100 MILLION NEW JOBS

NEW PROMISE OF FREEDOM FOR A SUCCESSFUL EU

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FOREWORD: REFRAMING FREEDOM

OUR CONTEMPORARY SOCIETIES are haunted by a great contradiction: whilst the material conditions of a great majority of citizens are better than ever before, many of these same citizens feel they are less secure than previous generations. We have managed to fulfil the basic needs of almost all Europeans, yet we have not abolished the sense of deprivation that people feel. The reason behind this contradiction is simple: European social structures of the industrial era are neither designed for nor suitable to address the challenges posed by digitalisation, climate change, increasingly scarce natural resources and globalisation. A reimagination of how we understand our societies and their functions is therefore needed. This publication aspires to accomplish this by setting out a new direction for a successful Europe.

The publication is directed at and written for policy-makers in the European Union (EU) and its member states. It provides support for a long-term vision, which includes augmenting the global role of the EU and empowerment of its citizens and local authorities in the transformation towards a low-carbon economy, as presented in the European Commission Work Program 2019[1].

The ideas presented in this publication are designed to aid the longer-term planning, opening up new perspectives on desirable futures for European societies and shining light on the larger context. The paper also seeks to support the decisions that those designing industrial, energy, digital, and labour policy will have face in the coming years.

The ways in which many industries currently create value is unsustainable in the economic, social and environmental long-term. Even further, many of the current modes of production, delivery and focus on tangible value creation often fail to deliver on the most fundamental mission: creating more value, and through this, more possibilities for sustainable jobs and the enhanced well-being of their employees that the jobs provide. For European industries to remain successful and competitive in the future, there is a need to shift towards intangible value creation – services, R&D, design, IPR, and human and social capital, amongst others. Intangible value creation through process innovation can produce significant changes in how tasks are completed. They redesign the ways in which industries create value, both intangible and tangible. The vital role and enormous potential of the EU in making this happen is emphasised throughout this publication.

The European social models of the industrial era were based on a common vision, combining economic growth with high living standards and good working standards[2]. It promised citizens that economic growth increases prosperity and that work will lead to individual well-being, regardless of your class background, level of education are or geography. The foundations of this promise can be seen in the drive for a single market policy that has focused on enabling people, goods, services and capital to move freely around the EU. However, in the midst of the challenges of the 21st century this promise of the old social models will be increasingly difficult to fulfil, even when considering the most proven and successful policies of the current day. It seems that the time has come for the EU to reconfigure the very basics of the current models, and approach its reform with an open mind.

1 European Commission (2019) "Commission Work Programme 2019 - Europa EU." http://europa.eu/rapid/press-release_IP-18-6147_en.htm

2 For an in-depth take on the development of European social models, see: Judt, T. (2005). "Postwar: A History of Europe Since 1945". The Penguin Press.

THE GREATEST WEALTH Europe has is in its people: their skills, creativity, passion, caring, curiosity and capacity to collaborate. Taking decent living and working conditions as a universal right reaffirms the long-standing human-centric principle of European social models. Europe has invested wisely in the most valuable resource of this era: its people. In the age of the digital economy and of intangible value creation, raw economic success is greater than ever in the history of humankind.

In order to be at their best, however, people must be given agency, the freedom to perform activities that bring about often unpredictable consequences. The more complex skills and access to different types of tools that people have, the greater economic emphasis will be placed on self-organized, largely spontaneous and emergent human activities. This is self-evident for anyone with involvement in organising knowledge-intensive expert work and transforming it into economically valuable production.

This does not mean, however, that we should merely leave people to their own devices and wait for things happen of their own accord. In this era of political instability and complex socio-economic change, the need for smart, responsive policy is greater than ever. This policy should ensure that access to information and new tools is universal, rather than benefiting only the lucky minority that has suitable education and opportunity.

This means that we must reframe the European discourse on freedom, turning focus on the perspective of the individual. So far, the EU's four fundamental freedoms have been extensions of economic freedom, designed to bring about greater material prosperity. These freedoms aim to boost the availability of each basic mean of production, including labour. Labour, despite its link to people, is not about the individual – a mass term for the human workforce, neglecting spontaneity and agency and hence categorising people as merely a resource for the economy.

For the challenges of our time, this is no longer enough – we require a new approach to freedom, whereby human freedom is seen in a more comprehensive and holistic manner. In order to act freely in the globalised and digitalised world people need new knowledge and skills; a certainty that they will find ways to contribute to society and other people; and emergence of a new model of value creation that creates jobs, development and solutions to the challenges of our time.

THIS PUBLICATION DEFINES the new promise of freedom through three required transitions. Its fundamental aim is to re-establish people as the focus of the EU, reforming our conception of human freedom to be fit for the digital era. The publication consists of six chapters.

THE FIRST CHAPTER introduces the problematique of the European social models of the industrial era and our current challenges – the reasoning behind why we need to reassess the very fundamentals of our society and redefine the promise of freedom. The three chapters that follow present the three transition the EU needs in order to accomplish this: 1) from securing welfare to providing capabilities, 2) from permanent jobs to participation and 3) from measuring economic growth to measuring economic development.

1. **FROM SECURING WELFARE TO PROVIDING CAPABILITIES** refers to the shift from understanding welfare as simply fulfilling basic needs and necessities to thinking that for enhancing well-being and enabling people to act freely in society, people need capabilities that enable self-actualisation. Capabilities refer not only to material well-being but also to the ability to live life in a meaningful way. Capabilities provide people with the freedom to maximise their potential in any way that they choose.[3] On this topic, the leverage of the EU lies in reforms related to education and the EU's capability to utilise digital platforms for the benefit of every European citizen.

2. **FROM PERMANENT JOBS TO PARTICIPATION** means focusing on both the availability of work and on other opportunities of creating value, a shift from a promise of the permanence of jobs and careers. Currently, many people belong to society through one job, yet this continuity seems to be more and more difficult to maintain. In this situation, a sense of security should instead be guaranteed through the availability of new jobs and the possibilities for people to take them on. On this, the major leverage of the EU lies in the creation and maintenance of more open and functional markets.

3. **FROM MEASURING GROWTH TO ECONOMIC DEVELOPMENT** refers to the idea that economic growth is an outdated proxy for measuring prosperity. We need to create new measures of economic development that recognise intangible value creation and quality of life for individuals. To this end, the major leverage of the EU can be found in updating its industrial policy to address the challenges posed by the 21st century.

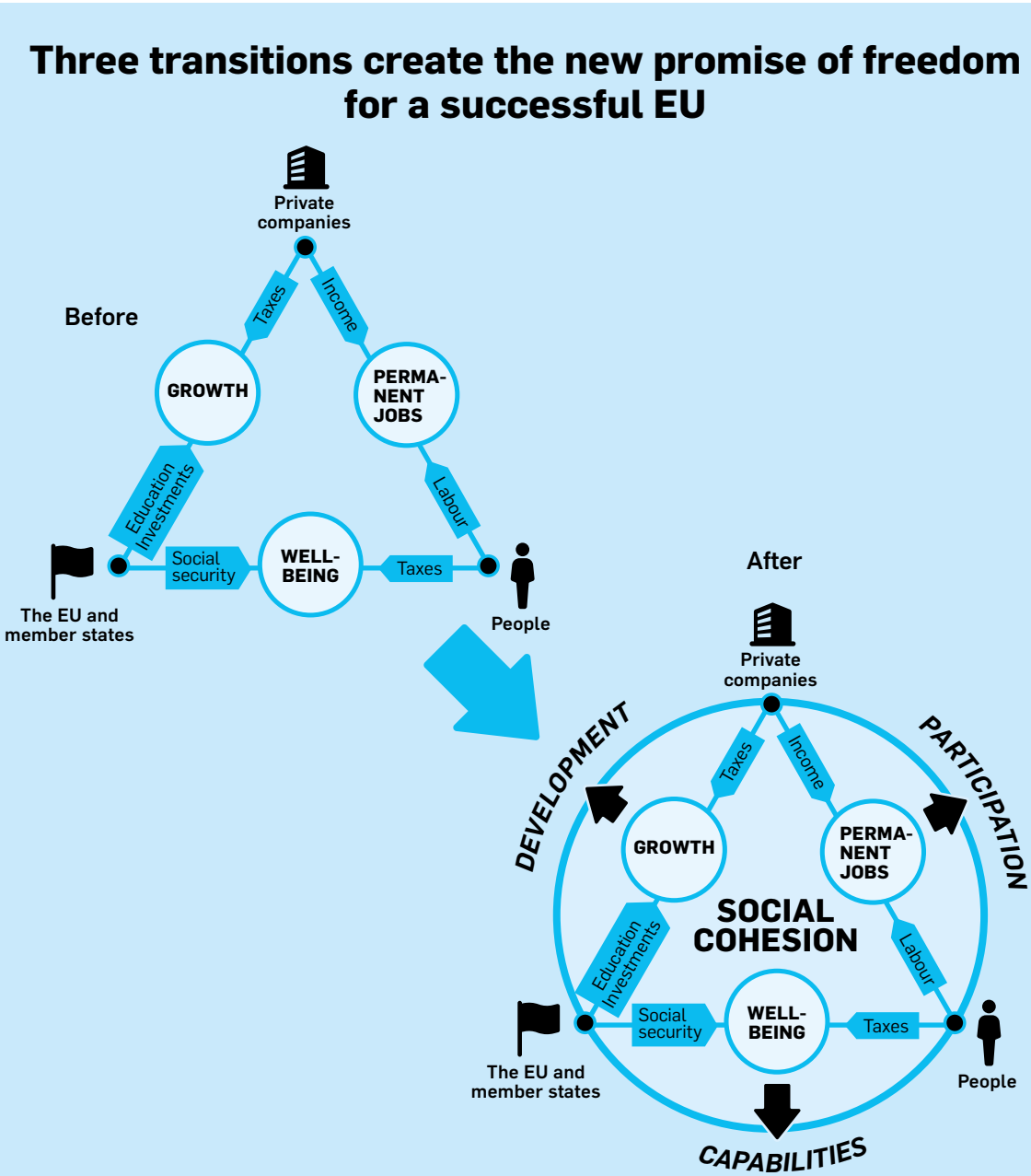
THESE THREE TRANSITIONS are woven together in chapter 5, which presents the case for what can be a virtuous cycle of three transitions as the new direction for the EU. Taken together, these transitions create the conditions for an increased sense of freedom and social cohesion – a precondition for successful European industries.

IN THE FINAL CHAPTER (chapter 6), short scenarios depict what might happen if the critical challenges are not answered at the European level, as well as exploring the kind of opportunities that might arise from their solution. Their message, as that of the entire publication is clear: we can, and should, grasp the chance to create a successful, competitive EU that enhances the freedom to act for all.

DEMOS HELSINKI
October 2018

3 Korhonen, Neuvonen, Hokkanen (2017): "The Nordic model is not about well-being – It is about capabilities". Sitra articles. https://www.sitra.fi/en/articles/nordic-model-not-well-capabilities/.

Image 1: The Promise of Freedom for the Successful EU



The leverages of the EU to enable the transitions.

CAPABILITIES

EU's leverage:
Platform governance & education reforms

Read more on page 22

PARTICIPATION

EU's leverage:
Labour mobility & internal markets

Read more on page 34

DEVELOPMENT

EU's leverage:
New industrial policy

Read more on page 42

THE PUBLICATION PRESENTS three transitions in order to enhance the EU's core promise of freedom in the digitalised world.

1. **FROM SECURING WELFARE TO PROVIDING CAPABILITIES:** Welfare refers to fulfilling the basic needs of people. It's no longer enough to enable people to freely act in the society – we need to give the necessary capabilities towards self-actualisation. The EU can achieve this through platform governance and reforms related to education.
2. **FROM PERMANENT JOBS TO PARTICIPATION:** Currently, many people belong to society through one job, but the continuity of that job can no longer be guaranteed. Instead, the availability of new jobs must be guaranteed by creating more functional markets.
3. **FROM MEASURING GROWTH TO ECONOMIC DEVELOPMENT:** The idea of measuring prosperity by economic growth is outdated; we need to create new measures of economic development. The EU can promote this through its industrial policies.

CONTENTS

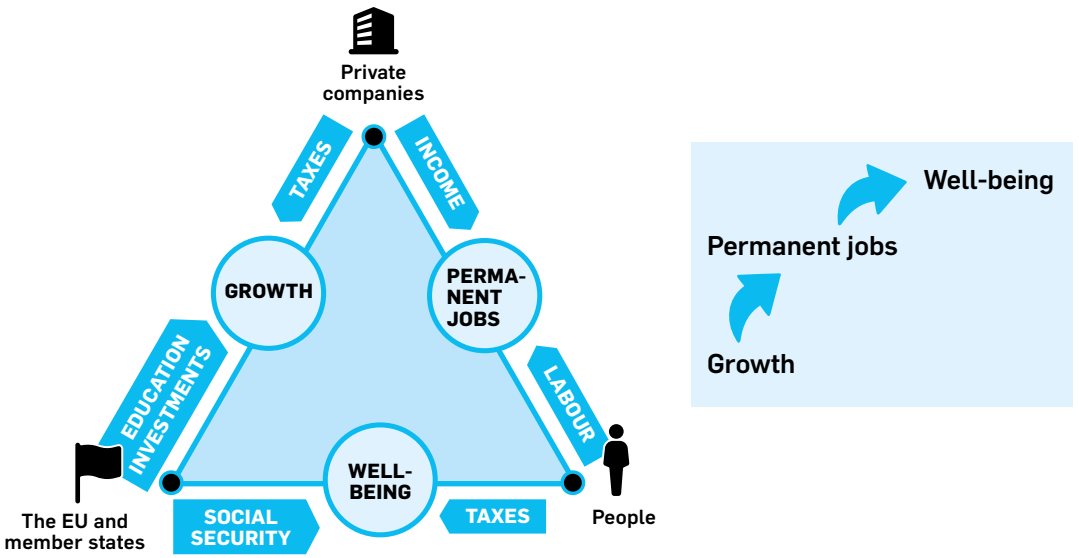
A NEW APPROACH FOR THE EU IS REQUIRED

The social models of the industrial era are broken

THE SOCIETY OF THE INDUSTRIAL ERA, born in the 18th century and which flourished until the late 20th century, was built on the premise that economic growth created permanent jobs and increasing wages. This in turn brought about relatively stable well-being for the population. The social models of the industrial era emerged out of this where the state, private companies, and people all had specific roles to play. The relationship between these actors is depicted in Image 2:

- The state invests in, for instance, education and infrastructure, providing the basis for economic growth, which benefits private companies. Private companies pay taxes to the state in return.
- Private companies create work, providing people with decent income in exchange for their labour.
- People pay taxes to the state, and the state provides them with social security, which fills the gaps in well-being that employment does not provide.

Image 2: The social model of the industrial era.[4]



4 Neuvonen, A. (2017). "Rewiring progress." Sitra Memorandum.

THE SOCIAL MODELS of the industrial era are broken for two reasons.

Firstly, economic growth no longer leads to permanent jobs and increased wages in the same way as before. While productivity has increased, in many countries this has not led to growth in real wages since the 1980s.[5] Different explanations have been given for this stagnation: that it is a natural tendency in capitalism[6]; that it is the result of automation accelerated by digitalisation[7]; that so-called 'Institutional Investors' own companies across the same industry in open global markets, thus creating monopolistic structures and leading to a massive wealth transfer to business owners[8]; or that is is due to the growing importance of social capital, which improves the employer's ability to negotiate a better share of wealth (for example, company culture stays as a part of the organisation's social capital and a worker is not able to take it with them, as is the case for individual-specific human capital)[9]. Regardless of the explanation, wage stagnation breaks the link between economic growth and improvements in well-being.

Secondly, social security, which previously filled the gaps in well-being that employment couldn't provide for, is under strain. Even though, officially, employment is higher than ever since the 1980s, less than half of the population in OECD countries actually work[10], in part due to a growing old-age population[11]. As a result, an ever smaller share of the population[12] has to pay for the subsistence of the rest. On the other hand, the demand for social security is growing, as low-paid jobs are no longer a guarantee of sufficient or stable subsistence, and many of these jobs do not provide better career opportunities for the future[13,14]. Moreover, many previously stable and permanent jobs are at risk of disappearing due to automation boosted by digitalisation[15], potentially leaving millions of people dependent on the state for their subsistence.

All of the above is happening in step with the nearly universal realisation of a grave fact: economic growth that does not take into account the planetary boundaries set by the Earth's environment is simply not possible. Not only are wages, jobs, and social security under strain, so too are the foundations of growth within the industrial age social models themselves. To this day we have failed to create a model for long-lasting economic growth that would be decoupled from growth of climate change causing emissions and other forms of ecological harm.

In short, generational progress is grinding to a halt: Millennials are the first generation since World War II who will be economically worse off than their parents, despite working just as hard[16]. This is emblematic of the shift that has left people feeling insecure and afraid, sparking political change across the Western world. Many of these changes have been reactionary, conservative, protectionist, and nationalist, as well as having changed global and regional power structures. These changes often seek to keep people in their current jobs and protect current industries (environmentally unsustainable ones included) and secure the continuity of current professions.

5 Skare, M & Škare, D. (2017). "Is the great decoupling real?." Journal of Business Economics and Management. 18. 451-467.
6 Piketty, T. (2017). "Capital in the Twenty-First Century." The Belknap Press of Harvard University Press.
7 Brynjolfsson, E & McAfee, A. (2014). "The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies." W.W. Northon Company.
8 Posner, E. & Weyl, E. (2018). "Radical Markets: Uprooting Capitalism and Democracy for a Just Society." Princeton University Press.
9 Avent, R. (2016). "The Wealth of Humans: Work, Power, and Status in the Twenty-first Century." St. Martin's Press.
10 OECD (2018). Unemployment rate (indicator).
11 OECD (2018). Employment rate (indicator).
12 OECD (2018). Unemployment rate (indicator).
13 Mosthaf, A., Schank T. & Schnabel C. (2014). "Low-wage employment versus unemployment: Which one provides better prospects for women?." IZA Journal of European Labor Studies 2014 3:21.
14 McCormick, B. (1990). "A Theory of Signalling During Job Search, Employment Efficiency, and "Stigmatised" Jobs." The Review of Economic Studies. Vol. 57, No. 2, pp. 299-313.
15 Bowles, J. (2014). "EU countries, estimated 47% to 54% of jobs are in the risk of automation." Bruegel blog 24.07.2014.
16 Luxton, E. (2016). "Poorer than their parents. What's gone wrong for this generation?." World Economic Forum.

AT THE SAME TIME, industrial era institutions such as rules, beliefs, norms, and organisations that create these, seek to maintain the status quo[17], rather than boldly enabling new ways to create value. In this environment, politicians gain power by promising stability and short-term fixes, which has slowed down both the positive developments in digitalisation and the much-needed transition to a low-carbon economy.

It is therefore clear, that the approach of maintaining the status quo does not work. The industrial era social models are broken – instead of patching up a rapidly disintegrating framework, the EU needs a new approach, consistent with the trends and expectations of the 21st century.

As our past tells us, to share the benefits of new technologies fairly we need new societal institutions, or have to improve the existing ones. The current period of technological progress is increasingly seen as similar to the Industrial Revolution in the extent of the disruption it is causing. However, during the emergence of the industrial era, it took 60 years before the job market stabilised and became fair for workers.[18] Before this, radical changes in society made many lose their jobs or suffer reduced or stagnated income. Many migrated to congested cities and worked in factories with poor working conditions. Only with the creation of new societal institutions (for example, urban planning institutions, social insurance systems and social programmes such as public education and healthcare), often through hard-won political battles, did European welfare states slowly emerge, and eventually, industrialisation led to increased productivity and prosperity throughout society. This time, change must happen faster – losing a whole generation (and this time, perhaps our planet along with it) to a life of misery and decline is not an option.

17 Perez, C. (2002). "Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages." Elgar.

18 Allen (2009). "Engels' pause: Technical change, capital accumulation, and inequality in the british industrial revolution" Explor. Econ. Hist. (2009), doi:10.1016/j.eeh.2009.04.004

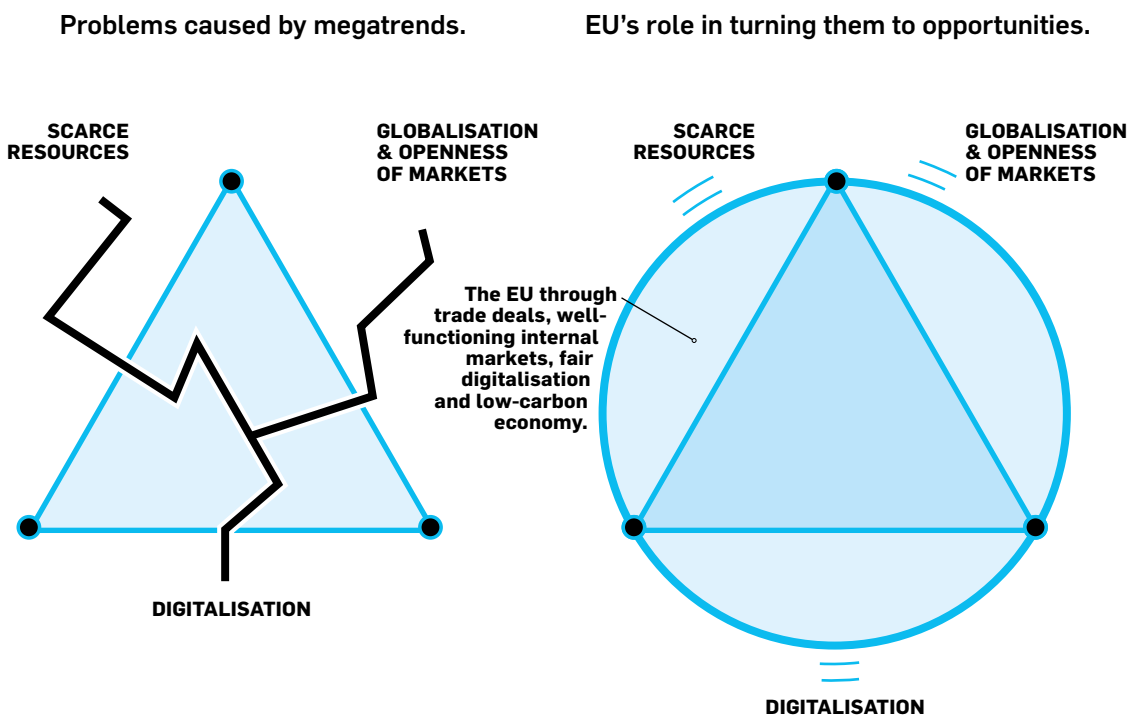
The EU as the driver of the new direction

THE PROBLEMS that the industrial era social models face are complex and global, and thus call for a comprehensive model with supranational steering from the EU. The process has to take into account the EU's capabilities and limitations: the Union does not have significant power over policies of its member states regarding jobs, skills nor knowledge. We argue, however, that the EU has remarkable power to steer the developments that have dismantled the industrial era social models. These developments or megatrends are *digitalisation, openness of markets, globalisation, transition* to *a low-carbon and resource-scarce economy*. While the EU cannot directly influence the future of skills and jobs in member states, it does have a say in:

1. Directing global economics through trade deals;
2. Ensuring well-functioning and fair internal markets;
3. Sharing the benefits of digitalisation fairly; and
4. Leading the transformation to a low-carbon economy.

THE REALISATION that the EU plays a major role in shaping new social model is the key message of this publication. Creating a new direction using the EU's leverage around digitalisation, open and well-functioning internal markets, globalisation as well as a low-carbon economy is both possible and desirable.

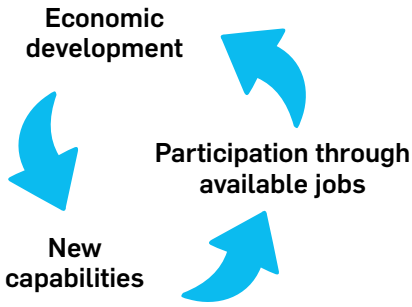
Image 3: Megatrends, such as digitalisation, globalisation, open markets and the transition to a low-carbon economy and scarce resources, are threats to the old social models and opportunities for the new direction proposed in this publication.



The promise of freedom creating the soil for Europe to flourish

THE NEW SOCIAL MODEL for the EU proposed here aims at increasing people's freedom by accelerating 1) the learning of new skills and accumulation of knowledge 2) access to new jobs 3) the emergence of new value creation that guides economic development towards low-carbon economy, while creating jobs and growth in sustainable way. This kind of economic development is the main leverage point for decision-makers to transform societies towards social, ecological, and economic sustainability.

Image 4: The new social model enabling the promise of freedom consists of a virtuous cycle where economic development creates new capabilities for people. New capabilities help create new value for companies in new kinds of often temporary jobs, which in turn, leads to economic development.



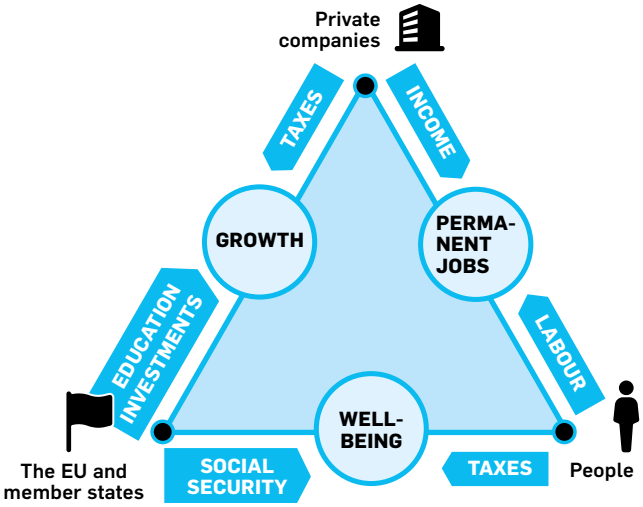
FIRST, from securing welfare to providing capabilities: The old meaning of welfare refers to fulfilling the basic needs of people. It's not enough to enable people to act freely in society – we need to create the necessary capabilities towards self-actualisation and security.

SECOND, from permanent jobs to participation. Currently, many people belong to the society through their one job, but continuity of a certain job can no longer be guaranteed. Instead, the availability of new jobs must be guaranteed.

THIRD, from measuring growth to economic development. The idea of measuring prosperity by economic growth is outdated, but we need to create new measures of economic development.

IF THE EU is focusing on these transitions, it reaffirms that EU citizens will have jobs, a feeling that they belong to society, and a feeling that the EU, as a community, matters. The next three chapters investigate each of these three transitions.

Image 5: The new social model expands well-being with capabilities, continuity of jobs with participation through the availability of jobs; and the economic growth with economic development. These offer the promise of freedom for EU citizens.

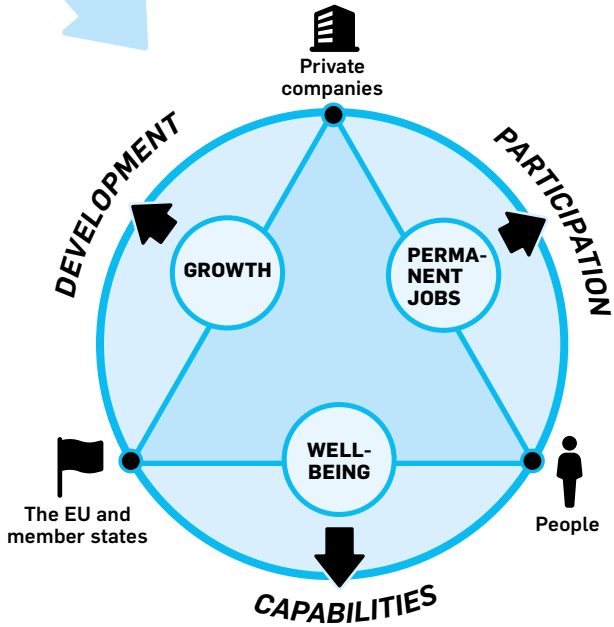


From jobs to participation

(fluidity of job creation towards sustainable EU coupled with freedom & security allows flexible production-based job market.)

From growth to development

(scarce resources force to change metrics of success).



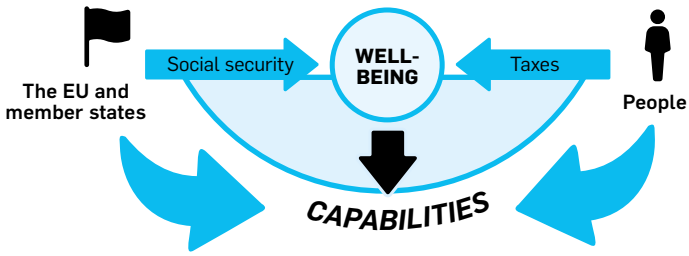
From well-being to capabilities

(intangibles provide opportunities for more equal capabilities)

1 FROM SECURING WELFARE TO PROVIDING CAPABILITIES

Well-being requires the necessary skills, tools and capabilities towards self-actualisation

Image 6: Welfare needs to be widened to offering new capabilities to people.



TO SUPPORT THE EMERGENCE of a new social model, we need to update and widen its concept of welfare. Previously, it was seen as sufficient for member states to collect taxes, and then use those taxes to provide people with social security – welfare was seen as fulfillment of basic needs. But this is not enough.

IN ORDER TO SUPPORT people's well-being in the rapidly changing world, the concept needs to be understood more broadly not only as the fulfillment of the most basic needs but also as increasing individual capabilities to act. Today this means that there is no well-being without both access to technology and the ability to use and benefit from them. The fruits of economic development, sped up by technological innovations, need to be shared with people in a more nuanced way. Rather than supporting welfare by offering fulfillment of merely basic needs, the new model offers people modernised skills and capabilities, meaning they are able to participate in society as it evolves.

Well-being as the capability to prosper together

EVEN THOUGH THE RISK of poverty and social exclusion is still a major risk in the EU[19], from a historical perspective, the level of well-being is high.[20] This is the result of long-term development: the very core idea of welfare state was in securing people the most basic needs and necessities and liberating them from "the five giants" (squalor, ignorance, want, idleness, and disease).[21]

This idea of well-being still holds weight, and its developments are carefully tracked year on year across the EU. In the long term, the trend has been positive and the well-being of citizens across Europe has increased. Despite the scarce resources of the planet, maintaining high levels of material well-being has only become easier: as increasingly automated mass production lowers the prices of goods and necessities,the cost of providing these decreases.

We've seen historical progress in well-being. For example, the share of people in extreme poverty has decreased continuously over the course of the last two centuries.[22] Despite the progress, inequalities are again rising – both in monetary terms, and in how they are perceived by those with lower socioeconomic status.[23] In general, people perceive at least three different kinds of inequality:

1. **INEQUALITY IN THE PROVISION FOR BASIC NEEDS.** The socio-political choices in European countries during the industrial era transformation effectively reduced this kind of inequality. There are still people who are hungry or who lack shelter, but these numbers have drastically declined, especially since the middle of the 20th century.
2. **INEQUALITY IN THE CONSUMPTION OF LUXURY PRODUCTS AND SERVICES.** Not everyone can eat Beluga caviar for breakfast, own an apartment in the fanciest part of town or casually tote a luxury handbag worth thousands of euros. This is the kind of inequality that is usually thought of when the problems of wage stagnation or CEO salaries are discussed. There is no way to completely fix this kind of inequality because it is based on cultural valuations and not on use value, as well as being almost always based on people's subjective comparisons to those who are better off in their materialistic lifestyles, rather than those who are worse off.
3. **INEQUALITY IN CAPABILITIES.** There are genetic differences in regards to what capabilities individuals can obtain, but mostly they are constructed in school systems, social roles as well as access to technology and tools. It's this third kind of inequality that partly cripples functional meritocracies: seldom is a person's success attributable merely to the hard work and effort of the individual. This inequality in capabilities also significantly contributes to the inequality in the consumption of luxury products and services.

DESPITE GROWING INEQUALITIES, there is hope: While industrialisation contributed to diminishing inequality in basic needs; the current economy, that is largely based on intangible value, has the potential to diminish inequality in capabilities, since tools, collaboration,and education can be made cheaper and more accessible.[24]

As people have increasingly access many basic material items[25], focus should shift towards providing the means for individuals to achieve the kind of life they have reasons to value[26]. Skills and knowledge are at the core of belonging to society. In a world where an update of skills and knowledge is constantly required, ensuring the capabili-

19 Eurostat (2018). "Europe 2020 indicators - poverty and social exclusion."
20 van Zanden, J.L., et al (eds.) (2014). "How Was Life?: Global Well-being since 1820.", OECD Publishing.
21 Beveridge, W. (1942) "Social Insurance and Allied Services"
22 Roser & Ortiz-Ospina (2017) "Global Extreme Poverty - Our World in Data." https://ourworldindata.org/extreme-poverty.
23 Yglesias, Matthew (2015). "Why is inequality rising? - Everything you need to know about income" https://www.vox.com/cards/income-inequality/why-is-inequality-rising.
24 The democratisation of capabilities does not happen automatically. Political actions are required to bridge the digital divide and offer everyone access.
25 "The stuff we really need is getting more expensive. Other stuff is ...." 17 Aug. 2016, https://www.washingtonpost.com/news/wonk/wp/2016/08/17/the-stuff-we-really-need-is-getting-more-expensive-other-stuff-is-getting-cheaper/.
26 Wiebeke K. (2005). "Following Amartya Sen's Capability Approach: Theoretical Insights and Empirical Applications." Springer.

ties of individuals to stay on the map is crucial.

While staying alive and fulfilling basic needs do lie at the core of life, there needs to be something more. In order for individuals to actively take part in society, well-being has to be redefined: not only as having basic needs fulfilled but also as having the skills, tools and capabilities to prosper together.

How to deliver new capabilities for all?

DELIVERING NECESSARY SKILLS to people used to be easy: provide them with basic education. Indeed, high-quality and universal education still play a vital role in furnishing people with basic knowledge and skills, but more importantly, in building educational benefits in a broader sense[27]. However, due to the rapidly changing requirements of the job market, higher education institutions and vocational education systems are increasingly unable to furnish the workers of the future with the necessary skills[28].

This is due to two reasons: firstly, it is inevitable that curricula always run behind the development of society; and secondly, the fast changing labour market requires learning throughout one's life in a much more systematic way than learning today.

At the same time, a lot of learning already takes place outside of institutional education systems, and this unofficial learning is increasing[29]. The change in education is good news, because the public education system can only be part of the solution in updating skills for the rapidly changing job market[30]. Indeed, countries that are better in re-educating their citizens have the upper hand. While it requires a good quality of basic education and capacity to reassess curricula in relation to job markets, this alone is not enough. Some of the burden can also be carried by employers and by people themselves, using for example digital-learning platforms.

Digital platforms change the required skills in the job markets

TO UNDERSTAND how skills can be provided these days, it is first important to understand what kinds of skills and capabilities are needed. Process innovations change the required skills in the job market. Process innovations are significant changes in how tasks are conducted, and are brought about through economic development (see *transition* 3, page 36) in the form of scientific insights and new business models[31]. Successful process innovations increase productivity via, for example, automation or more efficient social practices.

It is a common misconception that, in the future, there will be a greater need for a more knowledgeable workforce. This is only partly true; societies have always needed as many skillful people as possible. At the same time no amount of education will push most people to make, for example, cutting-edge scientific discoveries. Because of this, it is important to look at what happens to the required skills when new process innovations change tasks. Perhaps surprisingly, tasks do not necessarily become more complex.

This is especially true in the platform economy, one of the most important outgrowths of digitalisation. Digital platforms like Airbnb, Platforms like Airbnb, Tencent and Facebook are intermediaries that help various groups such as customers, advertisers, service providers, producers, suppliers, and even physical objects to

27 Education cannot be considered as merely the provision of skills, but also about bildung, providing knowledge and building capacities.
28 World Economic Forum (2017) "Accelerating Workforce Reskilling for the Fourth Industrial Revolution." http://www3.weforum.org/docs/WEF_EGW_White_Paper_Reskilling.pdf.
29 Anderson, J., Boyles, J., A. & Rainie, L. (2012). "The Future of Higher Education". Pew Research Center.
30 Demos Helsinki et al. (2018). "Long-term Policymaking as a Tool Through Transformation – Aspirations for the Future of Work" (in Finnish). Government Publication and Research Publication Series, Finland 34/2018
31 ILO (2016). "New technologies: A jobless future or golden age of job creation?". International Labour Organization, Research Department, Working Paper no. 13.

interact, for example by helping a group to build their own services or marketplace. Although platform economy is only one part of the shift to digital value creation and digital value creation is only one part of the shift to intangible value creation, the transition from the conventional "pipeline" businesses to platforms (outlined in table below) captures the essence of this transformation[32].

A pipeline	A platform
Pipeline businesses create value by controlling a linear series of activities in the form of the value-chain model.	Platforms are digital infrastructures that enable two or more groups to interact. They create value by orchestrating this interaction.
Resource control	Resource orchestration
Internal optimisation	External interaction
Focus on customer value	Focus on ecosystem value

DURING THE PREVIOUS great techno-social transformation, Henry Ford's insight was to use the new general purpose technology to reorient economic and social systems around jobs. Rearranging jobs collectively around the manufactured product required an algorithm (instructions) on how to build a car. Similarly, to workers on the Ford assembly line, digital platforms are designed to help collaborators by providing them a social algorithm – norms, rules and filters – that guide them to operate correctly, according to predefined service standards. For example, an Uber driver gets an advantage by not having to think about additions to the mobility service, but on the other hand she can only build the offering within the service standardisation of the platform.

Service standardisation of platforms dumbs down tasks that are orchestrated on them. Words matter here: the dumbing down of tasks can also be said to democratise these tasks, helping more people to be able to do them. Taxi drivers no longer need to know the roads of the city. A nurse can make a cancer diagnosis without a doctor with the aid of a machine-learning system.

So far, so good: when tasks become simpler, more people become capable of doing them. Process innovations enable more people to do tasks that were previously possible only for a few.

However, when more people can do a task, competition around these tasks intensifies, which leads to a reduction in salaries and an increase in the share of simple jobs in the economy. When we look at countries, which have clear low-wage sector, such as Thailand or the USA, we find an extensive number of workers in shops and restaurants, often doing trivial tasks, such as opening the door – a job that could be easily left to the customer or automated.[33]

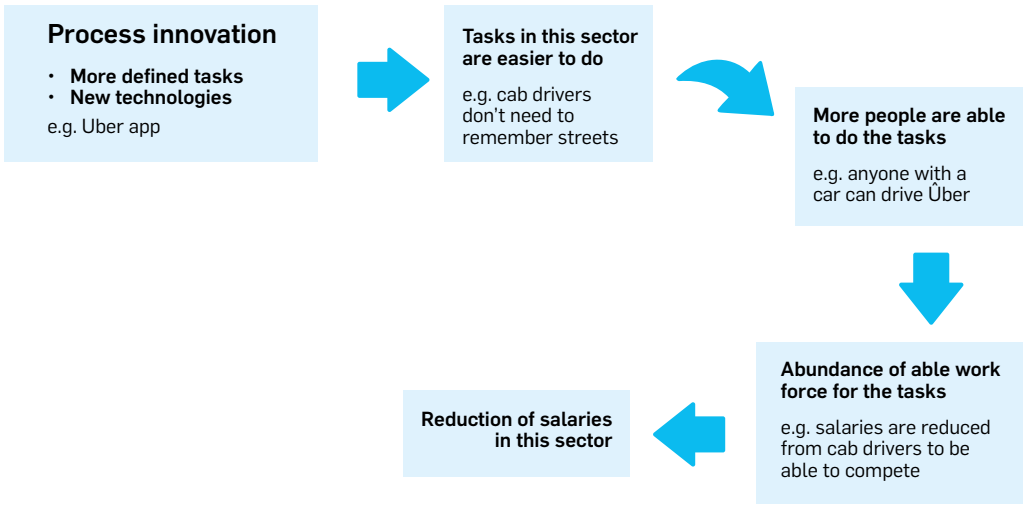
Due to this, labour abundance leads to a side effect in digitalisation that is sometimes considered its main feature – digital feudalism. For example, the task-hiring service Taskrabbit works because it's cheap enough to hire unskilled labour to do unproductive tasks, such as waiting in the line for someone else. The more labour there is available, the more extensive the low-pay economy becomes. Companies choose the cheapest way to do a task and, if people are cheaper than machines, the sensible timeline for automation of trivial tasks is pushed ever further. That's how process innovations affects the requirements of skills and capabilities in the job markets.

Large AI-enhanced platform behemoths, such as Google, Baidu, Facebook, and Alibaba, represent the major share of process innovations made in the recent years. Part of their success is their ability to make tasks conducted on them very easy. These companies are often able to dictate the regulation surrounding them, especially in their native countries. How they are allowed to operate inside the EU is a topic that needs to be addressed.

32 Parker, G., van Alstyne, M., W. & Choudary, S., P. (2016). "Platform Revolution: How Networked Markets Are Transforming the Economy - and How to Make Them Work for You". W. W. Northon & Company.

33 A sliding door is often a useful example of automation and it does not fail this time either: naturally, the task is simple but there is a counter-argument that the task of the person opening the door is not to just open the door, but to make the person entering feel welcome and wanted. Indeed, making people feel welcome can be a human job that should not be automated.

Image 7: The algorithmisation of a job leads to a temporary labour abundance in a certain sector and, thus, reduces salaries.



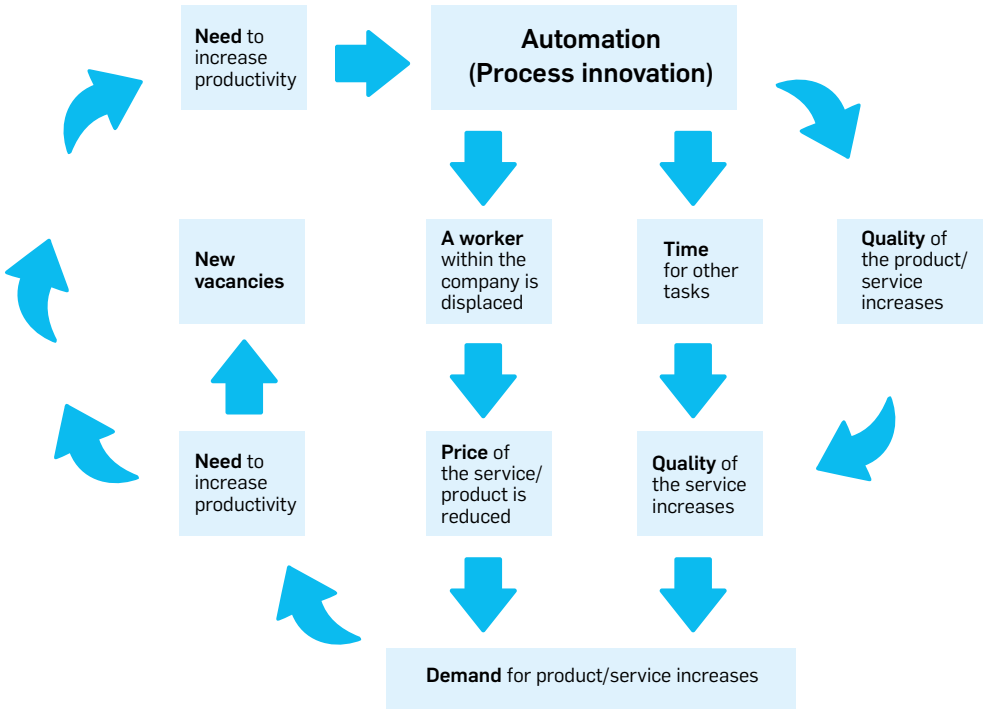
Digitalisation challenges existing policies on employment and skills

AS OUTLINED ABOVE, if digitalisation only reaches this first phase, societies end up with jobs where work is algorithmic (completely instructed, service-standardised), but not automated. The next step in digitalisation would be to automate all the tasks that have such clear instructions. However, the next step does not happen without conscious political action because the competition-induced reduction to salaries inhibits investments to automation.

In other words, when there is no political will or action to combat the downside of digitalisation, there is an increase in simple jobs that are based on monotonous and often dull routines. These jobs are currently found in Amazon warehouses where people are equipped with tracking devices and their movements are optimised with AI algorithms[34] and in gas stations where cars are now hand washed because it is cheaper than purchasing a car-washing machine[35].

34 Yeginsu, C. (2018). "If Workers Slack Off, the Wristband Will Know. (And Amazon Has a Patent for It.)" New York Times 1 Feb. 2018.
35 Mason, P. (2016). "Our problem isn't robots, it's the low-wage car-wash economy." The Guardian 12 Dec. 2016.

Image 8: Outcomes of the automatisation of a task. New tasks can be more or less human-resource heavy, so it is possible that a worker is displaced either in the company that automated their task or, more likely, in another company.



IF POLITICAL ACTION is taken to increase automation of simple tasks, two kinds of job categories emerge:

1. In the first kind, workers need to constantly come up with new skills but they are heavily assisted with new technologies to be more capable as well. The ultimate goal of such a job is to get rid of the the human element in the job completely, similar to the development of automatic text processors – in other words, make it work with algorithms and automation.
2. In the second kind typical human characteristics, such as empathy, are emphasised – a category including health care, culture and other interaction work, often called hi-touch jobs.

TO PROVIDE PEOPLE with new skills in the first category of jobs (where humans are assisted with new technologies to be more capable), member states should aim to disseminate the benefits of technological development to as many people as possible. This includes a wide range of actions regarding access to and ability to use skills-enhancing services that are supported by new technologies, such as AI[36]. Examples of such services are Google search and the Uber app .

This means for example following things:

- Tackling the digital divide[37] and focusing on digital literacy;
- Enabling very fast re-education systems and supporting companies that help their workers to learn;
- Supporting or setting up hiring platforms and skill certification systems to match people for short-term collaboration projects across a wide range of industries and broad geographical areas;
- Requiring people to invest their resources, mostly time and curiosity, to constantly learn new skills and knowledge to constantly move away from the tasks set and automated by algorithms.

36 In other words, applications of machine learning.
37 Digital divide refers to the gap between demographics and regions that have access to digital technologies and those that don't or have restricted access.

IN THE SECOND CATEGORY of jobs, so called hi-touch jobs (where human characteristics are emphasized), the solution is more straightforward: contrary to the first kind, supporting low-paid hi-touch jobs with, for example, wage subsidies or other similar structures is recommended. It is undesirable to heavily automate the tasks that require people's interaction and have people as direct beneficiaries of the work.

To sum up this chapter, process innovations, which often happen through digital platforms, enable and require new capabilities. Tapping into these new capabilities requires access to these innovations and learning how to use them – in other words, *ability*. Education systems are on the verge of a major change and, thus, the opportunities to support rapid learning should be approached also outside the institutional education system. Sometimes, process innovations might dumb down jobs too much: political support for automation and more broadly economic development (see *Transition 3* on page 36) are required to provide meaningful jobs for people.

Benefits from digitalisation: EU-driven platform governance and education-related reforms can help individuals acquire capabilities

THE PREVIOUS SECTION highlighted the importance of providing people with new capabilities to make use of the potential from process innovations created in the growing platform economy. The EU has two ways to influence the creation of capabilities: 1) platform governance to direct the automation of algorithmic jobs and correctly value hi-touch jobs, and 2) reforms related to education in order to guarantee that people have the ability to acquire new capabilities in the digitalised world.

Currently, due to digitalisation, new kinds of skills and capabilities are strongly required. Even if the EU has only limited power to affect its member states education policies , it does play a role in defining the rules of the 'digital playground', which in turn, shape the need of capabilities.

Furthermore, the EU has a key role in dictating how skills derived from the economic development of platforms are shared, and in supporting the mitigation of the digital divide as well as advocating for open-data standards, MyData, and application programming interfaces (APIs). When access to new capabilities – be it social capabilities, technological innovations or abilities to learn new skills – are shared equally, collective capabilities are maximised. This improves the competitiveness of the member states and of the EU as a whole.

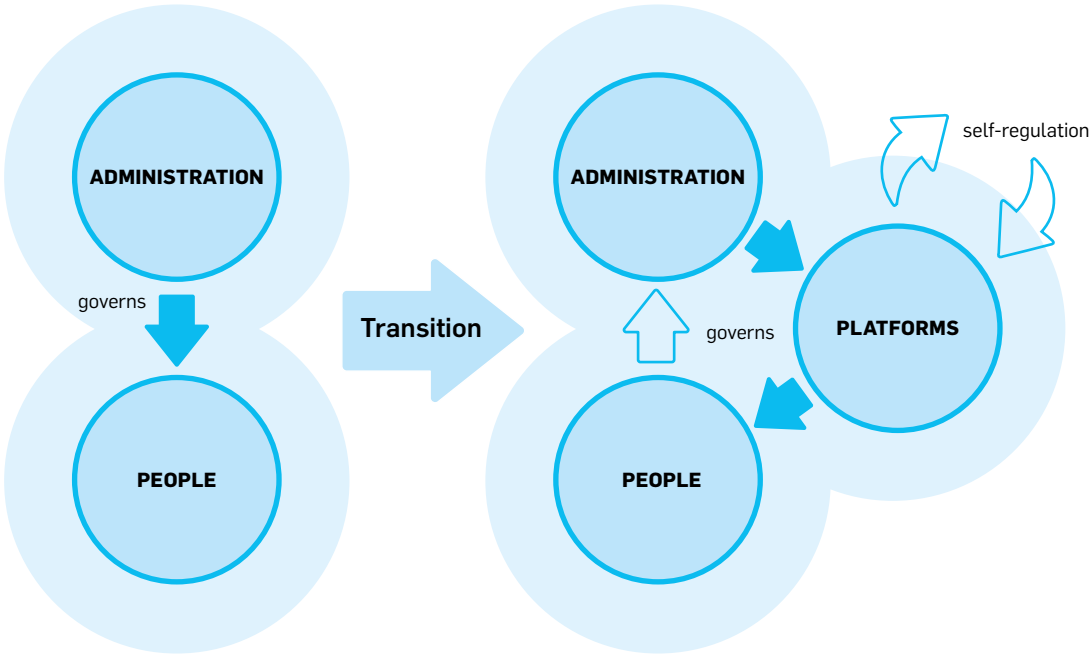
Platform governance

LET'S LOOK AT THE FIRST LEVERAGE that the EU has in the creation of capabilities, platform governance, and why it is crucial. As explained in the previous chapter, platforms are the service standardisation of the 21st century. The current platform economy truly means that power moves away from democratically and collectively constructed institutions to global corporations. At the same time, the appearance of platforms means that, for example, the level of service in the mobility sector, the ability to provide quality life-years for most citizens, and the ability to re-educate workers are clearly improved.

The EU should take a greater role in guiding the economic development of platforms, to ena-

ble people equal access to them and the ability to use them. When the EU governs platforms, it is governing more than regular corporations. Platforms remove friction between people by providing a context for different people to meet and collaborate. It means that they also also reduce the freedom of choice of both the buyer and the seller. The seller gets an advantage by not having to configure offerings from the start: an Uber driver doesn't need to find a person in a street corner trying to hail a cab. On the other hand, the platform, for example, shapes the interaction between driver and passenger with reputation systems and highly structured apps. Therefore, since platforms are themselves regulatory systems, regulating platforms is about regulating that regulation.

Image 9: Paradigm shift: From governing administration to governing platforms that regulate users.[38]



38 Demos Helsinki (2018). "The Nordic digital promise: four Theses on a Hyperconnected Society". Resource drawn 29.08.2018 from https://www.demoshelsinki.fi/wp-content/uploads/2018/04/the-nordic-digital-promise_web-compressed-double.pdf

CONCERNING PLATFORMS, hard measures, such as censorship and banning platforms, are not a fruitful approach due to the global nature of the internet. Instead, recognising and using softer partnership-based methods, such as tax APIs (Estonian tax add-on to the Uber app[39]) or data-ownership negotiations (Uber sharing its mobility data with cities[40]), is likely to be more impactful. It seems that encouraging self-governance from platforms (much like what worked with old school media) is likely to bear fruit. The platform companies that wish to stay relevant are paying attention to the way their regulation treats users and non-users.

39 Mardiste, T. (2016). "Embracing Uber, Estonia shows tax needn't be an issue." Reuters Online publication 9 Jun. 2016.

40 Marshall, A. (2018). "Uber Makes Peace With a Data-Sharing Deal for Cities." Wired Online publication 16 April 2018.

CURRENTLY, the EU does significant work on Platform-to-Business trading practices. Furthermore, the Digital Europe initiative strongly emphasises platforms both from the people's and from companies' (ecosystem) perspective. New actions are needed, however, to enable capabilities to be disseminated more equally.

Examples of new actions include:

- Regulation that ensures local value creation from platforms, users' rights on platforms, including re-entry rules, and the rights of "giggers";
- Platforms should be required to have material asset strategies, as someone still owns the material assets even if the platform would not want to have any responsibility for them;
- Clear application programming interfaces, API regulation with third-party access rules should be set in place, since open data and data mobility are at the heart of competitiveness and new value creation;
- These would also speed up the process of applications of AI, which should be one of the key areas where funding needs to be made available;
- The funding for AI should include both businesses and governments, as there are considerable benefits in various contexts that the efficiencies of AI applications can provide.

These examples show the various ways the EU has leverage on platform governance, which, in the best case, can result in global platforms adopting the EU-level regulation.

Education-related reforms

THE SECOND LEVERAGE of the EU is related to education reforms: expanding learning outside the traditional educational institutions. This means emphasising education other than the cognitive content and occupational qualifications, which used to be at the core of education systems. Schools should increasingly encourage curiosity, critical thinking, and doing things together. Learning increases people's skills and prepares them for the work and play of the current society.[41] Although it is clear that the EU does not and should not dictate the educational systems of its member states, it can still help the member states in various ways. Most importantly, the EU can influence the above-mentioned regulation of platforms, in particular when it is about regulating platforms that offer education or about the openness of the education system, such as open-science initiatives.

So far, AI-enhanced platforms have significantly changed sectors like hospitality, mobility, and media. When platforms disrupt education and health[42], they step more clearly into domains that are the cornerstones of public-sector legitimacy. What is the purpose and legitimacy of the public sector when platform companies offer better and cheaper education or healthcare? How does the relationship between people and public institutions change when Google, Facebook, Apple or Amazon provide functional preventive care or skill-providing education?

This important point comes back to the realisation that education has other purposes in addition to providing skills for jobs. In the same way the old media industry provides not only value for readers but also value for the society at large, the public education system provides value not only for individuals. When the most clearly value-adding feature of the system (providing skills for jobs) is disrupted by educational startups, the whole old system becomes unstable. It becomes

41 Demos Helsinki, et al. (2017). "From pause to play: work and income in the next era." Sitra Momentum

42 Demos Helsinki (2016). "Health 2050 Four scenarios for human-driven health and freedom of choice." Resource drawn 29.08.2018 from: https://www.demoshelsinki.fi/wp-content/uploads/2016/06/Health-2050-Four-scenarios-for-human-driven-health-and-freedom-of-choice.pdf

more difficult to argue for high taxes or a special status for public institutions when they are perceived as useless. However, public institutions have different "clients". While companies serve their clients, governments are responsible for taking care of those who are underserved, and those that are yet to be born. How much can an average customer of a platform rely on the willingness of platforms to also serve those who have no value for them?

The creation of capabilities fit for the 21st century is a matter of life and death for Europe. Education should be much more flexible and continuous, and should consist of learning throughout one's life. This can be achieved through the previously-mentioned platform regulation as well as access to and the ability to use skills-enhancing services that are supported by new technologies, such as AI. In addition, focus should be placed on:

- Decreasing the digital divide and supporting initiatives on digital literacy;
- Enabling very fast re-education systems and supporting companies that help their workers to learn;
- Supporting or setting up hiring platforms and skill certification systems to match people for short term collaboration projects across a wide range of industries and broad geographical area;
- Sparking the interest of people to invest their resources, mostly time and curiosity, to constantly learn new skills and get new knowledge.

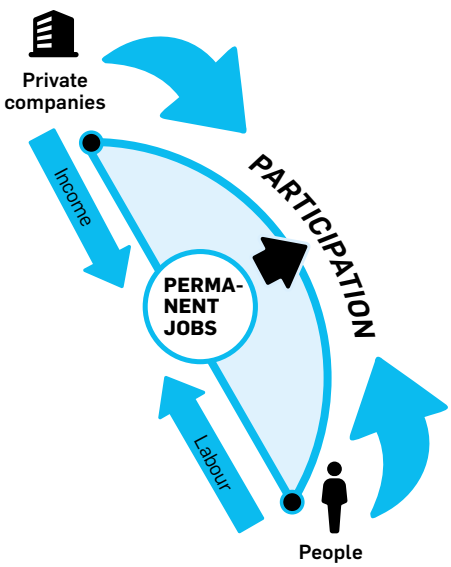
THE EU CANNOT DICTATE education policy or systems in the member states, but it can support initiatives in areas that create more flexible and continuous, lifelong-learning opportunities.

With new capabilities people can participate in society through all kinds of jobs.

2 FROM PERMANENT JOBS TO PARTICIPATION

Participation in society can happen through jobs – if they are available

Image 10: In the old social models, it was sufficient for companies and people to exchange income for labour. It is crucial to enable people with the freedom to choose from a large number of available jobs and to trust that there will be meaningful tasks for them to do.



There will be work

WORK CAN BE DEFINED as action that someone can do for you. Sleeping is not work. Fixing pipes, researching microbes, and washing dishes is work. Not all work is paid for, nor is all work useful[43]. The purpose of work is to maintain the status of something (think cleaning) or to develop something new (think writing). Often, this kind of developing work is conducted to create better tools for maintenance work .[44]

Unsolved and emerging problems and the need to maintain existing systems mean that work will not end. From water taps to planetary weather systems and from languages to minds, an immense number of seemingly stabile dynamic systems are constantly falling "out of order" around us. Conversely, there is an immense number of systems that we have not yet searched nor explored. These systems constantly require tinkering to maintain and improve conditions for living and operating in the world, as well as finding new aspects of it.

We are facing serious societal problems: think climate change, global inequality, congestion or increased depression. A billion people want electricity, two billion need the internet, millions are without clean water and dementia or cancer will strike almost all of us if we live long enough. These and other problems require a massive amount of work to be done – one little task at a time.

So, there will be work.

43 Although it seems quite a lot of paid work is useless and unpaid work useful.
44 Arendt, H. (1958). "The Human Condition." University of Chicago Press.

There may not be permanent jobs for all current workers

UNFORTUNATELY, however, not all of the aforementioned problems are currently interesting for the market, nor do people have the necessary skills and knowledge to tackle them. And, sometimes, a machine can do the job instead of people. Thus, even if there is work, there might not be jobs for all the current workers, if political actions are not undertaken to increase the availability of jobs.

A society without work is neither possible nor desirable. There are many ways in which people can achieve agency, but in the industrial era work has become the most central channel for individuals to participate in the society – using their capabilities to do something productive and meaningful as members of a community. Survey data suggest that, over the last decade, people spent their extra leisure time sleeping and watching television[45]. When old jobs and professions disappear, the greatest threat is that people fall into inactivity, waiting for the old jobs to come back. In today's world, long periods of unemployment make it increasingly difficult for a jobseeker to re-enter the labour market, or to remain active in society in fields of life other than through their jobs. It is important to make people seize new opportunities to work, even if the job is in a different field and location than the old one. Acquiring a new profession is not necessarily straightforward, and people must, therefore, be incentivised to quickly try new things and to develop their skills in practice.[46]

Transformation of work

THE CENTRAL SHIFT in the nature of jobs is that there will be a) more ways of working, b) more individualised hours and conditions, and c) more blurred industry and sector lines, as skills and tasks are similar in various industries. Whereas previously jobs were organised in a manner focused on top-down control and coordination, in the future the organisation of tasks will be characterised by self-managing, temporary and more cost-efficient teams. Flexibility in the job market increases, and as a result, the relationship between the employer and employee will change towards more of an entrepreneurial relationship. People will be part of new economic relationships and legal entities that broaden the scope of employment and companies. Dependent contracting, co-operatives and platforms drive the change in new ways of organising jobs.

As described in page 20, due to process innovations, tasks and jobs are constantly changing and previously complex jobs are coming within the reach of more workers. In terms of skills and jobs, lines between industries are becoming more and more blurred. Standardised jobs are likely to be automated, increasing demand for expert roles. The ability to do a job will become more democratised as digitalisation and new technologies will provide support in jobs that previously required formal education or time consuming training.[47]

On an individual level, people will be able to organise their own jobs in a way that compliments their skills and best suits them. Sources of income will also become more varied as people, for example, do tasks on platforms. This creates more freedom for the individual, but also increases one's own responsibility over personal learning and growing. Key skills will be maintaining intrinsic motivation, time management as well as self-management and self-reflection.

The meaning of work changes not only by the changes in its nature. In fact, already, having a permanent job is no longer a universal way of being a part of a society: despite high employment in OECD countries, less than half of the population actually have a job. At the same time, employment in OECD countries is at a historically high level[48]. This is in spite of digitalisation,

45 Avent R. (2016). "The Wealth of Humans: Work, Power, and Status in the Twenty-first Century". St. Martin's Press.
46 Demos Helsinki et al. (2017). "From pause to play: work and income in the next era." Sitra Momentum

47 As discussed above, this is mostly because of the development work that leads to process innovations, which change tasks and occupations constantly. This insight is, at times, clouded by the fact that, although jobs have changed significantly from, say, the 1980s, the vocabulary to describe them has not. Words such as "vacation" or "overwork" are used by even the most brain-powered expert who is unlikely to be able to turn her brains off when they leave the office – a place which is also very much a product of the industrial age.
48 OECD (2018). Employment rate (indicator).

automation, immigration, and other trends that have brought about the "End of work" narrative.

The two aforementioned facts can coexist because of aging[49], pensions, longer time spent in schools, more people leaving from the workforce early, more people staying at home, and more people working in unofficial and fragmented jobs. These groups are not included in the official employment statistics. At the same time, these groups and the statistics above mean that in parallel with permanent jobs, there are many ways of belonging to society and finding meaning – ways already reality for a large part of Europeans. Similarly, they mean that vast amounts of skills and knowledge is in the hands and minds of those in a situation in life that do not wish to or are capable of working full-time. From pensioners wishing to work gigs or mid-career professionals slowing things down for a stint, the future world of work will no doubt be ever more diverse in its ways of working.

Work is more than permanent jobs

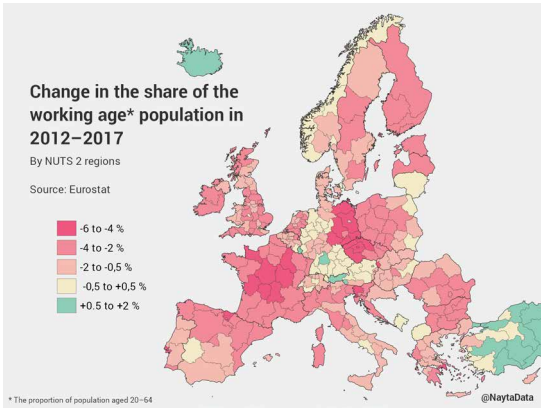
EVEN IF JOBS ARE an important way of belonging to society, this participation should be seen more broadly than just through permanent jobs. People do not feel well in their jobs at all times[51], but they feel especially bad when they are left without a job[52] [53]. Joblessness leads to the "scarring effect" – a continuous state of declining happiness. In fact, unemployment is one of the only life changes where happiness does not return to normal levels some time after the event.

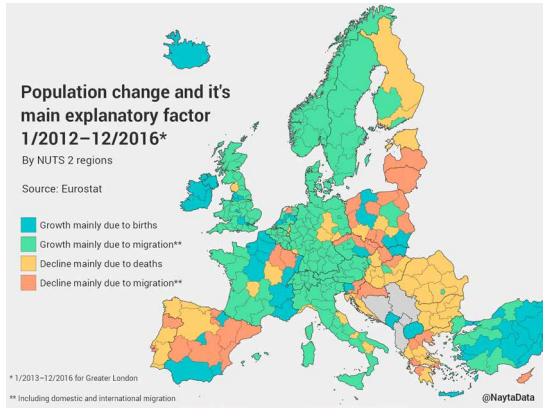
Due to this, many spend their entire working lives performing tasks that they secretly believe do not need to be performed[54]. Jobs that consist of mostly these kinds of tasks are seldom questioned, because a job, any job, is a natural part of life. When we get to know a new person, the first thing we often ask them is "What is it that you do, by the way?". We know that it means "What do you do for a living?". Many of us have jobs because a job is one of the primary ways of belonging to

49 ILO (2018). "The Future of Work: A Literature Review." International Labor Office, Research Department Working Paper no. 29

51 European Agency for Safety and Health at Work. "Psychosocial risks and stress at work." Resource drawn 29.08.2018 from: https://osha.europa.eu/en/themes/psychosocial-risks-and-stress.
52 Nielsen Ø. A. and Reiso K. H. (2011). "Scarring Effects of Unemployment". IZA - Institute of Labor Economics.
53 Van der Meer P. and Wielers R. "Happiness, unemployment and self-esteem." University of Groningen
54 Graeber D. (2018). Bullshit Jobs: A Theory" Simon and Schuster.

Image 11: Workers in the EU are getting older. Domestic and international migration helps some areas.[50]





50 Data from Eurostat. Visualisation by @Naytadata.

the current society. No matter how performative a job is, it still provides a story to tell.[55]

The new concept of work requires broadening the concept from permanent jobs, occupations, long careers, and the continuity of one job. Work does not mean only these but also participation, interaction between people, temporary jobs, collaboration, and the promise of availability of jobs. This means creating a massive number of temporary jobs so that working and sufficient livelihood are possible for everyone, all the time.

Work is a necessity in order for the society to fix its problems and for workers to participate in society, but long single-job careers or the permanence of jobs is not a necessity. All this leads to the conclusion that, while jobs occupy a central position in how we belong to society, the definition of work is too limited if it only applies to permanent jobs. Actually, participation to society happens via work, but *work is more than a permanent job*. Discussions regarding work start to make sense only after it is understood that work is a more profound activity than just spending time in any paid job. Most work is not done in occupations. The new concept of work requires broadening of the concept from a single job to many jobs and other forms of participation via various ways of creating value to society.

55 Wrzesniewski, A., Berg, J. M. & Dutton, J. E. (2010). "Managing Yourself: Turn the Job You Have into the Job You Want". Harward Business Review June 2010.

How to create 100 million new jobs?

New jobs emerge when new value is created

THE PURPOSE OF BUSINESS INSTITUTIONS is to create and deliver value that will generate profit after cost. Value is created through work and conversely new jobs emerge when new value is created. These days, value creation can no longer rely on cheap non-renewable energy, the abundance of tangible raw materials, or a growing workforce that has an ever-growing purchasing power. In Europe, many working life structures and permanent jobs are based on mass production, but mass production is no longer a sustainable approach for creating value. Mass production relied on cheap energy (the full price of which didn't include all externalities) and sufficient raw materials (which were often considered abundant), while needing a large workforce. Furthermore, current management systems, division of labour, and model of wage labour are creations of industrial mass production.

Currently, intangible value creation plays as important a role in economics as tangible value creation[56]. Intangible value refers for example to the worth of IPRs and brands. More and more often it refers to the worth associated to human capital (i.e. knowledge and skills) and social capital. Social capital is the combined social capabilities of a unit, such as a company or a city – it is the culture and practices. Thus, the term *social capabilities* is used in this publication interchangeably[57] with the term *social capital*, depending on whether authors want to emphasise the value-adding perspective or the capability perspective.

The industrial era value creation system of mass production is shifting towards currently emerging ways of value creation. In Helsinki, like in many other European cities, automated cashiers have made a sudden appearance in even small corner grocery stores. They might not always be popular among customers, but still they have displaced one of the two cashier persons

56 Employment and the Economy (2015). "Intangible value - the new economic success factor." Resource drawn 29.08.2018 from: https://tem.fi/documents/1410877/3169892/Intangible+value+-+the+new+economic+success+factor/982844ee-ac39-40b0-a5da-84e91160708c/Intangible+value+-+the+new+economic+success+factor.pdf

57 Presti V. (2014). "Digital Capabilities and Social Capital." European Journal of Research on Education Issue 2, 12-17.

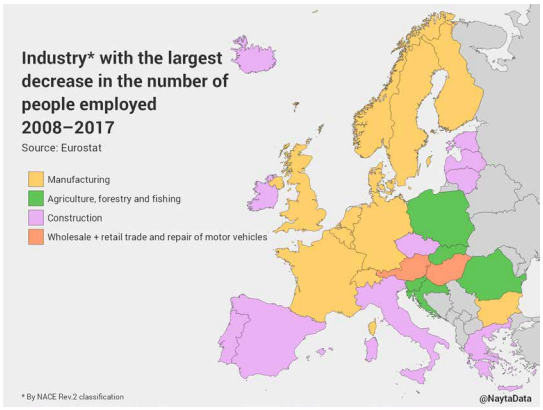
to do other tasks in the store. After a transition period, these machines might reduce the total working hours done in the store.

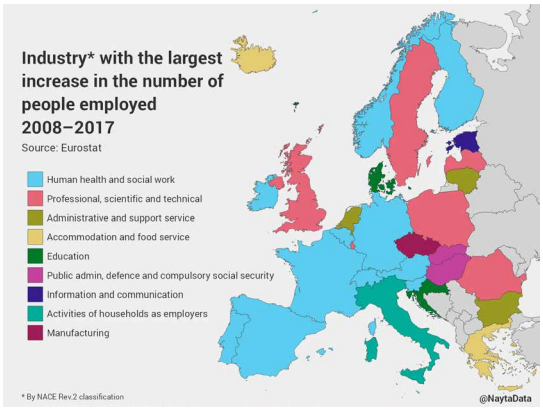
Automation, broadly speaking, increases the quality of the end product or service, decreases its price and/or increases the output of the said product.

Most observers agree that technological change increases job destruction, yet job creation and more generally the availability of jobs seems to be a more uncertain point[58]. Consider, for example, the cashier machines: since they transfer some tasks previously handled by the cashier person to self-service tasks, they do not increase the quality of the visit directly. Of course, they might do so if the cashier would help inside the store more after the introduction of the devices. It is more likely, however, that these machines lead to reduction of total human working hours in the store. After competition has done its tricks, these machines should reduce the price of food in the store. Then, it will take time for the consumers to understand that they can spend more – either on food or on something completely different. No matter what they decide to do with their small extra cash, this development is clearly a possibility for everyone, creating solutions for their needs. Thus, it will lead to some number of new jobs, but how and where is hard to predict or estimate.

58 ILO (2018). "The Future of Work: A Literature Review." International Labor Office, Research Department Working Paper no. 29

Image 12: The job market moves from industrial jobs to service jobs when value creation moves from tangible value to intangible value.[59]

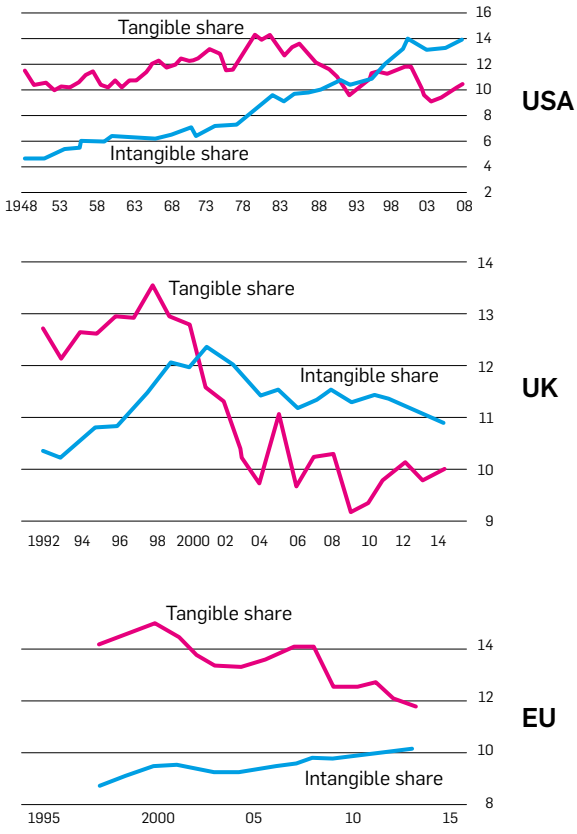




59 Data from Eurostat. Visualisation by @Naytadata.

THE MECHANISMS described in last chapter result, after a delay, in new ways of value creation that enable new jobs. These jobs are different from the previous ones (see image 12): they create value from services and from the abundance of intangible assets instead of tangible assets. Physical products matter, but they are merely platforms for high value services[60]. Only a fraction of a passenger car's value is currently created in its production. The rest of the value lies in services, design, and other intangible operations. The share of production will be even smaller in the future, when cars are automatic and mostly collectively operated. [61]

Image 13: Share of intangibles and tangibles in GDP in the USA, UK and EU (when GDP is adjusted to include intangibles).[62]

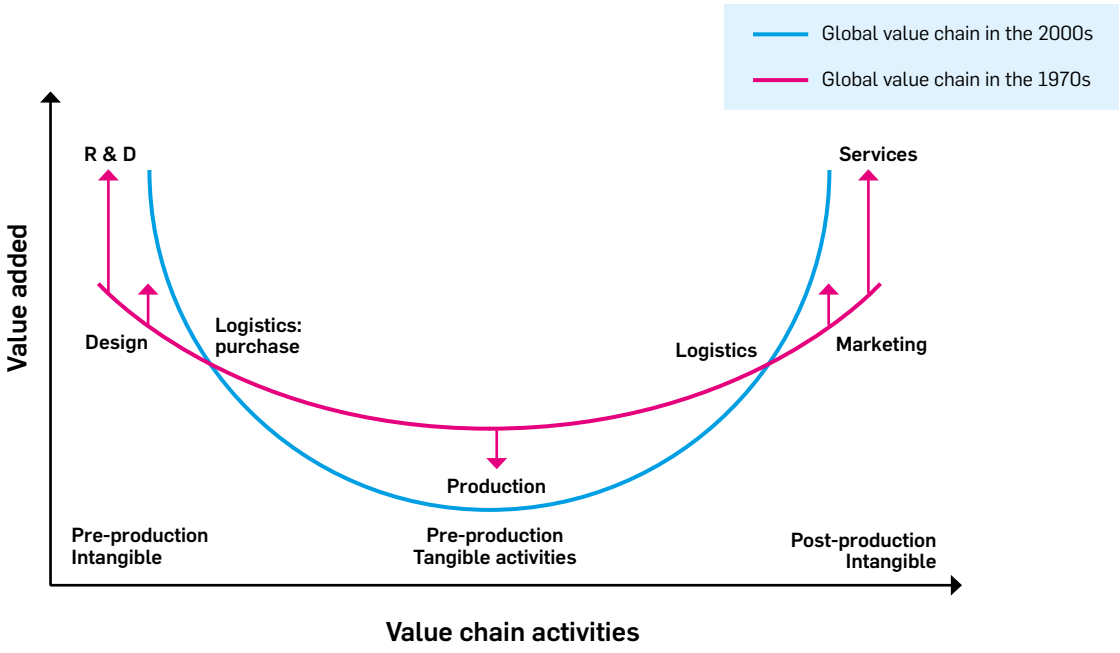


60 ILO (2015). "Intangible value - the new economic success factor." Ministry of Employment and the Economy, Enterprise and innovation Department. .
61 McKinsey (2016). "Automotive revolution – perspective towards 2030: How the convergence of disruptive technology-driven trends could transform the auto industry." Advanced Industries January 2016.
62 Haskel, J. and Westlake, S. (2017). "Capitalism without Capital: The Rise of Intangible Economy." Princeton University Press.

The change in *the type of jobs* is beneficial, since an increasingly small proportion of a company's value or its sales returns to the manufacturing workforce as wages.[63] The highest added value comes from the research and development, design and planning, marketing and business administration, and services.

63 Demos Helsinki and Sitra. (2017). "From pause to play: work and income in the next era." Sitra Momentum.

Image 14: Different value-adding activities and the change of source of value in value chains through time.[64]



64 Lindroos, P. (2016). "Evolution and Concurrent Thinking on Industrial Strategy: Case of Finland." Peter Lang. Graph adapted from Mudambi, R. (2008) "Location, control and innovation in knowledge-intensive industries." Journal of Economic Geography, Volume 8, Issue 5, 1 September 2008, Pages 699–725, and Tsai, S., T. & Everatt, D. (2006). "The Acer Group's R&D Strategy: The China Decision". Edward Elgar Publishing

Creating value through intangibles

IN ORDER TO CREATE NEW JOBS and remain competitive, the industries of the EU should focus on creating value through intangibles and services. The change of focus on intangibles has already permanently and completely changed, for example, the entertainment industry, including changes towards demand-based pricing and freelance work. A transformation that has similar characteristics is ongoing in many other industries, also disrupting previously immovable industry boundaries in, for example, energy, health, education, and mobility.

There are three actions that should be done to tap into the opportunity of creating value through intangibles:

1. People should be provided with the new skills to commit and find new kinds of tasks to create value with new ways. This topic was described in *Transition 1* on page 16.
2. The rate of job creation needs to be accelerated. The instructions on how to do this are provided in the following paragraphs.
3. The rate of job destruction must be increased, not decreased. This topic is discussed in detail in *Transition 3* on page 36.

NEW VALUE CREATION leads to new jobs. New value, however, does not emerge automatically. Instead, political actions are required to create new jobs through *process innovations*.

Process innovation increases productivity and leads to more jobs: there are six ways how this happens. Unfortunately, productivity increases seldom generate direct jobs in domestic markets. Rather, jobs are destroyed. According to the ILO[65], there are six ways process innovations lead to more jobs:

1. **NEW PRODUCTS AND INDUSTRIES.** Process innovations create new products and industries. For example, platforms have enabled more efficient home delivery of food, creating new jobs.
2. **INCREASED LEISURE TIME.** Process innovations increase leisure time, leading to a growing demand for leisure activities such as eating out, tourism and sports.
3. **EMPLOYMENT IN PRODUCER INDUSTRIES.** Process innovations can increase employment in producer industries. As one person who made a fortune selling bitcoin mining rigs once mentioned to one of the authors of this publication, "when there is a gold rush, sell gold pannings". Automation and related industries, such as industrial design and embedded system programming, have much to gain from the current phase of digitalisation.
4. **HI-TOUCH JOBS.** Some jobs emerge from the change of process itself. Often this means that new jobs are created to maintain a personal customer relationship. This increases empathy and the quality of work. Human interactions are valuable in themselves.
5. **INFRASTRUCTURE.** The diffusion of new investments requires massive infrastructure investments. The ILO report lists canals, highways, and broadband networks as examples of such investments. 5G is one of the next large infrastructure investments and a crucial part of the ecosystem of IoT and automated mobility. It requires a very large amount of infrastructure related work.
6. **NEW OPPORTUNITIES.** New scientific knowledge leads to process innovations, but it can simultaneously provide opportunities for new products. Forest machines are, nowadays, sold as data harvesting tools and ship engines create value by providing engine data. The better data allows for preventive maintenance and the ability to train more resource efficient use based on comparing users. This has lead companies leasing out these parts instead of selling them. More information on what type of value creation reveals new opportunities can be found in the Appendix on page 50; Intangible value creation: seven models of the digitalised world.

POLITICAL DECISIONS affect where and what kind of jobs emerge via these aforementioned mechanisms as such changes cannot be generated merely by markets. Creating 100 million new jobs is a social and political choice. The identified mechanisms to increase the availability of jobs seldom happen automatically, and, even when they do emerge spontaneously, they emerge only after significant delays. As the ILO report puts it, increasing available jobs "can only be achieved by transformative changes in the economy where radically new products and new growth industries emerge in a process of creative destruction". So far, policy has especially overlooked intangible value creation and services[66]. For example, Finland has the EU's largest share of semi-manufactured goods[67], but the share of services is growing rapidly. Now, it has been estimated that services comprise over 80% of the exports in Finland by 2020[68] – making it increasingly obvious that the export of services needs to be a central part of single market discussions.

The focus on intangible value creation and services must increase if the EU wants to become more competitive in the future.

65 ILO (2016). "New technologies: A jobless future or golden age of job creation?". International Labour Organization, Research Department, Working Paper no. 13.

66 Lindroos, P. (2016). "Evolution and Concurrent Thinking on Industrial Strategy: Case of Finland." Peter Lang.
67 Prime Minister's Office, Finland: "Suomi globaaleissa arvoketjuissa." Prime Minister's Office Publication Kit 11/2016.
68 Ministry of Employment and the Economy (2015). "Service Economy Revolution and Digitalisation." Publications of the Ministry of Employment and the Economy Innovation 41/2015.

Benefits from labour mobility and internal markets: Open and functional markets create opportunities to make more jobs available

THE EU HAS two kinds of leverage in creating jobs: the first is open markets and global trade, and the second is functional internal markets which go past the idea of a digital single market. These leverage points are introduced in this section.

The EU does not dictate the employment policies in its member states, beyond defining common priorities and targets for the national employment policies by employment guidelines[69] as well as country-specific recommendations on economic, employment, and fiscal policies[70]. Currently, employment in member states is heavily influenced by digitalisation, globalisation, and migration. The EU can shape the future of these megatrends with its power to influence internal markets, labour mobility, trade, and funding related to employment activities.

Open markets and global trade

THE FIRST LEVERAGE of the EU, open market and global trade, mitigates the job destruction caused by process innovations. Often process innovation, especially in factories, leads to an increase in output. The ILO[71] warns, however, that "the potential to generate jobs in domestic markets by expanding the output of goods is limited even when price elasticities are high". This means that the role of exports will increase even further for the EU and its member states in the near future. What follows is that open trade especially aids the regions which allow for process innovations to emerge. The European single market must facilitate the integration of European companies and global value chains, operating as a driver of competitiveness.

In the future, it will be necessary to make sure that trade deals support the industries that create intangible value throughout Europe, thus supporting the exports of areas where process innovations are most likely to emerge in the current value creation of paradigm (service dominant logic of value creation[72]).

Functional internal markets

THE SECOND LEVERAGE of the EU in creating jobs and enabling new value creation is functional internal markets, which go past the idea of the digital single market. Functional internal markets are one of the biggest achievements of the EU. These days, when more and more of the value created is intangible, internal markets for services are heavily emphasised.

Unfortunately, the trade and mobility of services inside the EU is weak. The poor integration of service markets creates a major barrier in new value creation. This barrier hinders the servitisation of industry and, essentially, prevents digital services that operate EU-wide using, for example, local data, public data or APIs.

Moreover, the internal markets for services remain fragmented. Productivity and competitiveness in the service sector is weak in the entire EU. This prevents the EU from competing successfully in global markets, where a significant share of profits are made via intangibles, services and, particularly, digital services. Functional internal markets are the enabler for successful industrial policy within the EU (see chapter on new industrial policy on page 42).

It is essential to find out what actions companies require for increasing the mobility of services. Contrary to what some might think,

69 European employment strategy - Employment guidelines: ec.europa.eu/social/main.jsp?catId=101&intPageId=3427

70 2018 country-specific recommendations on economic, employment and fiscal policies /www.consilium.europa.eu/en/press/press-releases/2018/07/13/2018-country-specific-recommendations-on-economic-employment-and-fiscal-policies/

71 ILO (2016). "New technologies: A jobless future or golden age of job creation?". International Labour Organization, Research Department, Working Paper no. 13.

72 Lindroos, P. (2016). "Evolution and Concurrent Thinking on Industrial Strategy: Case of Finland". Peter Lang.

the fragmentation of markets does not provide competitive barriers in any industry or market, as can be seen, for example, in the transformation of the media industry. Quite the opposite: small national markets prevent competing in the global markets. Overcoming these service mobility barriers is a major opportunity for the EU. According to the Union's own documents, the opportunity in the integrated digital single market is €415 billion per year to the economy and hundreds of thousands of new jobs.[73]

This goal cannot be reached while the internal markets for services remain fragmented. This fragmentation of service markets cannot be overcome, however, if there is no trust between the member states. Currently, member states do not trust each other nor EU institutions to be able to deepen and act upon the internal markets in a way that would benefit each member state equally. The success of the internal market integration is fully dependent on this trust.

As mentioned in Transition 1, all societies need as many skillful people as possible. The migration of labour from outside the EU helps finding these experts. Further, internal mobility helps finding right people for different kinds of productions from a construction project to a theatre piece. Encouraging labour mobility across industries can also help to share social capabilities and building trust and cohesion across the member states.

In addition to trust, for open and functional service markets to work, EU initiatives should move beyond the digital single market[74]. What this means is that the digital single market is not separate from the idea of single market for products and services. Digitalisation can be defined as the development of processes with digital tools and services[75]. Thus, *the digital single market is an integral part of internal markets*, not separate from them.

Furthermore, policy measures promoting ecosystem creation and data usage can be particularly efficient in domains where the public sector has a strong role, such as health, transport, and education. Governments have an important role in the public procurement of innovative solutions, in ensuring interoperability and in opening public sector data resources. Legislative measures may speed up data usage, for example, in transport and in the secondary use of health data.

The changes in these industries and others is imminent. Thus, it is critical to ensure that the digital single market is completed quickly and functions seamlessly, to enable services both in digital sphere, but also in the physical world, which is merging with digital services. The initiative should go beyond APIs and data standards towards service standardisation, common app stores within and across industries and other shared platforms. Moreover, it should encourage public-private partnerships that provide the EU its competitive edge. If it manages to accomplish this transformation, opportunities for creating new jobs will emerge.

A strong single market creates the market pull that companies need to grow and to invest in Europe. Especially data intensive platforms and ecosystems are needed to create value and economic development to Europe.

73 European Commission "Digital single market" Resource drawn 29.08.2018 from: https://ec.europa.eu/commission/priorities/digital-single-market_en.

74 Council of the European Union (2017). "Digital single market for Europe". Resource drawn 29.08.2018 from: http://www.consilium.europa.eu/en/policies/digital-single-market/.

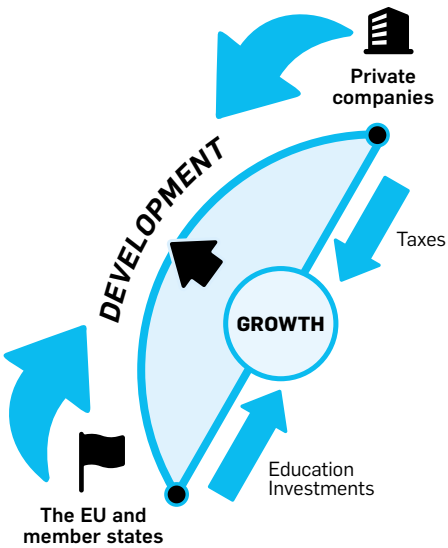
75 Demos Helsinki (2018). "Lupaus jatkuvasti oppivasta digitaalisen aikakauden hallinnosta. Mahdollisuuksia viranomaistoiminnan kehittämiseen". Resource drawn 29.08.2018 from: https://www.demoshelsinki.fi/wp-content/uploads/2018/04/demos-digitaalinen-hallinto.pdf.

With a new type of approach to participation through constantly available jobs, economic development becomes possible.

3 FROM MEASURING GROWTH TO ECONOMIC DEVELOPMENT

Prosperity is more than economic growth

Image 15: In the industrial era it was sufficient for companies to pay taxes and the member states to make education investments, which created growth needed for support well-being. Now, to enable economic development (which includes growth) companies need to direct their solutions towards the challenges that represent real development. It is up to the member states to actively create the regulation that enables this.



ECONOMIC GROWTH and economic development are two different phenomena, and measuring prosperity only via growth has led us astray[76]. To be precise, economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time. It is conventionally measured as the percentage rate of increase in real gross domestic product, or real GDP. In contrast, economic development is the process by which a nation improves the economic, political and social well-being of its people. Thus, economic growth is just one aspect of economic development.

We have spent the past decades focusing so intently on GDP, that we often lose sight of the reason why we use it to measure growth in the first place: it is an easy measure and after everyone started measuring it, it became a comparable metric. Yet, there is a difference between growth, which can be negative (think cancer) or positive (think number of years of peace between countries) and development, which inherently has a positive connotation (moving towards something better, beyond something that existed before). Economic growth should no longer be accepted as the sole indicator of prosperity, but rather just one of the tools that can be used to build prosperity and welfare and maintain people's faith in it.[77]

In practical terms, economic development means solving real problems. The difference be-

76 World Commission on Environment and Development. Report of the World Commission on Environment and Development: Our Common Future. Resource drawn 29.08.2018 from: http://www.un-documents.net/our-common-future.pdf.
Demos Helsinki (2017). The Future as Told Through the Garden and the Streets. Resource drawn 29.08.2018 from: https://www.demoshelsinki.fi/en/julkaisut/the-future-as-told-by-the-garden-and-the-streets/.
77 Demos Helsinki and Sitra (2017). "Rewiring progress". Resource drawn 29.08.2018 from: https://media.sitra.fi/2017/05/02112628/Rewiring_progress.pdf.

tween growth and development can be found in a very simple thought experiment: was curing polio a good move considering GDP and growth? Before polio was eradicated, polio treatments and accessories, such as walking sticks, were an industry. It would have made sense for a very large polio accessories company to buy out the patents for the newly invented polio vaccine, and, likewise, it would have been economically reasonable for the vaccine inventors to only sell it to the richest 5% of people so that there would be continuous high-price demand for the vaccine.

The previous thought experiment does not exemplify a situation that has been unheard of. Gasoline-based car manufacturers bought out patents for many early stage battery technologies in the early 1900s and oil companies have been known to acquire patents for renewable energy innovations only to make them disappear[78]. More often than not, it is the large behemoth companies that are very aware of their markets and seek to protect them by any means to maximise growth. This is in stark contrast to the new market entrants, who have to compete with the existing structures, that disrupt the status quo. This is an important note to keep in mind later on when we consider what type of organisations should be funded from common resources, such as taxes. It is also important to note this, later on, when we consider what economic development is in the 21st century.

Planetary boundaries and economic growth contradict each other

LIMITS TO GROWTH and planetary boundaries[79] set borderlines to the direction in which we can push the economy. Already back in the 1970s, the authors of the report Limits to Growth[80] described that the current trajectory of the development of humanity is on an unsustainable track in regards to the planetary boundaries. These scenarios on natural resources, population growth, production, pollution and so on have later been found accurate[81], meaning, we are still on the same unsustainable track. In addition, these trajectories did not include one of the most pressing environmental issues of today, namely, climate change. Whether we like it or not, most of the pressing environmental challenges – including resource scarcity, climate change, biodiversity loss, forest degradation, waste production – have to be solved during the next decade.[82]

Unsustainable growth based on the consumption of tangible resources cannot happen indefinitely due to the environmental limits of keeping our planet habitable. To quote the economist Kenneth Boulding, "anyone who believes exponential growth can go on forever in a finite world is either a madman or an economist".[83] Planetary boundaries set clear restrictions on how we can grow, how much we can grow and in which space it is to be assumed safe to grow. If continuation is made solely based on the growth of our tangible economy, we will optimise for a society that is not desirable in the long run: a society that uses more resources than its environment regenerates. This is the human society we currently live in, where the Earth Overshoot Day[84] comes earlier each year and we are collectively using 1.7 years worth of the Earth's biocapacity of resources each year.[85] There is not a single 'developed' country where the citizens' ecological footprint is anywhere near sustainable.

78 Guardian (2016). Oil company records from 1960s reveal patents to reduce CO2 emissions in car. Guardian 20.5.2016 https://www.theguardian.com/business/2016/may/20/oil-company-records-exxon-co2-emission-reduction-patents

79 Rockström, J.et al. (2009). "Planetary boundaries:exploring the safe operating space for humanity". Ecology and Society 14(2): 32. [online] URL: http://www.ecologyandsociety.org/vol14/iss2/art32/

80 Meadows D.H. et al. (1972). "The Limits to Growth. A report for the club of rome's project on the predicament of mankind." A Potomac Associates Book.

81 Melbourne Sustainable Society Institute (2014). "Is Global Collapse Imminent?". The University of Melbourne.

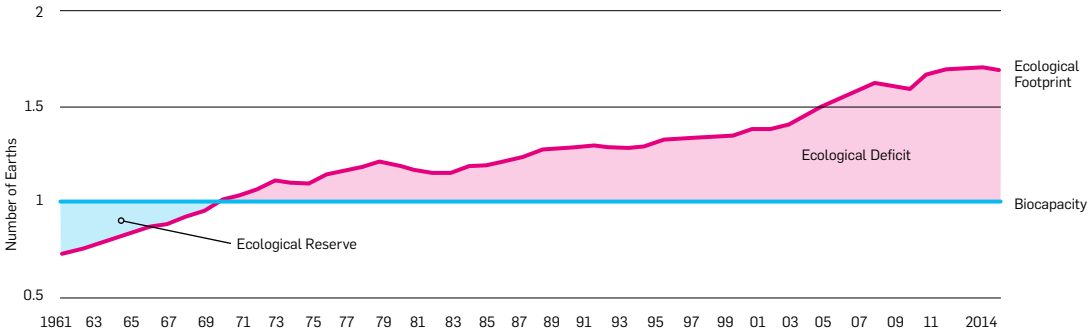
82 European Environment Agency (2016). "Problems". Resource drawn 29.08.2018 from: https://www.eea.europa.eu/publications/92-827-5122-8/page014.html.

83 Kenneth Boulding in United States Congress, House (1973), Energy reorganization act of 1973: Hearings, Ninety-third Congress, first session, on H.R. 11510. p. 248.

84 Earth Overshoot Day marks the date when we (all of humanity) have used more from nature than our planet can renew in the entire year. In 2018, it fell on August 1

85 Global Footprint Network "The Ecological Wealth of Nations". Resource drawn 29.08.2018 from: https://www.footprintnetwork.org/content/images/uploads/Ecological_Wealth_of_Nations.pdf.

Image 16: Since the turn of the 1970's, human societies have overused earth's biocapacity and we have been running a severe ecological deficit.[86]



86 Global Footprint Network. "Data and Methods." Resource drawn 29.08.2018 from: https://www.footprintnetwork.org/resources/data/.

SINCE, FOR NOW, we do not have a planet B, economic growth should be discarded as the sole focus of the economy and be replaced with tracking economic development, where the planetary boundaries are understood to give the safe space for humanity to operate in[87]. The aim of growth using tangible resources should be understood as limited by the planetary boundaries.

And yet, on a positive note, currently there looks to be little limits in how much we can grow the intangible economy such as design and caring. The intangible economy, in fact, produces most of economic development and well-being in advanced societies in the first place.

Economic development in the 21st century

UNDERSTANDING COMPLEXITY, leaving behind all too simplistic measures for progress and limiting business practices that do not create actual development are all signs of advanced society. Indeed, in the 21st century, prosperity should be differentiated from a model primarily highlighting economic growth. It means focusing on economic development that creates a) resilience of the economy that provides resources to cope with unpredictable challenges and situations; b) abilities to solve complex problems collectively; and c) abilities to share the benefits of economic activity among all members of society in a fair manner[88]. EU member states have the responsibility to aim for positive economic development, to decouple well-being from its burden to planetary boundaries.

The previous sub-chapter listed environmental problems, such as resource scarcity, climate change, biodiversity loss, forest degradation, and waste production as some of the most pressing challenges of our time. The successful fight against these challenges can be measured as economic development. There are, however, other such challenges: in general, anything that aims to create a society that respects planetary boundaries and provides people with well-being and a purpose should be seen as economic development.

Economic development should create space for a continuum of working, learning, enjoying leisure, and being healthy and productive. Policies should be explicitly aimed at bringing about and maintaining this continuum in people's lives and at supporting industries that help create it, all the while respecting the planetary boundaries of our fragile planet[89].

If we accept that economic prosperity does not mean only growth, but rather development, the next question is how to do this.

87 Raworth, K. (2018). "What on Earth is the Doughnut?" Resource drawn 29.08.2018 from: https://www.kateraworth.com/doughnut/.

88 Demos Helsinki and Sitra (2017). "Rewiring progress." Resource drawn 29.08.2018 from: https://media.sitra.fi/2017/05/02112628/Rewiring_progress.pdf.

89 World Economic Forum (2014). "How should we measure economic progress?" Resource drawn 28.08.2018 from: https://www.weforum.org/agenda/2014/04/measure-economic-progress/.

How to create economic development?

ECONOMIC DEVELOPMENT in many cases requires the destruction of old models of value creation. The key semantic difference that should be made is, as previously stated, one between economic growth and economic development. The purpose of markets should be to encourage economic development, but quite often economic growth prevails as the number one goal. This is because growth, not development, is measured and incentivised. Thus, in the short term, economic growth may look alluring: doing more of the same, maybe a bit more efficiently, keeps GDP growing. In the long term, however, many of these processes can actually lead to the destruction of value (think overfishing). Contrary to growth, economic development often happens via disruptions that wipe out value while creating new value in the process, especially in the long term – not more of the same but a transformation to something better. In effect, eradicating value to find new sources of creating value entails economic development.

Price is what one pays, value is what one gets. When a market is disrupted through the eradication of a need, the price of eradicating that need might seem high in certain terms: as the usage of the products or services related to a need or a problem drop, and the total amount of GDP created might decrease. Nevertheless, despite this seemingly high price, society has gained in terms of value: by eradicating a need, the disruption fixes problems and helps people live better lives. The example of polio in the previous section (on page 37) is an example of this in the short term.

This means that disruptions, be they technological, organisational or cultural, sometimes destroy jobs. Simultaneously, they enable the emergence of new jobs elsewhere via opportunities to create new value, to use skills in other contexts than was previously possible.

For example, it is expected that energy intensive sectors (e.g. producing and using cars) will see a loss of jobs due to the adoption of green policies. Yet, at the same time, when traditional industries face these job cuts, net employment change is still expected to be positive when new value is created in other sectors such as eco-friendly retail and other green occupations.[90]

It is, however, crucial to destroy jobs and create incentives for doing so. Otherwise, we will end up burning fossil fuels too long to avoid catastrophic climate change and the polios of this century will pester us for hundreds of years. The key question is not how to avoid the destruction of jobs. The question is how to quickly make jobs available in industries that support economic development, and how to ensure people have the capabilities to shift to these jobs.

Economic development comes from solving challenges, not maintaining the status quo

TEMPORARY JOBS AND COMPANIES such as startups, lead to economic development, if they aim to solve challenges instead of keeping together the structures that created the challenges in the first place. In the current economy, from an individual's perspective, it seems that occupations and jobs are moving towards application of work and skills to various tasks (as discussed more in depth in *Transition 2*). From a wider perspective, this development means that new jobs are found in solving challenges.

The emerging value creation paradigm emphasises economic development, because the challenges we are dealing with are enormous and we are slowly beginning to understand and measure the externalities of conducting any type of business or activity. At the same time, rewards from economic development are growing.

The vehicles of this transformation are actors such as startups and technology companies[91]

90 ILO (2018). "The Future of Work: A Literature Review." International Labor Office, Research Department Working Paper no. 29

91 Defined here as companies that don't pay dividends.

and their culture of experimentation. But there is a catch: when startups scale up, and when tech firms become giants, their tendency is not to create new disruptions (economic development) but rather strive towards establishing and maintaining a new status quo (economic growth). When these actors grow and scale, they should be in position to solve major problems, otherwise they might not be in position to create economic development.

Our biggest challenges are environmental and we need to direct all available resources to solve them

SOLVING THE BIG CHALLENGES that threaten humankind is what really matters for the economy. Thus, the aim should be to direct whatever available resources that exist to support, direct, and regulate the industries that solve them.[92]

The biggest wins, in the long term, are to be found in developing industries towards intangible value creation, by making them more efficient in what they are able to produce when we adjust our life to respecting planetary boundaries. But what could these industries be and what type of development do we really need? Some directions for finding an answer can be found by looking at the most pressing challenges that we are facing and their magnitude.

These issues are, for a large part, environmental. If these grand challenges are not solved, no industries or societies can exist in a stable-enough environment. We should, however, not neglect social aspects of development – a fundamental and necessary part of solving environmental challenges.

These most pressing challenges for human societies matter in pure monetary terms as well. For example, climate change is estimated to have cost €400 billion between 1980 and 2013 to European nations. The sum is set to grow in the coming years, as our environment is becoming more unstable and actions to combat climate change are lagging behind.[93] It is, of course, almost impossible to put a price tag on the whole of climate change, but estimations range up to about €470 trillion[94] [95] if no action is taken. Climate change is also accelerated by some industries – for example, the fossil fuel industry, which is currently subsidized by €4,4 trillion annually – a total of 6.5% of global GDP. Considering the negative externalities they produce and their effect on climate change, this vast sum begs for reconsideration and for money to be used in a way that supports economic development.[96] [97] [98]

Other environmental issues, such as the overconsumption of natural resources, are also hard to put a price on. By way of illustration, however, overfishing is estimated to cost €70,5 billion[99] annually globally [100], and global food waste has been estimated to amount to €881 billion[101] in costs annually.[102] At the same time, the overconsumption of natural resources by humans has resulted in the sixth wave of extinction of species – a rate of extinction 100–1000 times faster than that under normal circumstances.[103] The cost of losing biodiversity and our natural habitat is unpredictable, and certainly not positive for humans, as losses of certain species can trigger unexpected problems for whole ecosystems.[104]

Of course, these examples are not a comprehensive list of all challenges that we are facing as humanity, but it gives the right ballpark for what we are referring to when we talk about solving big challenges and what economic development in the 21st century means.

92 This is, of course, greatly supported by e.g. the new structure of EU research and development investments, the Horizon Europe funding structure: European Commission (News) (2018). "Bold science to meet big challenges: independent report calls for mission-oriented EU research and innovation." News, Research and Innovation 22.02.2018.

93 Euractiv (2017). "Cost of climate change grows steadily in Europe." News, Climate Change 26.01.2017.
94 $535 trillion
95 Hansen J. et al. (2017). "Young people's burden" Earth System Dynamics." Earth Syst. Dynam. 2017, Volume 8, 577-616
96 The Guardian (2017). "Fossil fuel subsidies are a staggering $5 tn per year." The Guardian 07.08.2017.
97 The Financial Times (2015). "Global energy subsidies fuel climate change," The Financial Times 18.3.2015.
98 International Monetary Fund (2015). "How Large Are Global Energy Subsidies?" IMF Working paper. Resource drawn 28.08.2018 from: https://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf.
99 $80 billion
100 Public Finance International (2017). "Overfishing costs the world over $80bn a year, says World Bank." Public Finance International 14.02.2017.
101 $1 trillion
102 Food and Agriculture Organization of the United Nations (2014). "Food Wastage Footprint." Resource drawn 28.08.2018 from: http://www.fao.org/3/a-i3991e.pdf.
103 Pimm S.L. et al. (1995). "The Future of Biodiversity". Science: Vol. 269, Issue 5222, pp. 347-350.
104 Kolbert, E. (2014). "The Sixth Extinction: An Unnatural History." Bloomsbury.

Growth and development can happen through a just social foundation and below the ecological ceiling

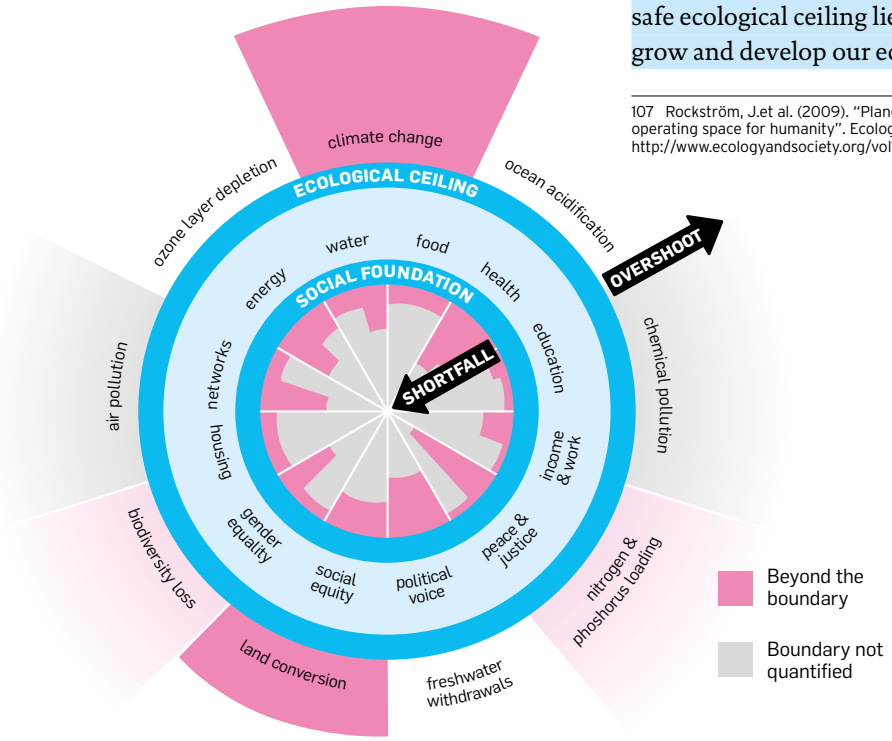
ANOTHER, perhaps more systematic view of the areas that economic development encompasses, can be found in Kate Raworth's application of social foundation and planetary boundaries to economic growth and development in the book *Doughnut Economics*.[105] [106] The approach (see Image 17 below) is built upon a social foundation that includes various aspects of the most important issues of human life – housing, networks, energy, water, food, health, education, income and work, peace and justice, political voice, social equity, and gender equality. Each of these aspects are tracked for how well they are achieved by the global population. The twelve dimensions and their illustrative indicators are derived from internationally agreed standards for human well-being, the Sustainable Development Goals, adopted by all members of the United Nations in 2015. Shortcomings related to these dimensions cause problems and disturb social cohesion in societies.

On the outer layer, the approach includes the planetary boundaries that give the safe space under an ecological ceiling, below which we can develop the various aspects of the social foundation. The ecological ceiling includes the systems we should not overshoot – climate change, ocean acidification, chemical pollution, nitrogen and phosphorus loading, freshwater withdrawals, land conversion, biodiversity loss, air pollution, and ozone-layer depletion. These nine dimensions and their indicators are derived from the limits to growth and planetary boundaries[107], which identifies and safeguards the processes that regulate Earth's ability to sustain holocene type conditions.

Between the just social foundation and the safe ecological ceiling lies the area where we can grow and develop our economy and societies.

105 Raworth, K. (2018). "What on Earth is the Doughnut?" Resource drawn 28.08.2018 from: https://www.kateraworth.com/doughnut/.
106 Raworth K. (2017). "A Doughnut for the Anthropocene: humanity's compass in the 21st century" The Lancet. Volume 1, No. 2, e48-e49

Image 17: The safe and just space for economic development lies between social foundation and ecological ceiling.[108]



107 Rockström, J.et al. (2009). "Planetary boundaries:exploring the safe operating space for humanity". Ecology and Society 14(2): 32. [online] URL: http://www.ecologyandsociety.org/vol14/iss2/art32/

108 Raworth K. (2017). "A Doughnut for the Anthropocene: humanity's compass in the 21st century" The Lancet. Volume 1, No. 2, e48-e49.

IT IS HARD to argue against solving any of these major challenges mentioned or any aspects of the doughnut and keeping us in the safe and just space of human societies. All of this would be economic development. At the same time, it would be naïve to argue that solving them is easy or even clear from the point of what needs to be done to solve them.

Yet, it is clear that, if there is a will to create real economic development, then whatever common resources we have, should be used to direct the market to support initiatives, industries, and companies that aim to solve these challenges and look to increase our chances to live in the safe and just space. Thus, we arrive at the simple answer to our question on how to create economic development.

To create economic development is to direct all available resources to support, direct, and regulate the industries that solve the big challenges of our time.

In this great task – individual member states as well as the EU have their work cut out for them. In order for the big challenges to be solved, investments must be made into solving them. The EU can play its part in directing the transformation towards economic development through the means of industrial policy, doing all it can to enable the shift towards a sustainable and green economy.

Benefits from scarce resources and changing climate: Updating the 21st century approach to EU industrial policy creates economic development

THE EU HAS two kinds of leverage on economic development, through updating the 21st century approach to EU industrial policy: the first is to support and fund sustainable economic development and the second to direct and regulate industries to correct the path that they are on to support competitiveness via economic development.

The EU does not directly shape all of the industrial policies of its member states. Nevertheless, by updating EU industrial policy, the EU can shift the focus from economic growth to economic development, to create competitiveness from intangible value creation in a way that helps mitigate the challenges arising from scarce resources and changing climate[109]. With the global nature of the most pressing environmental challenges[110] [111], member states cannot solve the issues by themselves and often will not take radical action for political reasons. If not tackled by larger organisations than nation states, the most likely result will be a "race-to-the-bottom" where everyone battles for their position to secure their living standards. More than ever, there is a need for organisations with a larger perspective, such as the EU, to tackle these issues. If climate change and other environmental problems are not addressed now, not just the EU, but all nations and people living in them will be much worse off.

The EU's Industrial Policy Strategy already deals with some of the challenges by focusing on empowering industry to create jobs, boost Europe's competitiveness, foster investment and innovation in clean and digital technologies as well as defend Europe's regions and workers most affected by the ongoing industrial change [112]. Yet, these policies should be followed by more radical actions to turn these wicked problems into possibilities. Some of those actions are presented in the following chapters.

109 Burke, M. et al. (2018). "Large potential reduction in economic damages under UN mitigation". Nature. Volume 557, pages 549–553

110 Demos Helsinki (2015). "SPREAD Sustainable Lifestyles 2050." Resource drawn 28.08.2018 from: https://www.sustainable-lifestyles.eu/.

111 Motesharre, S. (2014). "Human and nature dynamics (HANDY): Modeling inequality and use of resources in the collapse or sustainability of societies." Ecological Economies 2014, Volume 101, pages 90-102

112 European Commission (News) (2017). "New Industrial Policy Strategy". Resource drawn 28.08.2018 from: https://ec.europa.eu/commission/news/new-industrial-policy-strategy-2017-sep-18_en.

Creating a low-carbon economy together

THE EU HAS two main kinds of leverage in moving from economic growth to economic development. The first is to support and fund sustainable economic development through creating a low carbon economy with a single energy market. This should be done by supporting the new value creation paradigm. Intangible value creation has an increasing role in open ecosystems and partnership building.

The keyword here is "together". The EU has immense potential to transform various business sectors by steering value creation towards intangible and low-carbon value creation with regulations and R&D initiatives, and to change the governing paradigms of member states for the digital era.[113] The EU has always had significantly better public-private partnerships than competing regions. This is the resource that should now be fully utilised and redefined. Innovations and new business models require world class capabilities, research and product development. Europe is already the global leader in many industries, especially in high-value-added, low-carbon and sophisticated products and services[114]. This is a position that should be reinforced. Research and open ecosystems should be developed in a way that takes into account whole value chains, and investments should be directed towards creating intangible value, to create as much added value as possible through better design and distribution of the product or service.

In this, EU research and innovation policies have a key role. This is because the EU has one of the most flexible education systems as well as a talented and skilled population. The EU should push and lead action on international fronts to solve the most pressing challenges of our time, and, at the same time, promote industries in the EU to create solutions to these problems – simultaneously creating global solutions for the global markets that these challenges have created.

Actions on how to do this could be, for example:

- Starting to use the comprehensive doughnut model for measuring economic development;
- The creation of an EU-wide single market for energy;
- Funding research, organisations and companies aiming for the transformation to a sustainable energy market based on renewables;
- Directing funding to startups and companies that look to solve challenges;
- Creating more open ecosystems of practices and data around key progressive technology areas, mainly energy, education, health and mobility.

Boosting economic development and innovation with regulation

THE SECOND LEVERAGE of the EU on moving from economic growth to economic development is to direct and regulate industries, to correct the path they are on to support competitiveness via economic development. This is, of course, a natural continuum for existing regulation, such as the European Emission Allowance system and regulations on environmentally harmful products and services.

The current industrial regulation supports the development of low-carbon and circular economies. This is not enough, however. Industrial policy will need to take into account all externalities that organisations create with their actions – something that is still largely missing from our current economic systems. For example, companies working in the EU should be net positive, meaning that they create more measurable value into society, the environment, and the global economy than they take out. This would not only drive a more sustainable economic growth in the EU, but all around the world when companies adapt to the system. Creating a legal form of net positive companies and a transition period of all companies to move into it, would be a start-

113 Dunleaby P., and Margetts H. (2010). "The second wave of digital era governance". LSE Research. Resource drawn 28.08.2018 from: http://eprints.lse.ac.uk/27684/1/The_second_wave_of_digital_era_governance_(LSERO).pdf.
114 European commission (2017). "Investing in a smart, innovative and sustainable industry - a renewed EU Industrial Policy Strategy. EUR-Lex." 13 Sep. 2017. Resource drawn 29.08.2018 from: https://eur-lex.europa.eu/resource.html?uri=cellar:c8b9aac5-9861-11e7-b92d-01aa75ed71a1.0001.02/DOC_1&format=PDF.

ing point for a transition towards actually smart and clean industries.

Another example of action would be creating economic incentives to reduce emissions by setting up a platform to price and trade carbon, which would be the next step to the European Emission Allowance system. This would have to include increasing the prices of emission allowances and removing free allocation of emissions, making industries more responsible for the emissions they produce. Another clear action would be to set up a directive that creates a plan to remove all subsidies to polluting industries, such as non-renewable energy sources, by finding alternative products and services in sustainable industries, such as forestry and bioenergy.

Industrial, energy, and climate policies should be seen as the driving force of growth for industries and their transformation to low-carbon operating models. This needs to be done in the next few years or, otherwise, we will miss the opportunity to safeguard our environment for ourselves and future generations.[115] The first step would be to continue to update EU industrial policy more radically, to match the biggest challenges 21st century.

115 Figueres C et al. (2017). "Three years to safeguard our climate". Nature Comment. Resource drawn 29.08.2018 from: https://www.nature.com/polopoly_fs/1.22201!/menu/main/topColumns/topLeftColumn/pdf/546593a.pdf

With industrial policy fit for the 21st century, the EU can help its member states to generate economic development in a way that supports the creation of new capabilities

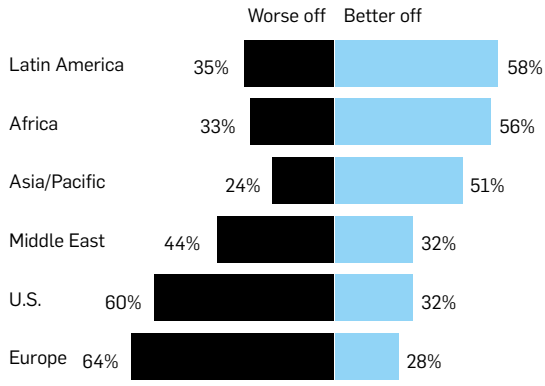
THE VIRTUOUS CYCLE OF CAPABILITIES, PARTICIPATION AND ECONOMIC DEVELOPMENT FORMS THE EUROPEAN PROMISE OF FREEDOM

SOCIAL COHESION means the willingness of the members of a society to cooperate, survive, and prosper[116]. Social cohesion in the EU is promoted by old social models that no longer work, as described in the first chapter of this publication on page 10.

This lack of social cohesion has created a situation where people are pessimistic about the rapidly developing technological and social opportunities offering real solutions to the grand challenges that face humanity and shadow their and their children's future. Open knowledge, artificial intelligence, 3D printing, platforms, augmented reality, and drones may present exciting images of a bright future. However, citizens (often rightly) ask if these technologies are at all connected to the looming existential dangers such as resource depletion, climate change, and extreme inequality.

Indeed, despite the remarkable technological progress, people anticipate very negative futures. For instance, according to Pew research[117] only 28% of Europeans anticipate their children to be financially better off than their parents.

Image 18: 28% of Europeans say they anticipate their children to be financially better of than their parents.



THESE OUTLOOKS MATTER. Negative anticipations are a self-fulfilling prophecy. They reduce investments and create an "every person for themselves" culture, cutting down the willingness to work together for a better future.

Social cohesion in the future can be gained by redefining the deprecated social models.

In fact, the broken social models were not about well-being, jobs, and growth. In the core these models were motivated such ultimate goals as capabilities, participation, and development to which well-being, jobs and growth were instruments.

116 Stanley D (2003). "What Do We Know about Social Cohesion." Canadian Journal of Sociology.
117 Pew Research Center (2016). "4 factors driving anti-establishment sentiment in Europe" Resource drawn 29.08.2018 from http://pewrsr.ch/2hcUsz.

AS DESCRIBED in this publication, the social models of the industrial era are broken for the following three reasons:

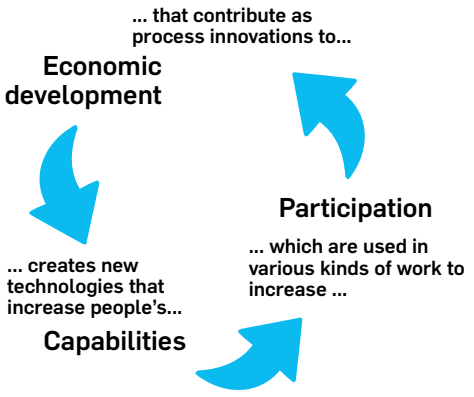
- The first reason is that well-being cannot be guaranteed just by providing basic needs.
- The second reason is that participation and full membership to society cannot be guaranteed by the current job markets.
- The third reason is that the purpose of having a job needs to be something else than mere economic growth, a road that is in stark contrast with our planetary boundaries.

In order to act freely in the current society, people need capabilities, such as access and ability to use technologies and skills, as described in the *Transition 1* on page 16.

People need new opportunities to participate in the current society. Thus, a redesign of job markets and a redefinition of work (as something beyond paid job) are necessary, as described in the *Transition 2* on page 26.

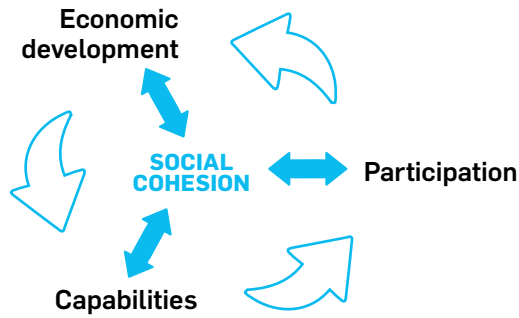
For society to prosper, people need to live purposeful lives, meaning they want to use their capabilities in the opportunities that are given to them to solve big and small problems together. This kind of interaction creates value for the participants and for those who gain from the solved problems, resulting in economic development as described in the *Transition 3* on page 36.

Image 19: Virtuous cycle of capabilities, participation and development.



Together, these create a virtuous cycle. Out of economic development, new technologies emerge that increase people's capabilities. These new capabilities enable them to participate in new jobs and other tasks. The reason a job is done is to solve someone's problems. When a problem is solved indefinitely (process innovation), economic development happens.

Image 20: Social cohesion is both the end result and the means to the virtuous cycle of three transitions.



ALL THREE self-reinforcing transitions contribute to social cohesion. When people are provided freedom with the opportunity to participate, means to do so, and purpose for participation in progress, people begin to cooperate and work together.

This can be achieved by offering new skills, tools and capabilities for people, creating freedom to use these to find and create new jobs, new value and thus economic development. This creates the new promise of freedom for a successful EU.

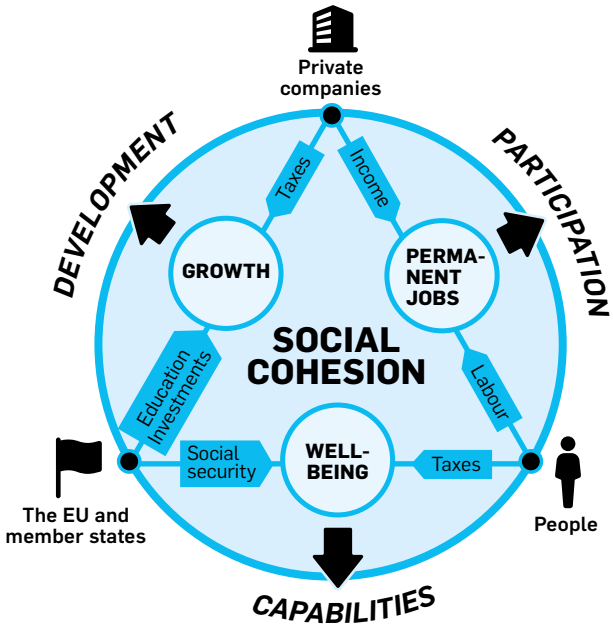
The promise of freedom reframes the European discourse on freedoms and focuses on what it means from the perspective of the individual. Focusing on enabling labour (i.e. people), goods, services and capital move around the EU as freely as within a single country is not enough in the 21st century. We need a new approach where human freedom is seen in a more comprehensive manner. In order to act freely in the globalised and digitalised world people need new capabilities, new ways to participate in soci-

ety and the emergence of new value creation that creates jobs, solutions to the wicked problems of our time and, through them, economic development.

All of what is described above leads to the following formulation of a new direction in the EU among its member states, private companies, and people towards freedom to act collectively for the successful EU.

Image 21: The New Promise of Freedom for the successful EU

Three transitions create the new promise of freedom for a successful EU



The leverages of the EU to enable the transitions.

CAPABILITIES

EU's leverage:
Platform governance & education reforms

Read more on page 22

PARTICIPATION

EU's leverage:
Labour mobility & internal markets

Read more on page 34

DEVELOPMENT

EU's leverage:
New industrial policy

Read more on page 42

EPILOGUE: EU AT CROSSROADS – FOUR FUTURES OF THE NEW SOCIAL MODEL

THERE ARE THREE CRITICAL QUESTIONS to be answered by the EU before it can enhance freedom for its citizens in the coming decade. The next years will decide the fate of the EU and its role in the global world. Problems outside and inside the EU pose serious challenges to the ability of the EU to exist and prosper in the coming decades.

To highlight this, we describe three scenarios[118] each of which raises a key question for the EU. If sufficient answers can be found for all questions, the EU can become successful. This Europe described in the final scenario is a Europe where investments in intangible value creation lead to a co-evolving social and cultural union. It is a Europe where citizens feel cared about, that they have a positive future and are free to choose their own path. A Europe that is competitive, innovative, and able to uncouple well-being from its ecological footprint.

We think that this future is entirely possible. This publication is a wake-up call to spur on the necessary changes to achieve it.

118 These scenarios are modeled after the methodology of the "Mont Fleur" scenario exercise in South Africa. For more information see Kahane, A. (1992). "The Mont Fleur Scenarios: What will South Africa be like in the year 2002?" Deeper News 1992, Volume 7, Issue 1.

Image 22

I. IS THE NEW MODEL COHESIVE AND FORWARD-LOOKING?

IF NOT, the EU will end up in the scenario **"SHY"**, where Europe is insignificant and goes to rack and ruin.

II. IF YES, IS THE NEW MODEL EFFECTIVELY ACTED UPON AND SHARED?

IF NOT, the EU will end up in the scenario **"SLOTHFUL"**, where Europe is powerless and fully dependent.

III. IF YES, IS THE NEW MODEL ECOLOGICALLY, ECONOMICALLY AND SOCIALLY SUSTAINABLE?

IF NOT, the EU will end up in the scenario **"SELFISH"**, where the end of the European project happens due to a series of avoidable crises.

IV. IF YES, THE EU CAN END UP IN THE SCENARIO "SUCCESSFUL", where a credible European alternative can be presented and a global leading position re-created.

I. SHY	II. SLOTHFUL	III. SELFISH	IV. SUCCESSFUL
A Europe where public services are measurably worse off than in the competing regions. Less and less people, currently already under half of the population, support these admittedly mediocre services for the rest. European countries are at the moment shy to change the fundamental structures of institutions and decision-making mechanisms of the industrial age, resulting in development stagnation. When social cohesion and a forward-looking vision are not built, more exits from the EU will follow and more countries will break the accepted rules of the Union, leading to a separated and weak Europe. In this Europe, skills and knowledge are less flexible than in competing regions, salaries are higher and there are, thus, not only less jobs but an ever larger share of those jobs are uncertain and temporary. This results in continuously lowering living standards and Europe losing its significance in global issues.	The EU remains somewhat strong and is able to create a cohesive vision of the future. However, this future is not acted upon and shared by all European countries, allowing strong contradicting influences to define how the vision is put into practice. This situation leads to a Europe where foreign companies control data and services. Big, global platform companies have been given the right to provide public services and they are the most important employers all around Europe. In terms of life quality, Europe is better off. However, in terms of ability to affect its future, it is worse.	Strong, European collaboration of public and private sectors drive the vision and development by focusing on short term economic goals. This situation leads to a Europe where aggressive pursuit of short term goals contribute to international crises and uncontrolled externalities, such as resource overuse and climate change. Debts pile up and social unrest forces national governments to look at short-term solutions when a long-term approach would have been needed to solve the challenges. Europe remains strong and is able to capture a more dominant position in the coming years. However, without a long-term approach, this position lasts only until a series of sudden crises lead to disagreements and end the EU.	Investments in social capital and other sources of intangible value creation leads to a Europe that co-evolves towards a more social and cultural Union, rather than just the economic Union and peace project that it was in the first place. European citizens feel that they are cared about, have a positive future as well as freedom to choose their own path. Collectively, people are treated as more than just resources. The EU is competitive, innovative, and able to uncouple well-being from its ecological footprint. When this happens at the EU scale, others follow suit and European companies benefit from the transition towards sustainable economies within planetary boundaries.
Outcome: Europe is insignificant and goes to rack and ruin.	**Outcome:** Europe is powerless and fully dependent..	**Outcome:** The end of the European project happens due to a series of avoidable crises.	**Outcome:** A credible European alternative can be presented and a global leading position re-created.

APPENDIX

Intangible value creation: seven models of the digitalised world [119]

119 Demos Helsinki (2018). "The Nordic Digital Promise. Four Theses on a Hyperconnected Society." Resource drawn 29.08.2018 from: https://www.demoshelsinki.fi/wp-content/uploads/2018/04/the-nordic-digital-promise_web-compressed-double.pdf.

REGARDING INTANGIBLE VALUE CREATION, there are seven identified models that form the basis for value creation in the digitalised world. With the right mix of these seven models, organisations are able to create new value, which most often means, new work to be done in the long run.

1. Smarter products and services

THERE ARE THREE STEPS in how products and services can become smart. First, products can be able to sense its own operation, which means a product can have its own feedback loop, and be able to e.g. communicate information regarding maintenance. Second, products can be aware of its environment, meaning that the product can interact with information from its surroundings and respond accordingly. For example, a smart radiator can detect the weather outside and adjust the inside temperature depending on this input. Third, products can be aware of its context. Using the example of the thermostat again, this would mean that it would be able to adjust its temperature in anticipation, based on the personal preferences of individuals entering the room.

2. Real-time directed resources

USING HISTORICAL INFORMATION can offer an advantage when investigating hidden correlations in the company's past data. Using instant information in operations helps businesses find failures and respond to critical situations faster. Using predictive information is becoming more and more feasible, and it offers big gains (e.g. in the healthcare sector). Using predictive information can pinpoint issues and challenges before they arise and offer insight for better decision-making by providing "information from the future".

3. Resource efficiency

RESOURCE EFFICIENCY in value creation can mean a) sharing: utilisation rate of physical resources by distributing and allocating their use more efficiently; b) optimisation: energy efficiency through, for example, new data management and smart energy management; c) refurbishment: improving the efficiency of physical assets by integrating sensors into existing things in order to create energy efficiency in the existing value chain, product development, and manufacturing; and d) dematerialisation: replacing resource-intensive practices with new solutions.[120]

120 Demos Helsinki (2015). "Cleantech takes over consumer." Resource drawn 29.08.2018 from: markets.https://www.demoshelsinki.fi/wp-content/uploads/2015/09/Consumer_Cleantech_Report-1.pdf

4. Data commercialisation

NEW WAYS OF USING DATA can mean a) giving, using or selling data internally within the company's internal value chain; b) selling or giving data to companies in the same value chain; 3) selling or giving data externally to selected value networks (or to anyone) offers possibilities to create value within a larger business ecosystem.

5. "X-a-as-service" -models

IN THIS MODEL, abilities or functions (such as mobility), are offered in the form of a service, traditionally through the purchase of a product (such as a car). X-as-a-service business models entail that companies compete in their ability to produce results and provide services rather than their ability to sell products.

6. Platforms

A) INTERNAL PLATFORMS focus on companies' own operations, services, and products. b) External platforms are extended to include partners and collaborators in a platform that is specific to some purpose of the host company. c) Providers or platform owners open up platforms to any third parties, and parties can often collaborate on the platform without the need to necessarily interact with the platform owner.

7. AI and machine learning

ARTIFICIAL INTELLIGENCE is the ability of machines to carry out tasks that we consider "smart", and machine learning is the application of artificial intelligence (i.e. algorithms) in a way that allows machines to have access to data and learn from that data. The benefits of machine learning are already applied in various contexts, and the help machines provide in solving complex issues, handling large data sets, and analysing them for better understanding, is one of the most transformative technological developments that will affect all organisations in one way or another.

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