically active.[91] Nevertheless, save for a few exceptions, the average retirement age still generally remains **lower than the official retirement age of Member States** – substantially so in the case of countries like Belgium, Spain, Italy or Poland.
- With fewer workers for every pensioner, the **sustainability of Europe's social security systems**, and the ability to ensure that population ageing goes hand-in-hand with higher living standards, are coming **under significant pressure.**[92] By 2050, countries such as Italy, Greece or Poland could actually be home to as many – or more – people aged over 50 who are out of the labour force (because of inactivity or retirement) than workers.[93]

Employment rates of Europe's older workforce catching up with overall rates

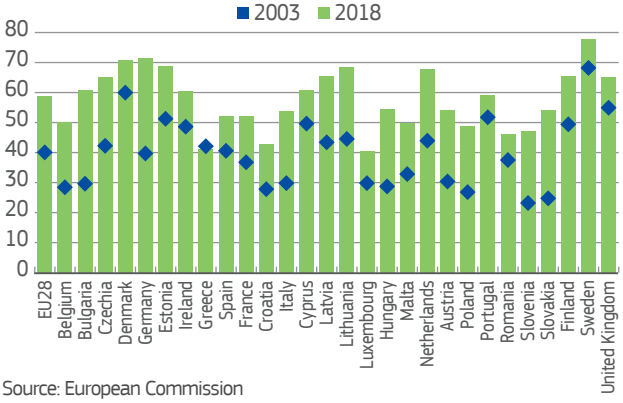
Employment rate by age group, EU28, in percent



Source: European Commission, Employment and Social Developments in Europe (ESDE), 2019

More older workers active across the EU

Employment rate of 50-64 year olds, in percent



Source: European Commission

TWO SIDES OF THE CHALLENGE

How can Europe keep its workforce active and productive longer?

The raising of formal retirement ages has faced much contestation and significant political backlash, driving some governments to reconsider their policies. It is clear that ensuring that people are able and willing to work longer requires accompanying measures: **healthy workplaces** and working conditions; **promoting the employability of workers throughout their working lives; incentives for workers to continue working at an older age** (including tax incentives); **encouraging employers to retain and hire older workers,** including tackling **age-based discrimination**.[94]

Flexible working arrangements, which allow people to combine work with their own and their dependents' caring needs, encourage rather than demotivate from staying on. It is noteworthy that those EU Member States with highest numbers of active 55 to 64 year-olds are also those where these were able to reduce their working hours as they approached retirement (e.g. the Netherlands, Finland, Sweden, Denmark, and the Czech Republic).

It equally involves addressing the challenge that many face of being 'too young' to retire but 'too old' to train or find a new job. This requires **incentives for employers and worker representatives to retain and hire older workers**, including **reviewing their practices in setting pay to reflect productivity and competences, not age**, and sharing good practices in **managing an age-diverse workforce**. Increasing **access to training** so that they can reskill and upskill, and adapting the workplace to facilitate older workers to continue working through **technological advances in ergonomics, exoskeletons and health at work** are all factors at play.

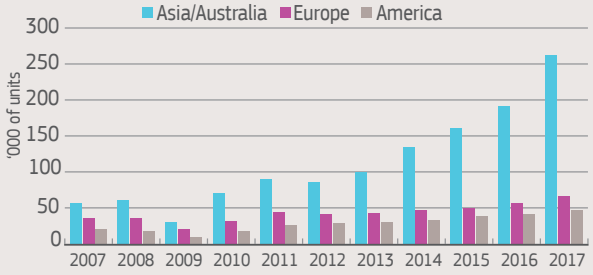
How to overcome labour shortages associated with ageing populations and create new job opportunities?

As its population ages, Europe could find itself confronted with potential labour force shortages, in particular when it comes to meeting the needs of this ageing population. As an illustration, over 3.5 million high-skilled new job openings are anticipated in the EU's **health and long-term care sectors** between 2018 and 2030, and another 327,000 for mid-skilled professions[95].

Labour shortages can either provide immigration opportunities or push firms to invest in technologies such as automation and robots.

This is already visible in rapidly-ageing countries (such as Germany, Japan and South Korea) which have responded to the relative scarcity of middle-aged workers by developing and deploying industrial automation technologies to perform manual production tasks. These technologies are then easily exported to other countries, contributing to higher growth at home.[96] **Similarly, in countries with high emigration rates and/or industries that rely strongly on low-cost labour**, such as some Central European countries, investment in automation has helped to avoid putting a brake on economic growth. For example, new robot installations in the Czech Republic rose by 40% between 2010 and 2015.[97] Today there are around 101 robots for every 10,000 workers – albeit still far from Germany, which averages 309 robots per 10,000 workers, the most in Europe.

Estimated worldwide annual shipments of industrial robots by regions



Source: International Federation of Robotics, World Robotics 2018

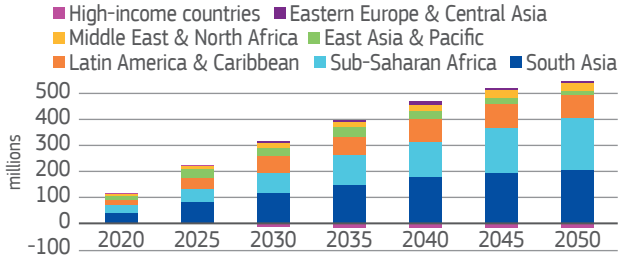
TREND 10

AN EVER-MORE SKILLED GLOBAL WORKFORCE

Europe is struggling to attract the world's best talent

- The global labour force is growing fast, and mostly in developing economies. India alone adds 12 million people each year to its workforce.[98]
- This global workforce is increasingly skilled and educated. By 2020, 65% of the world's 16+ population will have at least a lower secondary education.[100] Gross **enrolment in tertiary education around the world has more than doubled** from 13.6% to 29.2% since the 1990s.[101] By 2030, **developing economies will be home to 3 times more skilled workers than high-income (OECD) countries** – up from 2 times more in 2012. China and India are already home to the highest numbers of university and STEM graduates.
- In contrast, **the workforces of many advanced economies – in Europe in particular – are slated to contract or stagnate** as fertility rates drop and baby boomers retire. To minimise the negative impacts of an ageing and shrinking population, European economies will need to consider attracting young economic migrants from around the world.
- In 2017, the EU28 was already home to some 38.2 million migrants born outside of the EU (or 7.5% of the total EU28 population). The **EU's internal labour market is also becoming more mobile:** In 2017, 12.5 million EU citizens of working age (20-64), resided in an EU Member State other than that of their citizenship. This represents 4.1% of the EU's working age population – against just 2.7% in 2008.[102]
- Yet, only a fraction of new non-EU arrivals to the EU are labour migrants. Instead, **nearly two thirds of migration flows** to the EU Member States **are driven either by family reunification – or are based on humanitarian grounds**. And, compared to similar economies like the US, Canada or Australia, **Europe also attracts a fewer highly-skilled migrants**.
- And, while EU mobile citizens tend to be well integrated in labour markets – performing better even than native-born citizens – third-country nationals tend to have much lower employment rates – with family reunion migrants and refugees faring considerably worse than those who move to work or study.[103]

Developing economies home to 560 million more skilled workers by 2050

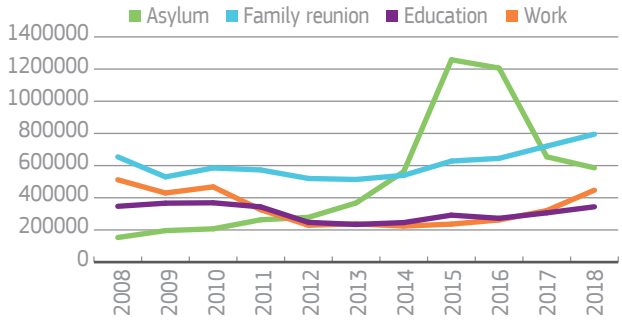


Note: 'Skilled' defined as workers with more than nine years of education.

Source: World Bank Group, 2017

Asylum and family reunification – rather than work – driving EU immigration

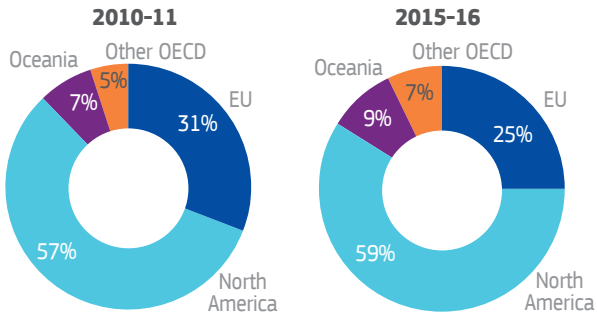
First residence permits (issued for 12 months or over) and first asylum claims in EU28, absolute numbers (thousands)



Source: Eurostat

EU losing ground when it comes to attracting high-skilled migrants

Distribution of foreign-born residents with a high-level of education, by OECD destination countries

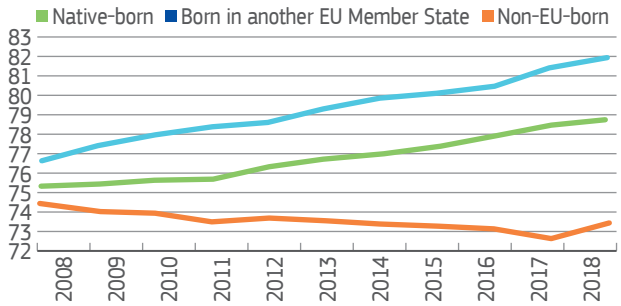


Notes: EU=EU28 without Croatia. Only non-EU immigrants included.

Source: Organisation for Economic Cooperation and Development

EU-born migrants have higher activity rates

Activity rates in percent, 20-64 year olds, EU28



Source: Eurostat

- Recognition of qualifications in the host labour market plays a role here, but so does discrimination. While **1 in 4 migrants in Europe are highly educated**, **40% are over-qualified for the job they do.**[104]
- **As a result, third-country migrant workers remain over-represented in low-skilled, labour-intensive sectors of the economy**, such as retail and hospitality, agriculture, construction, food processing and packaging – particularly in jobs which are poorly compensated, and performing tasks that are often dangerous or socially undesirable.

TWO SIDES OF THE CHALLENGE

How to attract and retain talent in a wider context of global competition for skilled workers?

Europe's projected skills shortage risks being further exacerbated as the **global geography of human capital shifts East**, and competition to attract talent intensifies. As emerging economies become more attractive destinations and actively seek out high-skilled professionals, the labour force in these countries will be able to command an ever-greater share of middle- and higher-paying jobs.

To avoid labour shortages and economic slowdown, the EU needs a forward-looking legal immigration system with a focus on the recruitment and/or admission of talent and skills needed in jobs and sectors that are likely to grow.[105] The availability of more residence and work permits can also reduce incentives to use irregular routes and give the EU greater leverage in negotiating returns of irregular migrants with countries of origin. Currently, only Germany has made real use of the Blue Card Directive to attract fresh talent – issuing 85% of the 24,310 permits issued in 2017. France is in second place with just 1037 permits issued.[106] **Innovations in immigration rules and new visa pathways** will have to be pursued as the traditional 'employer-sponsor' model that has driven most high-skill migration appears increasingly outdated given shifts towards more flexible, non-standard forms of employment and changing skills needs across sectors. Germany for example is experimenting with ways to admit self-employed migrants or freelancers.[107]

But attracting skilled individuals is not just the domain of immigration and visa policy, it also requires further improving the EU's own internal labour market, as well as policy efforts in other fields – such as research and innovation or industrial policy – aimed at ensuring the vibrancy of Europe's economic model.

How to better integrate Europe's migrant population in the labour market?

Despite progress on the recognition of qualifications, skilled migrants continue to face entry barriers to jobs for which they would be qualified. The main exceptions are migrants who arrive as students and graduate in an EU country, as well those recruited for a particular qualified position (e.g. medical doctors and nurses). This indicates that there is not only a failure to attract migrants with 'the right skills', but also a failure to recognise and fully utilise their qualifications.

As a result, **Europe continues to host large numbers of un- or under-employed immigrants** who feel little or no connection with their host societies.[108] This is true not only of first-generation immigrants, but also of second-generation, EU-born, children of immigrants. **Not only is this an opportunity cost for Europe at a time when it faces labour shortages and lagging productivity, but it also comes with fiscal and social costs**.

This situation also creates a vicious circle given that entering the world of work is the most important route to integration in general. As an example of this, migrants entering the EU on work visas are considerably more likely to be able to rapidly integrate the labour market than those arriving on family reunion visas.

More rapid labour market integration of third-country immigrants – based not just on more selective admission processes, but also investments in training and education – would therefore play a crucial role in minimising the social and fiscal costs of immigration, thereby also making it more acceptable for native populations, and helping to combat discrimination.

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