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Title

The future of the EU collaborative economy — Using scenarios to explore future implications for employment

Abstract

The rapid growth of the collaborative economy has fuelled a discussion about its potential benefits and challenges. Moving the debate towards longer-term considerations the scenario-based JRC foresight project explores the possible future developments of the EU collaborative economy towards 2030. Results for platform-mediated labour markets indicate several issues in relation to social protection of workers, data and reputation, and education and lifelong learning that need to be tackled irrespective of the future direction the EU will take. Furthermore, the potential for public service provision and social innovation should be actively explored.

The future of the EU collaborative economy

Using scenarios to explore future implications for employment

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Executive summary

Digital platforms are the key element of the collaborative economy. They enable matchmaking between providers and users of goods and services at very low costs and facilitate participation of private individuals as providers in this market place. The rapid growth of the collaborative economy has fuelled a discussion about its potential benefits and challenges. Since this new and dynamic phenomenon does not easily fit into existing frameworks, regulatory uncertainty emerges as one of the key concerns.

The European Commission in its strategy for the single market (European Commission 2015a) recognises the need for a clear and balanced regulatory environment. A *European agenda for the collaborative economy* was adopted in June 2016 to provide guidance on how existing EU law should be applied to this sector and to clarify key issues faced by market operators and public authorities (European Commission 2016b).

The Joint Research Centre (JRC) initiated in 2015 a foresight project on the future of the EU collaborative economy towards 2030 to contribute to the development of the 'Agenda' and subsequent discussions. Several concepts are currently being used for describing this new sector of the economy. For this project, we understand the collaborative economy as encompassing a variety of transactions, for-profit and non-profit initiatives and involving different types of users ranging from individuals to public institutions.

The initial part of this project was aligned with the development of the 'Agenda' and involved about 50 experts and stakeholders with a broad range of backgrounds in two workshops in 2015 and 2016. Four different future scenarios were developed. They were analysed with a primary focus on digital labour market platforms, one of the more controversial sectors of the collaborative economy.

Digital labour market platforms – cross-cutting challenges

The analysis of the four 2030 scenarios resulted in the identification of several issues that need attention. These key issues, organised into three thematic groups (see below), are relevant for the future of platform-mediated labour markets, regardless of the future direction of the EU.

(a) Social protection and rights of workers in platform-mediated labour markets

- New types of employment call for a review of the types of worker status and the accompanying contractual arrangements.
- In the context of the blurring of frontiers between different employment statuses and types of work, the conditions for building up social rights over the life course for different categories of non-standard workers should be examined.
- An adaptation of labour and welfare policies reflecting new economic developments should be considered and developed in collaboration with the actors that are already supporting non-standard workers such as trade unions and cooperatives, and in discussion with experts and entrepreneurs.
- Best practices of trade unions, cooperatives and other initiatives in terms of including platform workers should be identified, systematically monitored and promoted in the Member States.
- New ways of addressing social and economic risks for those who experience frequent spells of unemployment or underemployment in current precarious labour markets should be explored.

- More research is needed into how the platform-mediated labour market is changing the nature of self-employment. What new risks and opportunities does this new form of accessing and performing work represent for self-employed workers?

(b) Data and reputation

- The risk of monopolistic or oligopolistic situations closing off viable options for data portability, i.e. to transfer a profile to another platform, should be monitored in a systematic and consistent way to ensure a level playing field. Data portability or profile transfer in formats that are interoperable and open source should be further explored.
- Meaningful information about the algorithmic rules and criteria used in building workers' profiles could be made available in terms accessible to the wider public. Documentation or regular reports on discrimination or unfair treatments potentially caused by profiling, should be encouraged. More research of the underlying algorithms creating profiles is essential if the risks of profiling and discrimination are to be minimised.
- New ways to support open standards for reputation ratings on a royalty-free basis, fully compatible with open source solutions in order to ensure interoperability, foster innovation and provide low market entry barriers, could be explored.
- In the blurring of frontiers between private and public data as more and more professional and private activities are carried out via digital platforms, the exceptions to ask for consent to use or reuse data should be monitored and analysed across Member States, with the view to minimise uncertainty in the implementation of current regulation.
- More options should be developed to enable workers or users with varying degrees or skills to easily create, set up and control their data in their online profiles or portfolios. 'Privacy in design' is a promising area of research in this context.

(c) Competences and skills for platform-mediated work

- The future worker is expected to be more reliant on a different set of skills, in line with changing work requirements and organisation. How to successfully adapt and implement school and university curricula and training offers to cover, in addition to entrepreneurial skills, the abilities needed for platform work such as self-marketing, advanced competences in managing the online identity and privacy, resilience and stress management capacity, should be explored.
- The availability and accessibility of lifelong learning opportunities is essential for platform workers who often remain outside of an employment relationship. Digital labour platforms could play a role in providing access to training and should be encouraged to do so.

Collaborative economy potential for public services and social innovation

Discussions of the scenarios emphasised that, in addition to the more commercially oriented collaborative economy initiatives, there is also a potential for transforming public services and for social innovation. Further analysis and institutional support is needed to realise this potential.

- Governments at different levels should engage in a dialogue with collaborative economy initiatives that advocate the bottom-up and participatory aspects of the collaborative economy. Examples and new ideas for meeting society's needs should be discussed, explored and possibly supported through funding, strengthening visibility and other means.
- The conditions for the use of digital platforms and public data to support the development of better solutions for the public good should be explored.
- The identification and sharing of 'best practices' for digital platform use between public services should be supported to contribute to a more efficient service.

The scenarios and know-how developed so far within this project provide a valuable basis for further analyses. They can be put to use, for example, to investigate in-depth future implications of digital labour market platforms, to explore other sectors of the collaborative economy or to analyse specific aspects of the collaborative economy such as its role for a sustainable EU economy.

The growing evidence that is becoming available on the current status and impacts of the collaborative economy in the EU will support the further refinement of the scenarios and thus their effectiveness.

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1. Introduction

In recent years, while still small in economic terms ⁽¹⁾, the so-called collaborative economy has gained considerable momentum, enabled by the use of online platforms facilitating the matchmaking between suppliers and users of many goods and services and increasing the use of some assets. This multifaceted socioeconomic phenomenon has emerged in a wide range of economic sectors, including for-profit and not-for-profit activities. Examples of platforms commonly associated with the collaborative economy range from 'Neighborgoods', a low-scale platform for lending and borrowing durable goods, to 'BlaBlaCar', a platform facilitating peer-to-peer ride sharing, short-term rental via 'Airbnb', crowdfunding platforms such as 'Zopa', 'Funding Circle', and service provision such as 'TaskRabbit' or the online crowdwork platform 'Amazon Mechanical Turk'. Currently, reflecting the broad diversity of initiatives, no commonly agreed definition and terminology exists ⁽²⁾.

The initial debate was monopolised by the boosters (explosive growth, lower carbon footprint, utopian benefits for all, etc.) and the critics (initiatives being about profit and not sharing, predatory, exploitative, creating new forms of exclusion). A more balanced discourse is now emerging which calls for careful differentiation between different types of platform-mediated initiatives and their varying implications on society and the economy. The European Commission in its strategy for the single market (European Commission 2015a) recognises the potential of the collaborative economy in creating new employment opportunities, offering flexible working arrangements and generating new sources of income. For consumers, the collaborative economy can provide benefits through new services, an extended supply, and favourable prices. It can also encourage more efficient use of resources and asset-sharing, which can contribute to environmental sustainability. Furthermore, collaborative economy initiatives could build community participation and advance social innovation.

However, there is also recognition that the collaborative economy is putting pressure on traditional economic sectors and challenges existing regulatory frameworks for consumer protection and employment and current fiscal models. The European Commission acknowledges that a clear and balanced regulatory environment is required; in addition to a review of existing regulations, appropriate legal mechanisms, insurance products and tax provisions are needed for digital platform-driven forms of consumption, production and exchange to develop and to boost their competitiveness, especially vis-à-vis US-based platforms that tend to be more efficient at developing global business strategies.

Against this background, the European Commission announced the development of a *European agenda for the collaborative economy* (European Commission 2015a). To contribute to the development of the 'Agenda' and subsequent discussions, the European Commission's Joint Research Centre (JRC) initiated, on request of Vice-President Katainen, in 2015 the foresight project *The future of the EU collaborative economy*. The immediate aim of the foresight project was to develop policy recommendations to enable the EU to maximise the benefits and minimise the drawbacks of the collaborative economy.

The initial part of the project, running from September 2015 to April 2016, was carried out in parallel to the development of the *European agenda for the collaborative economy*, which the European Commission adopted in June 2016 (European Commission 2016b). The 'Agenda' provides legal guidance on issues such as liability, protection of users, taxation, and employment rules. For this purpose the Commission focussed on the

⁽¹⁾ In five key sectors the collaborative economy generated in 2015 in the EU revenues of about EUR 3.6 billion (accommodation, transport, household services, professional services, and finance) (European Commission 2016a).

⁽²⁾ There are a number of different terms in use which are partly used as synonyms, e.g. sharing economy, collaborative economy, collaborative consumption, on-demand economy, the mesh.

temporary usage of goods and services such as car sharing, accommodation or household help for the commercial interest of at least one of the involved actors. However, the collaborative economy can also be understood as being much broader, including entirely non-profit transactions, the selling of goods and the participation of a wide range of actors, from private individuals to businesses and public institutions. For the sake of a comprehensive approach, the foresight project followed this broader understanding.

This report presents the initial results of the foresight project, namely four scenarios on possible future developments of the collaborative economy in the EU (Section 4), and their application to identify the main issues related to digital labour market platforms, in all of the four scenarios (Sections 3 and 5). The project also assessed the potential of the more broadly defined collaborative economy for public services and social innovation (Section 6). Finally, the report proposes a few avenues for the continuation of the project (Section 7).

The JRC has recently published a number of reports on the collaborative or sharing economy:

- F. Celikel Esser (editor), Abadie, F., Biagi, F., Bock, A.K., Bontoux, L., Figueiredo do Nascimento, S., Martens, B., Szczepanikova, A. (2016), *The European Collaborative Economy: A research agenda for policy support*. JRC Science for Policy Report, Luxembourg: Publications Office of the European Union; JRC103256.
- Codagnone, C., Abadie, F. and Biagi, F. (2016), *The Passions and the Interests: Unpacking the Sharing Economy*, JRC Science for Policy Report, Luxembourg: Publications Office of the European Union Studies, JRC101279.
- Codagnone, C., Biagi, F. and Abadie F. (2016), *The future of work in the 'Sharing Economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation?* JRC Science for Policy Report, Luxembourg: Publications Office of the European Union Studies, JRC101280.
- Codagnone, C., Martens, B. (2016), *Scoping the sharing economy: Origins, definitions, impact and regulatory issues*. JRC Technical Reports, Luxembourg: Publications Office of the European Union; JRC 100369.
- Martens, B. (2016), *An economic policy perspective on online platforms*. JRC Technical Reports, Luxembourg: Publications Office of the European Union; JRC101501.

2. The foresight approach

Future-oriented reflections are essential for any policy to meet new challenges proactively. Foresight is a process aimed at providing the necessary anticipatory intelligence to shape medium- to long-term policies. It enhances forward-looking thinking by gathering a wide range of stakeholders and knowledge sources and by systematically exploring alternative perspectives on the future to guide today's decision-making. Foresight makes no attempt to predict the future, but considers the future as something that can be created and formed. In this sense, foresight supports actors and stakeholders in actively shaping the future. Foresight methods (e.g. vision building, scenario building, Delphi, etc.) are used to structure the debate on possible futures to ensure the emergence of a collective intelligence among all relevant parties involved (stakeholders, experts, etc.). Also, foresight methods are designed to help think beyond the constraints of established mental models.

In the present project, scenarios were constructed to illustrate possible combinations of developments from the present to the future and to explore their potential impacts on the collaborative economy. The introduction of views that go beyond the well-known extrapolations can foster a better understanding of alternative pathways and possible implications of today's actions.

To be effective, scenarios need to meet four requirements:

- plausibility, i.e. the scenario falls within the limits of what might conceivably happen,
- consistency, i.e. the various elements and factors in a scenario should not conflict and threaten its credibility,
- diversity, i.e. the scenarios should be structurally different to cover distinct directions of possible future developments,
- utility, i.e. scenarios should contribute insights into the future that are relevant for the questions at hand in order to facilitate decision-making.

The four scenarios developed for this foresight project are exploratory, i.e. they do not represent a common vision or necessarily a desirable future. Some developments in the scenarios are pushed to the extreme to maximise differences in order to expand the field of reflection about the future and help take distance from today's situation. Taken together the four scenarios represent four divergent directions the EU could pursue, while the reality might turn out to combine elements of different scenarios. Along the same lines, these scenarios are not the only plausible futures; other combinations of driver developments and resulting scenario variations are possible.

The process

The initial part of the foresight project was targeted at the provision of timely input to the development of the Communication of the European Commission *A European agenda for the collaborative economy*. The process was based on a combination of in-house work and two participatory workshops involving ca 50 experts, stakeholders and policymakers with very diverse backgrounds.

The first workshop took place in December 2015. Its aim was to create among the participants a common systemic understanding of the collaborative economy in all its diversity in order to be able to identify the critical drivers for its mid-term future development. To this end a design approach was taken, asking participants to develop, with the help of a pre-prepared conceptual scheme, a concrete collaborative economy platform and to identify the roles, motivations and challenges from the point of view of users, providers and platforms, and the implications for the public interest. In a following

exercise the participants were asked to identify relevant drivers that would shape the evolution of their collaborative economy initiatives towards 2030.

These drivers were then categorised and consolidated and used by the JRC project team in an in-house iterative process to develop four exploratory scenarios. In order to align the process with the policy schedule, these scenarios were created by adapting a pre-existing set of scenarios taken from another foresight study which provided different overall future settings for the EU governance, economy and society (Bontoux & Bengtsson 2015). This adaptation was facilitated by the fact that the identified drivers largely coincided with the ones used for the initial scenario development. In the adaptation process the main directions of the different scenarios were maintained (e.g. in terms of governance and social cohesion and values), basically describing the future EU frameworks in which the collaborative economy develops. The scenario details were then tailored to the requirements of the collaborative economy.

The scenarios were further enriched and analysed at the second participatory workshop which took place in February 2016. In view of the scope of the exercise at the time, this workshop focussed on the future of digital labour market platforms and in particular on the challenges faced by service providers/workers. The scenarios were used as contexts in which participants had to take up roles to better reflect on future opportunities and challenges created by the collaborative economy. The final scenarios, as described in Section 4, build strongly on the results of the second workshop. The issues and potentials that were identified are presented in Sections 5 and 6.

3. Digital labour market platforms

Within the range of diverse initiatives falling under the term 'collaborative economy', digital labour market platforms have gained a lot of attention. This is due to the anticipated benefits in terms of job creation but is also caused by possible negative implications in relation to quality of jobs and workers' rights (for more details see Codagnone et al. 2016; de Groen et al. 2016; de Stefano 2016). Against this background this sector of the collaborative economy was chosen as the focus of this initial part of the foresight project.

The platform-mediated labour market, also often described as the gig-economy, on-demand economy or crowdwork includes a variety of initiatives that can be differentiated in terms of how the work is carried out and the level of skills needed (Figure 1).



Figure 1: Typology and related examples of digital labour market platforms

Services, matched with the demand via platforms, can be delivered online or physically. Platforms such as Upwork (a US-based platform), CoContest (Italy) or Freelancer (Australia) focus largely on highly skilled work. This tends to include non-routine tasks or project-based work requiring, e.g. graphic design, software development, legal or administrative skills. Lower-skilled work is mediated by platforms such as Clickworker (Germany), Crowdflower (US), Amazon Mechanical Turk (US) and often includes rather routine micro-tasks such as photo tagging, data entry, or transcriptions.

When the work is delivered offline, it often involves some level of direct interaction with the final customer. Also here a rough distinction can be made between highly and lower-skilled work. The latter involves platforms such as Uber (US), ListMinut (BE), Youpjob (France), TaskRabbit (US), Deliveroo (UK), ETECE (Spain) for taxi-like services, household chores, gardening, food delivery, etc. Highly skilled offline on-demand work includes tasks such as teaching, however, this type of platforms seems currently to be

less frequent. Examples include platforms such as TakeLessons (US), Konnektid (the Netherlands), and Mila (Switzerland).

Currently there is only limited evidence available regarding the actual size of this new part of the labour market. Groen and Maselli (2016) estimated that in the EU about 100 000 workers are active on labour platforms, i.e. ca 0.05 % of total EU employees. According to this calculation, about two thirds are working via Uber. In the US, similar estimates indicate active participation of ca 600 000 workers or 0.4 % of total employment (Harris & Krueger 2015) with a similarly high share of Uber service providers. Others estimate that currently less than 1 % of the US working-age population is active via labour platforms (McKinsey Global Institute 2015). Although in absolute figures the relevance of digital labour market platforms is limited, their growth in recent years has been very high and could indicate a considerable demand: Upwork, formerly Elance and O'Desk, has experienced an increase of 1 000 % per quarter from 2009 to 2013 (Codagnone et al. 2016), and counts now more than 12 000 000 registered contractors ⁽³⁾. The platform Freelancer counts ca 20 000 000 registered contractors ⁽⁴⁾. Such high numbers also reflect the fact that these labour platforms are active at international level. As a comparison, ListMinut, a Belgian platform for offline work, only counts about 17 000 contractors. In addition, only 5.4 % of these are actually active, and only about 25 % of posted tasks end up being carried out (de Groen et al. 2016). Similar figures have been found for Youpjob, a French platform for offline work: only 39 % of all tasks posted are assigned to a provider (OECD 2016). This might indicate that not all platforms are efficient intermediaries and that tasks are posted on several platforms.

According to surveys carried out in the UK and Sweden, about 3 % of respondents aged 16 to 75 claimed to have found paid work via labour platforms at least once a week, while 8 % of the adult population had worked via a platform at least once. About 4 % (Sweden) and 5 % (UK) of the platform workers claimed to earn all their income via the platforms, while 42 % and 48 % respectively earned less than half of their income this way (Huws & Joyce 2016a).

The evidence regarding the demographic characteristics of platform workers is still fragmented and it differs for different platforms. Data from the US indicate that, compared to the general population, platform workers tend to be male, young, belong to a racial or ethnic minority and live in cities (De Groen & Maselli 2016). Results from the surveys carried out in Sweden and the UK give a similar picture regarding the participation of the millennials in this labour market — 47 % and 51 % of platform workers are between 16 and 35 years old. While in the UK platform workers are more likely to be women, in Sweden they are more likely to be men. In both countries, only a small part of the platform workers are students (10 % in UK, 12 % in Sweden).

The surveys in the UK and Sweden indicate that many platform workers carry out a variety of different tasks and are often registered on more than one platform. The limited evidence shows that remuneration levels in general seem to be higher for local offline work than for online work and thus seems to reflect the fact that the number of worker potentially available to carry out offline tasks is much smaller than the number of workers available for online work. In addition, most of the platform workers are likely to earn less than employees in a traditional employment relationship. In the light of current indications regarding remuneration levels and intensity of platform work it is unlikely that many workers make a living from the incomes generated via the platforms (De Groen & Maselli 2016). Reasons for participating in the platform-mediated labour market are linked to income generation, the possibility to work from home, and flexibility to determine one's schedule and to select the jobs (De Groen & Maselli 2016). However, the promise of flexibility and autonomy may be elusive given the conditions set by

⁽³⁾ Upwork website <https://www.upwork.com/about/> (accessed 26 July 2016)

⁽⁴⁾ Freelancer website <https://www.freelancer.com/> (accessed 26 July 2016)

several platforms in terms of minimum job acceptance rates, monitoring of work and dependence on positive ratings by customers while having limited possibility to object (Codagnone et al. 2016; De Groen & Maselli 2016).

De Stefano (2016) considers platform work as an extreme form of temporary work which, as such, forms part of and should be considered in the framework of non-standard work, e.g. temporary jobs, part-time work or self-employment. While non-standard work including platform work can be linked to advantages such as job creation, more flexibility or autonomy, it is also associated with less income security, lower earnings, less work-related benefits including social security and less employer-sponsored training (OECD 2016; EPSC 2016).

In terms of platforms' impacts on the labour market, the question of the extent to which they reorganise the employment relationship is of particular policy relevance (Drahokoupil & Fabo 2016). Many platforms flourish in sectors that have already relied on self-employment such as taxi services or design. Others tap into areas like administrative and customer support, legal advice or even management that have traditionally relied on standard forms of employment. Another important question is to what extent digital labour market platforms encourage offshoring of work from local to global labour markets (Drahokoupil & Fabo 2016). Here, platforms such as Upwork and Amazon Mechanical Turk are already having an impact. And finally, digital labour market platforms can contribute to changing the nature of work by its fragmentation into tasks that can easily be outsourced to workers all around the world via the internet. This then goes hand in hand with dismantling of wages into micropayments (Drahokoupil & Fabo 2016; Gray 2016).

4. Four scenarios – the EU and the collaborative economy in 2030

With the objective to explore how the EU and the collaborative economy could develop towards 2030 and to identify related challenges with regard to digital labour market platforms, four scenarios were developed and analysed. At the first workshop held in December 2015, participants identified a number of drivers of change ⁽⁵⁾ that are critical for the future development of the EU collaborative economy. These drivers were categorised and consolidated (see below) and used for the scenario development.

Critical drivers for the mid-term future development:

Social cohesion	Social cohesion describes the strength of social relations within a society, the sense of solidarity and community belonging, the sharing of common values and the extent of social inequalities. For the scenarios, either a strengthening of social cohesion with a strong community spirit is assumed, or as an opposite development a move towards an individualistic society.
Social values	Social values are understood as shared values relating to environmental sustainability, common goods and collective benefits, or citizen engagement and responsibility. For the scenarios, different significance and strengths of these values are assumed.
Demography	Following the projections of the European Commission (European Commission 2015b), the assumption behind the scenarios is that the size of the EU population will remain more or less stable. The EU population will, however, continue to age with an increasing share in the population of people aged 65 years and older and a parallel increase of the old-age dependency ratio.
Development in information and communication technologies	Information and communication technologies (ICTs) are assumed to develop further while their application is generally accepted. Online platforms will become more user-friendly, including through improved algorithms. Other expected trends include robotisation, automation, and an overall increase in connectivity and data availability. Digital literacy will increase in parallel to these processes.
Economic development	The economic development of the EU will determine living standards and purchasing power of the citizens and will influence public spending and public services. For the scenarios we assume different economic situations, from stagnation or moderate growth, to a complete re-orientation of the economy towards environmental sustainability.
Governance	Governance is understood as encompassing EU, national and regional levels. The scenarios assume different levels of subsidiarity, differences in importance of direct democracy and various strengths of regulatory frameworks.
Environmental pressures	Environmental pressures relate to climate change and the depletion of natural resources. Both are assumed to continue, putting more pressure on the economy and governance, and driving resource efficiency.

⁽⁵⁾ Drivers of change are factors that cause directly or indirectly a change. These can originate from persons (pre-dominant behaviour), organisations or from so-called STEEP conditions, i.e. social, technological, economic, environmental or political constellations.

The drivers described above were used to develop four exploratory scenarios for the EU to reflect on the collaborative economy in 2030. An overview of the characteristics of the drivers in each scenario is given in the Table below. Three of these drivers, i.e. the development of ICTs, environmental pressures, and EU demography, correspond to megatrends and affect all scenarios in a similar way. The other drivers are affected by trends that are more uncertain and are used as structuring elements to create the differences between scenarios.

Table: Driver development per scenario

Driver	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Social cohesion	Strong social cohesion	Strong social cohesion	Individualistic society	Individualistic society
Social values	Openness, transparency and fairness	Environmental sustainability, responsibility and solidarity	Individual responsibility, technological progress	Individual responsibility and self-reliance
Economic development	Moderate growth	Redirection towards a circular economy, beyond GDP	Low growth	Volatile economy, overall stagnation
Governance	Governance distributed between EU level and regional level, direct democracy	Strong EU governance with more EU competences	Lean governance at all levels	Weak governance at all levels
Development in information and communication technologies	Progress in robotics, automation and artificial intelligence			
Environmental pressures	Climate change and depletion of natural resources continue			
Demography	Size of EU-28 population remains stable, population is ageing			

The four exploratory scenarios

Figure 2 provides an overview of the four scenarios. It is followed by a detailed description of each scenario resulting from the discussions and enrichment of the scenario outlines, which were prepared by the JRC, by the participants at the second workshop. The scenarios are further illustrated and contextualised with brief descriptions of fictitious platforms and platform workers. The same examples are used for all scenarios to highlight the differences and similarities.

Scenarios are exploratory thought experiments to consider alternative futures; they are not aimed at predicting the future. Many other developments might be conceivable,

including different combinations of the elements used here. Furthermore, the scenarios provide a simplified image of the future; for example, they consider the EU as a whole, without considering differences that could emerge at national or regional level.



Figure 2: Overview of the four future scenarios with keywords outlining the main elements

4.1. Scenario 1

A pervasive self-organising collaborative ethos in a largely conventional economic context, with a surge in local initiatives

Community-owned/cooperative platforms shape the collaborative economy, emphasising transparency and self-regulation

How did we get there?

The strong Eurosceptic push in the 2014 European Parliament elections has had

long-term consequences, leading to political paralysis at EU level. Disenchanted by both national and European Union politics, EU citizens wanted to see decisions taken closer to home, reinvigorating local and regional political life. The Treaty on European Union was revised again, giving a stronger role to EU regions. Subsidiarity was redefined and the focus of EU-level policy became limited to global issues (e.g. international trade negotiations, international discussions on climate change mitigation) and to safeguarding the functioning of the single market. This more local outlook and engagement

went hand in hand with an empowerment of civil society, facilitated by the rise of the millennials to positions of responsibility. This was reflected in the introduction of direct democracy elements and an increasing share of bottom-up, community-based approaches.

Still, despite increasingly severe climate change effects, no political courage was found to set the EU firmly on a steep emission reduction path for fear of disrupting the moderate but stable economic growth. However, an increasing number of environmentally aware groups started to initiate local, bottom-up processes and to influence policymaking at regional level in areas such as education, public R & D investment, standards, or public procurement. Also at global level, thanks to the global interconnectedness of citizens and against the background of climate change impacts and scarcity of natural resources, more and more people put cooperation before competition as a more sustainable model of economic development. This is starting to affect the management of the distribution and use of natural resources worldwide.

The collaborative economy in the EU in 2030

EU regions are prominent policy actors allowing decisions to be taken closer to citizens. Policy processes are also more participatory with direct democracy approaches being an important part of decision-making. Despite pursuing harmonisation at EU level in the interest of the single market, decision-making has become more volatile and fragmented across the EU.

Citizen empowerment has led to the development of many local/regional initiatives. Openness, transparency and fairness are fundamental values which determine the economic development. Local and regional value chains are becoming more important with local and virtual currencies being a frequent tool to support the local community. Trust and reputation are key parameters for

businesses; corporate social responsibility has never had such a high profile. International trade agreements such as TTIP have not been concluded, and given the trend towards a more local economy, international trade actually decreased compared to 15 years ago.

Farmpool — a regional cooperative platform connecting farmers with customers interested in purchasing locally produced food and supporting sustainable agriculture

Farmpool developed from a small, local for-profit platform, initiated by a student, into a cooperative of farmers in the region selling part of their products directly to consumers. Consumers, interested in fresh, sustainable food, the origin of which they know, pick up their orders at specific collection points. Word of mouth has contributed to considerable growth of the platform and similar initiatives have emerged in other regions. As there are fewer intermediaries, the food prices are competitive to supermarkets and generate better income for the farmers. Some farmers make about 50 % of their income via the platform/cooperative.

We-share — a local, not-for-profit platform connecting neighbours in a municipality to exchange services and assets in a timebanking marketplace

We-share is a platform that started out in one community and has been copied by many other communities, forming a large network. The platform is organised by the community itself, and is a catalyst for building a local community and for integrating and supporting especially the elderly population and newcomers. Timebanking accounts and local currencies are convertible, which provides an additional incentive to participate. Also a certain level of peer pressure pushes neighbours to get involved.

In this society, education is seen as a lifelong process, and best practices are taken up and are further developed and shared across EU regions. The development of a collaborative spirit but also entrepreneurial capacities and sustainability are included in school curricula, contributing to the development of an open, dynamic society with a generally high level of education.

Moved by a deep sense of responsibility and solidarity, conscious and empowered citizens self-organise to address the social and environmental shortcomings of national and EU policies. Social networks and collaborative platforms are routinely used by citizens to launch bottom-up initiatives and create powerful groups of influence, also at global level. 'Think global- act local' is the motto. Social and ethical norms and values have considerably evolved, and led to new modes of production and consumption based on sharing and open collaboration. Free circulation of information and trust facilitate the broad dissemination of best practices and voluntary standards. Ownership lost importance in this society. Sharing and renting, including new business models based on product servitising, reduce the need to own. Peer pressure towards community engagement and sustainable behaviour goes hand in hand with a digitally networked society and easy access to personal information.

Another area of strong citizen engagement is R & D. Citizens are involved in shaping the public research agendas and actively contribute to research via 'citizen science' and bottom-up innovation, i.e. data gathering, crowdsourcing, DIY labs and FabLabs. Advancements in robotics, automation and artificial intelligence are shaped and applied according to conditions determined by the society, also with a view to regional and global competitiveness, while seeking to manage job transformations and replacements in a socially acceptable manner.

With the strong sense for the common good and interest in supporting the local economy and community, the EU economy is characterised by a larger share of SMEs, a dynamic start-up scene, with digital collaborative platforms being a frequently used element in all sectors. Local and networked platforms are common, but there are also many larger EU-based initiatives, e.g. for tourist accommodations. Non-EU-based commercial platforms are less successful in the EU. Cooperatives and not-for-

profit, community-owned platforms are strong and numerous. Also peer-to-peer production platforms including not-for-profit initiatives such as repair shops and FabLabs are thriving. Self-regulation and codes of conduct include transparency on the algorithms used, enabling users to understand how platforms carry out the matchmaking, and the performance ratings.

Families welcome — an international, cooperative, for-profit platform connecting private accommodation hosts to travellers with small children

The Families welcome platform has grown consistently since it was established in the late 2010s. It is an internationally active platform based in the EU. Hosts co-own the platform, which strictly includes only private hosts offering their own homes. These are often elderly people whose own children have left home and who are now renting the space — be it to meet people or to generate some additional income. The platform collaborates closely with regional authorities to facilitate the necessary tax payments and compliance with other rules.

Experts for you — a regional for-profit platform connecting professionals online with start-ups or other businesses for tasks or projects linked to legal, technical and administrative support

'Experts for you' is a medium-sized platform, working regionally and to a limited extent across regions. It competes with other platforms that are more specialised for specific tasks and have a wider geographical reach. 'Experts for you' builds on the local and regional communities and links to local currencies. Since 2020, providers and clients can acquire shares in the platform and with that a certain influence over the business. The platform provides a transparent rating system and contributes together with the respective clients to social security systems. It also offers insurance.

There is hardly a community left without a timebanking initiative via which small jobs, simple support and lending of items is organised.

Some special platforms, sometimes with a larger geographical reach complement the offer of services. To avoid having to deal with too many different individual platforms, meta-platforms channel the

demand more effectively. In contrast to the non-profit activities, assets such as underused space are usually employed to generate additional income. However, there is a strict distinction made between private and professional offers and respective platforms collaborate with the relevant tax authorities.

Platform-based taxi cooperatives provide alternatives to a well-functioning public transport system and commercial and private short-term rental cars. The move towards driverless cars which is just starting is expected to further diminish driver services to niche markets such as transport of elderly people who need assistance, do not feel comfortable with the technology or want some company. These support services will be particularly relevant for rural areas, which suffer from the lack of attractiveness for younger people compared to urban centres.

The flexibility of on-demand work, both online and offline, is attractive to many and respective platforms are in high demand. Also, companies take advantage of the flexibility and outsource more work. Specialised cooperatives have moved into this area, and offline local work is largely done via local platforms. Social protection rules have been adapted to provide security and to cater for the diversity of income generation and employment schemes. Minimum requirements were set regarding a minimum remuneration per hour, quality of work, transparency, profile portability, liability, etc. Exclusion from or downgrading of workers by platforms are subject to scrutiny by user panels. To improve their market position, platforms offer additional services for users such as insurance and training. All of this makes them very attractive also for non-EU online workers, resulting in increased competition in the EU labour market and pressure on prices. Controversial discussions about quotas and limits of

accessibility and the role and responsibility of the demand side are the result.

Anika, 25, just completed university education in IT

Anika currently works as an intern in an IT company and tops up her income by app developments, network admin, website developing, etc. She is well connected locally in her community, active in the Community Council, and provides IT support via 'We-share' and 'Experts for you', which gives her some security and experience as she builds her professional portfolio. She is used to competing for tasks and projects via digital labour platforms from the time when she studied. She hopes to get a longer-term job following her internship, but should that not work out, working via labour platforms seems a viable alternative. It is more stressful, for sure, and requires some self-discipline but the work is being accounted for social protection systems and can be added to her portable portfolio. Indeed, some years ago, many labour platforms together with companies and several regions have initiated a social security fund for platform workers.

Anna, 63, early retired primary school teacher

Anna's pension is not as generous as she once thought it would be, because of her early retirement and the general downsizing of pensions over the last 25 years. Still, she did not want to continue working for another 7 years, but rather wanted to enjoy her life now — a bit more modest, yes, but in principle she has all she needs. She recently started giving lessons again — only a few times per week in her community in exchange for some heavy gardening work. She also began teaching kids online via a platform where she earns a decent amount of money. This is a new and enjoyable experience for her. Besides, she herself enrolled in a training — the local FabLab offers courses in DIY biotechnology, which she finds absolutely fascinating. She plans to develop her own biofuel production site, to save a bit on energy costs.

4.2. Scenario 2

Public authorities push for the optimum use of resources and investment in labour and expertise to build a sustainable future

A clear legal framework provides the boundaries for an EU-centred collaborative economy with active government involvement

How did we get there?

In the years following the 2013/2014 reports by the Intergovernmental Panel on Climate Change, a number of extreme weather events coupled with the fast disappearance of Arctic ice contributed to a major shift in public opinion. International efforts to combat climate change were recognised as insufficient while global food production and trade became increasingly volatile. In addition, geopolitical instability, leading to wildly fluctuating oil and gas prices, pushed the EU to reduce drastically its dependence on energy imports. In some EU Member States, unemployment was becoming chronic. Under these combined pressures, EU citizens started perceiving the EU as the effective actor for change and by the 2020s EU citizens had given a broad mandate to the EU to re-orient the economy. The resulting long-term visions on sustainable development led to the emergence of bold EU measures to address sustainability and tackle unemployment without waiting for corresponding international agreements. The strong pressures to which society has been subjected led to the emergence of strong and widely shared values that structure the way people behave. Trust in institutions has increased, and citizens across the EU engage in making the EU more sustainable. By 2030, the EU has pulled out selectively and strategically of existing free-trade agreements to gain more flexibility in restructuring the economy. This has diminished international trade, promoting shorter value chains within the EU.

The collaborative economy in the EU in 2030

The EU has left nationalistic tendencies behind and enjoys a broad support for a joint, decisive move towards a circular economy, following the long-term vision of a sustainable, largely self-sufficient EU. The Treaty on European Union has evolved and subsidiarity has been redefined, enabling bold measures to address sustainability and tackle unemployment.

Farmpool — a public platform connecting urban and rural non-professional 'farmers' with customers to purchase part of the harvest

Farmpool, once set up by a student to link farmers with customers, has now developed into a platform that links lay farmers in the cities or in rural areas with fellow citizens to avoid letting surplus food go to waste. As primary production has become environmentally sustainable and online shopping and logistics have been streamlined to maximise efficiency while providing for fair prices to farmers, the urge for direct sales for farmers has declined. Due to higher prices, more people started growing their own food and thus the need to share and sell developed. Governments provide the respective platform infrastructure.

We-share — a local, not-for-profit platform connecting neighbours in a municipality to exchange services and assets in a timebanking marketplace

We-share is a local government organised platform linking neighbours and contributing to community building. Usually all citizens of a community are registered and engage in sharing and maintaining community 'leased' larger tools/machines, e.g. in FabLabs, and provision of support is given to whoever needs it. Smaller tools are for rent by businesses.

More competencies have been moved from national to EU level, facilitating the establishment of a harmonised fiscal framework. This fiscal framework is one of the cornerstones in the implementation of a more sustainable way of producing and consuming while supporting employment. Fiscal burden on labour has been drastically reduced while taxation of resource use and property increased. Green public

procurement is the norm. Other elements of the move towards a circular economy include a strong government support for respective R & D programmes and the adaptation of EU school curricula to promote sustainability including resource efficiency but also nutrition and economic aspects. Ownership of infrastructures and public services is back in either public or not-for-profit hands.

Citizens share both a deep sense of solidarity within the EU and the responsibility for a 'green', resilient and fair EU. Social control of fellow citizens and companies further contributes to ensure compliant behaviour.

The dynamic green tax system and coherent policy measures across the EU and the reduction in international trade have changed the EU economy. The EU is much less dependent on international markets for raw materials and hydrocarbons. Production and consumption have become more local. While unemployment has gone down and new enterprises developed, the cost of living increased as costs of goods, including food and resource consumption increased. There is a strong incentive to reduce production costs not only by increasing resource efficiency but also by further reducing labour costs.

Large public R & D investments targeting renewable resources, recycling, remanufacturing, mass customisation and short material loops support the move towards minimising resource use and optimising re-use. Advances in robotics, artificial intelligence and automation increasingly replace low- and mid-skilled routine jobs and considerably change many types of jobs.

Access over ownership of goods is an established way of cutting costs of product use or spreading costs over a longer time period. Companies are moving towards providing services with their products rather than selling them, and business models based on online platforms, once called 'collaborative economy', are becoming mainstream. Specialised, for-profit, EU-wide or local-level platforms complement state-owned platforms facilitating local selling,

Families welcome — an EU for-profit platform connecting private accommodation hosts to travellers with small children

'Families welcome' is an EU-based platform, which facilitates finding private accommodation for families within the EU. Hosts are often elderly people whose own children have left home and who are now renting the space to generate some additional income. Against a fee to be paid by hosts and travellers, the platform facilitates finding certified places to stay, while any taxes to be paid are directly transferred to the respective authority.

Experts for you — an EU for-profit platform connecting professionals online with start-ups or other businesses for tasks or projects linked to legal, technical and administrative support

'Experts for you' is a certified platform, active EU wide and based on transparent algorithms and providing additional services to its workers such as training, insurance and legal protection. According to regulation, the platform contributes with a fixed amount per transaction to a social security fund. It competes with other private platforms and with public ones, but also receives some subsidies, and has to provide better services than the others to keep the best workers on the platform. Due to its special network with non-EU platforms, it can facilitate access to other markets.

renting or bartering of goods and provision of services. As less and less people own goods, such as cars, TVs, drills, lawn mowers, etc., the provision of access to goods has become a key service. Private owners of goods rather rent than lend these goods with the aim of sharing part of the high acquisition costs. In order to use scarce resources more efficiently, public bodies are also involved in making their assets accessible, e.g. space and equipment.

Few non-EU international platforms are active in the EU as each initiative needs to adhere to a set of rules harmonised across the EU, including strict environmental rules and obligations, access to data, tax payments, transparent reputation and rating systems, portability of profiles, liability, etc. and consumer preference clearly supports EU-based initiatives. Exceptions are, for example accommodation rental

platforms as EU destinations are still attracting many visitors. The EU strictly distinguishes between occasional renting of private space and frequent, professional renting. An EU quality label has been developed, and only platforms with this label have market access and are eligible for any public support.

A well-developed public transport system and the upcoming driverless cars have eaten into the market shares of ride services platforms. Short-term rental of (driverless) cars and public transport are the main means for mobility (apart from bikes). Ridesharing is still popular, while car sharing is more common in rural areas.

Governments and public bodies are active users of platforms for providing access to state-owned assets, for providing public services or for supporting other activities. For an increasing share of workers digital labour market platforms represent the only source of income. These platforms, a welcome and trusted means of finding online or offline task- or project-based work, are initiated or supported by governments as an efficient way of matching supply with demand and because growing numbers of people need to top up their budgets to match the high living costs.

Furthermore, labour laws have been adapted to better cater for the different types of work relations, ensuring appropriate security and rights for workers while not inhibiting further development of collaborative platforms. This also includes a framework to deal with liability issues and disputes. Telework but also online work via platforms enabled a considerable number of people to move out of cities to the countryside to reduce costs of living due to cheaper housing and home-grown food. Most of these labour platforms are EU based or regional and local, but there is also access to internationally active platforms for high-skilled online work. However, as workers outside the EU do not have access to the EU labour market via collaborative platforms, a measure very much supported by the online worker union to

avoid pressure on wages, other countries start to restrict their online labour markets as well.

Anika, 25, just completed university education in IT

During her studies Anika had many opportunities to work either directly at different companies or via digital labour market platforms. She has put her online profile on 'pause' to figure out what to do next — working online, while having interesting tasks and projects would give her some more flexibility and time off when she wants to (although to get the interesting bits she has to stay connected)? Or rather getting a stable employment which would be great for her career and pension but would put her under much stress to secure her job and outperform online workers? Maybe it will become more difficult to find a job at a company in a year's time, as more and more jobs become obsolete or are outsourced? Either way, whatever choice she will make, she will have work.

Anna, 63, early retired primary school teacher

Anna has taken her decision to retire 7 years earlier and is very happy with it. Without the possibilities offered by the different digital labour platforms to generate additional income, it would never have been possible. The use of the digital platforms enables her to choose what and when to work, thus adding to her modest pension. She takes care that she does it only via certified platforms. She teaches a bit, sells self-made lunch once a week, and drives around some elderly neighbours. She has also made a lot of new acquaintances this way.

4.3. Scenario 3

EU governance pushes for unfettered market access and technology as a way towards a more resource efficient future

A large variety of commercial platforms thrive in global competition and in an increasingly polarised, micro-entrepreneur society

How did we get there?

The very slow recovery of the European economy in the years following the 2008 financial crisis weighed on the efforts to invest in the future. The huge amounts of money spent to prop up the banks kept public finances in the red, resulting in continuing pressure to reduce public deficits and preventing governments from embarking on bold investment plans. A significant weakening of social protection systems and persistent high unemployment due to a stagnating economy increased inequality. As solidarity mechanisms were weakening, social unrest was threatening political stability. Calls for reducing the cost of labour were getting louder. Something had to be done.

By the early 2020s, the decision was taken to reform profoundly the tax system to address the chronically high level of unemployment and to boost the economy. Following a fiscal 'Big Bang', company contributions per employee and taxes on income from labour were reduced drastically in a harmonised effort across the EU, compensated by much higher taxes on material and energy consumption. The consumption taxes were a reaction to increasing environmental and resource availability concerns and a strong push towards fostering green innovation and related competitive advantages. Furthermore, labour law was adapted to allow for more flexible forms of employment. Governance throughout the EU, in the hands of proponents of a 'small government' approach, became more pragmatic. In parallel, the society moved further towards individualistic values as

people had to increasingly fend for their own and generations clashed as the millennials moved into positions of responsibility.

The collaborative economy in the EU in 2030

Business-friendly, lean EU-level governance sets the overall regulatory and policy frame focussing on what is deemed essential, in particular a well working internal market and global competitiveness.

Farmpool — a for-profit platform connecting farmers with customers for direct sales of produce

Farmpool developed from a small, local for-profit platform, initiated by a student, into a globally active enterprise owned by private stakeholders. It provides farmers with a possibility to sell their produce directly to consumers, thereby generating more income while providing better deals to the consumer as well. The platform organises several collection points for consumers to pick up their online purchases.

We-share — a national, for-profit platform connecting neighbours in a municipality for renting of space and assets and a broad range of local services

'We-share', once a timebanking initiative, nowadays is living off small fees and advertisements, enables people to make as much of their assets as they can to generate additional income, provides an affordable alternative to neighbourly help and compensates for the lack of social services and care. The platforms act locally while being part of a global network under the 'We-share' brand.

Pressure to reduce public expenditure continues, leading to privatisation but also to modernisation of public services. State-funded social security is limited and only available as a last resort. Citizens are expected to use private insurance schemes. Not all can afford this, which leads to growing inequalities. Education is considered a priority to be able to succeed in a globalised world. While basic education is state funded, the higher education system is fee-based and supported by private funds. The need for entrepreneurial skills has been taken up successfully in school

curricula. Graduates are equipped with a sound knowledge of the natural sciences and technology and also have economic knowledge and experience in making business plans.

The wish to be free to undertake and the desire to enjoy the benefits of one's own work has led to a 'live and let live' society. People try to ensure that they and their family have the best possible prospects, without much consideration for the common good. Trust in political parties and state institutions is limited.

The fiscal reforms of the 2020s eased the unemployment pressure and made employment in the EU competitive again. An additional further liberalisation of labour law increased the flexibility for employers to hire and lay off employees and thus made reactions to changing economic conditions easier. The gradual introduction of higher taxes on resource use, however, increased the cost of living for everyone and further deepened social inequalities. It also triggered decisive industry R & D efforts towards more resource efficiency and renewable resources to remain competitive. By 2030 these efforts have resulted in successful frugal innovation, and a thriving, technologically advanced EU industrial landscape. Robotics, automation and artificial intelligence are part of a more efficient industry but at the same time put again pressure on the labour market by replacing and changing jobs which leaves in particular low- and medium-skilled workers behind.

In a situation with limited social security provisions, ownership maintains its strong value. As products become more expensive, quality and product lifetime are more important. Acquisition and maintenance are financed by renting the product via the several consolidated large digital platforms. The polarisation of society into those that own (and rent) and those who can only afford access from time to time grows. However, in this context EU-made products, due to advanced technology and durability, gain market shares globally with positive impacts on employment. Furthermore, the maintenance services offered for these products generate additional jobs,

Families welcome — an international for-profit platform connecting private accommodation hosts to travellers with small children

'Families welcome' has been acquired 5 years ago by another large accommodation platform and is now integrated into the global system of this platform. This relaxed initially the formerly strict quality control of accommodation, but the rating system and 'no quality-no payment' strategy erased the non-suitable offers quite quickly. Competition with other globally active platforms is fierce and additional services for hosts such as insurance and traveller background checks and local support for travellers experiencing problems, have helped to consolidate growth.

Experts for you — an international for-profit platform connecting professionals online with start-ups or other businesses for tasks or projects linked to legal, technical and administrative support

The globally active corporation, based officially on the Caiman Islands, provides EU companies and EU workers with access to the global labour market. It is one of several large platforms in this field, offering access to a broad range of expertise, at competitive prices. Although worker profiles are not portable, the platform offers special services to the 'elite workers' to keep them in the platform such as fee reduction, more flexibility and training.

and also slowly pave the way to a change in business models — to provide services with the products instead of only the products.

Public transport did not receive much investment and is mostly used by those who cannot afford anything better. The gap was filled by diverse initiatives ranging from on-demand taxi services, car rental, to ride- and car-sharing. Driverless cars, following a decisive investment by industry, have been on the road for several years and have been readily taken up due to high energy efficiency and some state subsidies. This boosted the business of short-term car-rental companies and allowed a much more efficient renting out of private cars. Only a few platforms remained in business and grew bigger

through mergers, also because only the large platforms were able to ensure a smooth handling of problems such as quick compensation in case of damage.

Unemployment has been reduced by making employment cheaper and by further development of a strong service sector. Growing demand for care that cannot be fulfilled by limited public services opened up new business opportunities for platforms, partially merging with traditional providers. However, technological advances such as automation and global competition keep the pressure on jobs and wages. Labour platforms have increased their share in the labour market, as outsourcing and off-shoring of tasks are an easier and cheaper alternative to full- or part-time employment. This applies in particular to online services and the downward spiral of wages has launched a revival of discussions on a previously abolished minimum wage. Some platform associations already reacted and developed a code of conduct to avoid possible regulations.

In general, conditions for platform workers are set by the respective platforms — service providers are not allowed to move their profiles from one platform to another, and multihoming and fragmentation of the portfolio remains an issue. Platforms offering the establishment of verified worker profiles, which combine the ratings of several platforms, have not gained ground due to the refusal of the major platforms to participate. Minimum hourly wages raised the income level of some of the platform workers but overall the pressure remains strong and income insecurity high.

Anika, 25, just completed university education in IT

Anika is already familiar with labour platforms as she worked throughout her studies to finance part of the hefty study fees. For the rest she took a bank loan, which she will have to pay back in the coming years. She lives at home with her parents to save money and is now updating her profile and looking for more rewarding jobs in software development. As low-skill online jobs have largely vanished, more people try to go for better online jobs and currently drive the prices down even further. So for now her earnings are low and she can only pay into the very basic healthcare scheme, but not to any pension fund. She hopes that if she puts in a lot of effort, her situation will improve in the next 2 years. Building a reputation and gaining 'elite status' will also provide some more flexibility. If all goes well Anika might also establish her own company. She already has an idea, and with some smart crowdfunding campaign may be able to raise the necessary funds. For the coming years, with her parents getting older and in probable need of financial support, there is little else than work ahead of her.

Anna, 63, early retired primary school teacher

In the end, the many years working as a teacher did not leave Anna with a generous pension to live off. Still, she had to quit her teaching job this year as she felt her health getting worse, a move which lowered the pension even further. With multiple small jobs she is doing via different platforms (she has lost sight of how many she has signed up to) she manages to top up her pension and save some money for healthcare services. Maybe, if she continued working, she could even afford to stay in the nice nursing home just around the corner? She is lucky to have a house in an area favoured by tourists, so the rooms she rents out are very often occupied. Her other jobs — cooking and teaching — bring less money but are more fun and she enjoys helping people with good food and good advice, both being heavily undervalued these days.

4.4. Scenario 4

Weak governance combined with corporate power puts pressure on citizens to find diverse ways to ensure livelihood

Large, commercial platforms dominate the collaborative economy in a highly competitive environment, affected by lack of trust

How did we get there?

Euroscepticism has continued since 2016. Combined with a lack of political leadership at EU and Member State level it has resulted in weak governance in the EU and Member States and diminished influence on the international playing field. Climate change effects and resource scarcity led to a volatile global economy, hindering a recovery of the EU economy. Member States struggled to reduce public debt and those who re-established their public finances grew weary of deviating from financial orthodoxy. The severe cost-cutting that started in the 2010s has continued to erode social protection systems. The severe underfunding of pension funds at a time when many baby-boomers retired drastically reduced pensions. As a result, economic inequality grew. In spite of the progress in health technologies, this had consequences for health inequalities and created social instability. Through the shrewd use of social media, powerful interest groups gained influence, taking advantage of weak political governance.

The collaborative economy in the EU in 2030

The combination of economic stagnation, political fragmentation and weak governance at EU and national levels leaves the EU and its Member States as a modest player on the international scene and the global market. High unemployment rates and limited public budgets give large, often multinational companies a strong influence on policies. Short-term economic interests prevail over longer-term strategic considerations and environmental and social concerns. There is no political

Farmpool — a 'fair trade' peer-to-peer platform connecting small farmers with customers for direct sales of produce

After having been driven out of business by larger players in 2024, the once for profit, local platform 'Farmpool' re-emerged as an alternative to the mainstream economy which is dominated by large multinationals. 'Farmpool' is part of a peer-to-peer network linking supply and demand directly without intermediaries. Farmers with small plots of land and some livestock and urban farmers sell their produce directly to consumers who look for better, affordable food while seeking to pay a fair and affordable price.

We-share — a local charity-owned platform linking neighbours and volunteers in a municipality to exchange services and assets in a timebanking marketplace

As timebanking initiatives largely vanished between 2015 and 2030, the 'We-share' platform was taken over by a local charity to be used to support marginalised sections of the population and to help re-build small local pockets of communities on the basis of lending, barter and services on a reciprocity basis. Sharing of meals cooked with local produce has been established as neighbourhood service increasing social well-being and health.

capital for courageous reforms. Due to tight public budgets, privatisation of public goods and services has continued step by step and many public services are provided by private contractors and the price determines the quality. This applies also to the education system where high quality can rather be found in private institutions or industry-sponsored establishments. All of this further contributes to increasing inequalities, making the EU a place where less and less public funded R & D takes place and even privately funded R & D has largely moved to other world regions.

A small, wealthy elite enjoys a high standard of living and is able to afford good services including education. In contrast, the former European middle class has suffered income losses and is now part of the majority of citizens who struggle to make a living. Social cohesion has broken down and solidarity

has given way to a dog-eat-dog, competitive society. The lack of opportunities to improve livelihoods generates latent conflict and unrest. There is a profound lack of trust in this society, not only towards institutions and business but also towards fellow citizens. Charities and industry-sponsored initiatives provide some basic relief but cannot replace a functioning social security system.

Due to climate change impacts and increasing resource scarcity the world economy has become more volatile and the regulatory framework has been continuously adapted to facilitate how businesses can react. This is also relevant for labour. The fully liberalised labour market allows a very flexible approach to hiring, firing and outsourcing. As income security declines and social security is largely left to individual, private initiative and corporate- or charity-based approaches, ownership and property become essential as an asset to generate and secure supplementary income.

In this environment, the once diverse landscape of different business models using digital platforms has given way to a dominance of few, large platforms, which belong to multinational corporations. As trust enabling mechanisms turned out not to be sufficient in this distrustful world, and opportunistic behaviour could not be inhibited, the costs of transactions became too high for many private individuals renting small items. It still works on a neighbourhood, face-to-face basis, but otherwise this has become a normal business-to-consumer transaction on a larger scale. The exception is the accommodation sector, where strict controls and follow-up by the platforms enable involvement of individual, private hosts.

Cities are still very attractive and promising places to live, especially for young people. While public transport is in decline, alternative means of transport such as ride services are popular. The few multinational companies worldwide compete for market shares in passenger and goods

Families welcome — an international for-profit platform connecting private accommodation hosts to travellers with small children

As part of one of the major international hotel corporations, 'Families welcome' complements the existing offer with accommodation that combines private touch with low cost. Hosts have exclusive contracts with the platform committing them to rent only via 'Families Welcome', to rent for a minimum number of days and to provide a certain standard. The price is set by the platform, according to demand. Both, hosts and customers pay a variable fee to the platform.

Experts for you — a global for-profit platform connecting professionals online with companies or private clients for tasks or projects linked to legal, technical and administrative support

'Experts for you' has developed over the years into one of the largest globally active labour platforms worldwide. Its tailored services for companies including large corporations and its access to all relevant labour markets makes it a valued partner for companies and workers alike. However, this global competition puts EU wages under considerable stress. Given the deplorable state of the EU public education sector, the platform has initiated a large scale online training scheme to ensure qualifications of its online workers and bind good performers closer to the platform.

transport, car rental and in the introduction of driverless cars. However, ride sharing and rental of private cars has declined as the necessary level of mutual trust cannot be established in this society.

Advanced digitalisation and maximum outsourcing of tasks by companies via platforms leads to globalised competition in the labour market and a strong pressure on remuneration in the EU. Despite labour becoming cheaper, even offline work is under pressure due to the application of robotics, automation and artificial intelligence, replacing low- and middle-skilled jobs and heavily changing the remaining ones. As many cannot keep up with rising job demands this is a further contribution to an already polarised labour market. Only the best performers have bargaining power either

towards the companies employing them or towards the platforms in terms of benefits and training. For all others 'take it or leave it' is the rule and exclusion from the platforms is a real threat. Portability of profiles is not supported, and security measures of the platform systems have been driven up by frequent attempts to manipulate the ratings or to move the profiles.

Non-commercial platforms have been marginalised but are re-emerging lately as a part of an alternative, informal local urban economy. Neighbourhoods are starting to organise local initiatives including, e.g. the organisation of social services to make up for an increasingly failing state.

Anika, 25, just completed university education in IT

Anika has become one of the many digital nomads, working online via digital labour market platforms wherever she is. Co-working spaces in all cities offer relatively low-cost infrastructure and the possibility to meet like-minded people. However, lately travelling has become much more expensive as energy prices have gone through the roof again and cheaper options such as the run-down trains are neither convenient nor safe. As her online reputation depends not only on the number of jobs she responds to but also on the swiftness of her response, she has to make sure she is more or less constantly linked to the labour platform. Anika is still trying to get into one of the large company platforms to get a more steady flow of better jobs. Despite her having had a company grant for university she did miss out very closely on getting access. She hopes that in the longer term this might even provide access to one of the few jobs at a company with paid holidays and training. For now, she has to save quite some extra money to be able to enrol in quality training courses to stay on top of IT developments.

Anna, 63, early retired primary school teacher

This is not the life Anna dreamed off but at least she still gets by, being able to work to add to her pension, which just covers the minimum needs. As prices for food and heating fluctuate heavily she never knows how far she will get with the money she receives. Fortunately the digital labour market platforms provide access to small jobs — it is very competitive but she managed to establish some longer-term contacts with parents and pupils and thus has some continuous flow of teaching requests. Still, working hours are a challenge as she also teaches people in other countries who have a different schedule. It is quite stressful but as long as she is staying healthy it is all fine. She definitely cannot afford to be idle to be able to pay her medical bills.

5. Digital labour market platforms: crosscutting challenges

Although the collaborative economy develops quite differently in the four scenarios with, e.g. different dominant organisation forms, it evolved in all scenarios into an important part of the EU economy. Based on the scenarios, a number of issues were identified that are relevant both for platform-mediated labour and the collaborative economy in general. These issues are pertinent for all four future scenarios, i.e. there is a strong indication that they will need to be explored and tackled independent of the future direction the EU will take.

More specifically, in all four future scenarios, the platform-mediated labour market is likely to grow and develop implying that digital labour market platforms are likely to contribute to the future continuation of the current trend of an increasing share of non-standard work in OECD countries (OECD 2015). No matter what the specific conditions for the development of the collaborative economy will be (i.e. whatever the scenario), there are at least three horizontal issues that call for the attention of policymakers:

- Social protection and rights of workers
- Data and reputation
- Education and lifelong learning

These issues are further detailed below.

5.1. Social protection and rights of workers in platform-mediated labour markets

If the collaborative economy develops in the context of rising global competition and limited workers' rights, a trend towards lower wages and further polarisation between secure and precarious work is to be expected. A tension between new types of occupation and business models and existing contractual arrangements is likely to grow and the definition of employment will need to be reconsidered, legally and statistically. Across all scenarios, existing and potential new arrangements for balanced distribution of social and economic risks among the workers, platforms, customers and society as a whole should be explored.

Towards a more balanced distribution of social and economic risks in the platform-mediated labour market

In the context of growing concerns about social protection and platform workers' rights and the future socioeconomic impacts of polarisation in the labour market, discussion about the need to modernise labour and welfare legislation has been ongoing. Some suggest that dividing workers into standard employees and self-employed no longer reflects the needs of a growing population of workers who find themselves in the 'legal no-man's land' (O'Connor 2016). Should there be a 'third' type of employment status that would provide a better cover for workers in platform-mediated labour markets?

Among various proposals to address this issue, the one put forward by two US academics and former political figures Alan Krueger (former Chair of the Council of Economic Advisers in the White House) and Seth Harris (former deputy Labour secretary) gained particular prominence in the debate. It is set in the context of the US labour market that knows two types of employment relationship: employee and independent contractor status. The authors propose creating a third employment status of an 'independent worker'. Regardless of whether they work through an online or offline intermediary they would qualify for some benefits and protections that employees normally receive. These would include the freedom to organise and collectively bargain, civil rights protections, tax withholding, and employer contributions for payroll taxes. Given the nature of their work and the relationship with one or more intermediaries, the

independent workers would not qualify for hours-based benefits such as overtime or minimum wage. They would also not be covered by unemployment insurance benefits programmes and should not be required to contribute taxes to fund it. However, if intermediaries decided to pool independent workers for purposes of purchasing and providing insurance and other benefits they should not have to worry about the risk of their relationship being assessed as an employment relationship with all the related implications and responsibilities (Harris & Krueger 2015). While the proposal has stimulated some debate about the need to modernise existing labour regulation, it is not clear whether it has any chance of being taken up in the form of a new legislative proposal.

In the EU context, could a new employment status be a solution to ensure that platform workers have access to social security and collective bargaining? In EU Member States there exist already today diverse types of employment status and adding an additional status might add to the complexity and fragmentation of regulations. The UK is an example of a country that has a third employment classification of a 'worker' situated between employed and self-employed. It is supposed to cover casual, freelance and seasonal work and the work done by agency workers (Acas 2016). Those classified as 'workers' are entitled to some employment rights including the National Minimum Wage, holiday pay, protection against unlawful discrimination and the right not to be treated less favourably if they work part-time. However, a review by the UK Department for Business, Innovation and Skills and the Rt Hon Dr Vince Cable (GOV.UK 2014) revealed that an increasing number of people who would normally be treated as employees find themselves to be on 'worker' employment contracts with fewer basic rights (for example not having paid maternity leave, protection against unfair dismissal and the right to request flexible working arrangements). Many employers are also unsure what rights their workforce is entitled to, running the risk of legal challenge if they get something wrong ⁽⁶⁾. Therefore, rather than simplifying and clarifying matters, the introduction of an additional employment status can potentially also add to uncertainty for both workers and employers. In the context of the platform-mediated labour market, there need to be clearer and coordinated guidelines on how to classify platform workers in order to tackle the existing legal uncertainty. The debate on whether the existing categories of employees and self-employed workers can incorporate this new type of worker is ongoing and it is yet to be seen whether a new employment status is necessary.

Addressing current and future needs of workers in the platform-mediated labour markets in a collaborative way

Already before the emergence of the collaborative economy, freelancers — particularly in the creative industry — have been coming together to strengthen their collective bargaining power and to secure better access to insurance, training and other services. In some cases they were also supported by trade unions that recognised the opportunity of opening their membership to self-employed workers. For example, the Freelancers Union has been formed for the self-employed in the US and has already attracted over 280 000 members. However, since under federal labour law, only workers classified as employees are allowed to unionise, it functions more as a mutual and remains separate from mainstream union federations. In the EU, the Netherlands, Denmark, Germany and Spain have general unions for the self-employed while in the UK or Sweden, trade unions provide substantial services for the self-employed in industries such as the media and entertainment sectors. Trade unions can play an important role in the provision of collective advocacy and representational skills, health and safety campaigning and the provision of low-cost insurance including public liability, equipment, professional

⁽⁶⁾ For example, the UK retailer Sports Direct was threatened with legal action in 2015 after most of its staff missed out on bonuses because the company classed them as workers rather than permanent employees (O'Connor 2016).

indemnity and general insurance. There is also high potential for developing specialist education and training programmes as self-employed workers usually do not have access to employer-funded further education (Co-operatives UK et al. 2016; Pedersini & Coletto 2009) ⁽⁷⁾. Trade unions' readiness to incorporate self-employed workers and platform workers in particular can vary and the existing uncertainty about their employment status can make it difficult to develop effective organising strategies.

Alongside labour protection, labour standards and collective bargaining rights that can be addressed by trade unions, self-employed workers also need complementary sets of services to tackle the risks that are unlike those faced by typical employees. These range from start-up support to workspace and from credit unions to other forms of financial support. This is where cooperative and mutual organisations can help. They have been active at national, sectorial and the international level for years. For example, established in Belgium, SMart is a Europe-wide cooperative with 75 000 members providing support for invoicing and collecting debts. In France, legislation that came into force in January 2016 recognises the role of 72 business and employment cooperatives, supporting members with accounting and access to the sickness pay and benefits of conventional employees (Co-operatives UK et al. 2016).

Whether and to what extent these support structures are accessible to platform workers and whether the alignment between trade-union service provision and other forms of cooperative mutual aid could stimulate effective and transformative organising strategies in the collaborative economy sector should be further explored. What is already clear and will become more salient in the future is that effective use of ICT tools will be crucial to attract and support workers in the platform-mediated labour market. For example, through creative use of IT platforms the Freelancers Union, with just an eight-strong team, provides services for over 280 000 members. IG Metall, the largest German trade union, started the online platform 'FairCrowdWork Watch' ⁽⁸⁾ where platform workers can compare their compensation and working conditions with others and rate digital labour market platforms accordingly.

At EU level, the recently launched development of a European Pillar of Social Rights (European Commission 2016d) creates an opportunity to foster a systematic and forward-looking reflection on a number of pressing issues that are closely related to the social and economic risks faced by workers in the collaborative economy.

⁽⁷⁾ The two cited reports offer a good overview of various trade-union initiatives for self-employed workers across the EU. Eurofound, the European Foundation for the Improvement of Living and Working Conditions, has recently embarked on a comparative study that explores new developments in self-employment in the EU, focusing on the job quality and sustainability and social protection rights. The results are expected to be presented in a report published in the first quarter of 2017.

⁽⁸⁾ Fair Crowdwork website www.faircrowdwork.org/en/watch (accessed 30 August 2016)

5.2. Data and reputation

Portability of workers' profiles and reputation in digital labour market platforms

As platform-mediated work will spread in the future, platform workers will increasingly depend on and use multiple platforms simultaneously to offer their services and to look for jobs. They will be faced with the challenge of building up and maintaining many separate profiles. Such profiles are mostly based on reputational ratings as the main mechanisms to establish trust with others requesting the services and to endorse the quality of the services previously provided. They will stand as key elements in the workers' status, much like check records, references or previous history of employment.

However, already today profiles and reputation are linked to individual platforms and not transferable to others. This inhibits leaving a platform since investments and reputation gained so far would be lost. The possibility that platforms will continue to control and manage their workers' profiles can have significant impacts on working conditions and exposes workers to exclusion and disaffiliation towards their accounts. Enabling workers' 'multi-homing' promises to foster competition among platforms, avoid lock-ins and scaling up to monopolistic dominance. A common framework for the portability of workers' profiles and reputation could thus increase workers' autonomy and empowerment and create the possibility for them to own and develop a portfolio of work and references that could be used, for instance, to apply for a loan.

The right to data portability is now included in the General Data Protection Regulation (GDPR) (European Commission 2012b) as part of the EU Data Protection Reform proposed by the European Commission and approved by the European Parliament and the Council on 14 April 2016. Article 18 introduces the data subject's right to obtain a copy of their data from the platform they are using and transmit it to another platform. A precondition for this to work would be the interoperability of data formats between platforms (European Digital Rights EDRI 2013).

Start-ups and smaller companies are expected to benefit from data portability by developing supporting interoperable and/or privacy-friendly services. A common, standardised and open standard for unique reputation ratings across platforms would enable companies to use this as a basis to build their solutions. For instance, Traity⁽⁹⁾ is a Spanish company offering a 'reputation passport', facilitating the use of one personal profile for several platforms, while providing an identity check as a service to the platform. Traity assesses people's trustworthiness through the analysis of their behaviours and actions on the internet, e.g. public social profiles such as Twitter, reviews on sites like eBay, and through a Traity personality test. Another new area for reputation systems is Blockchain, a distributed ledger that records all transactions in a durable, time-stamped and decentralised way. Using Blockchain as the underlying infrastructure or protocol, a number of systems could be built for individuals to store and transfer reputational ratings faster, more transparently and safely through the use of advanced cryptography.

However, the use of open standards, as also supported by the European Commission (European Commission 2016c) to ensure interoperability and to foster innovation and reduce market entry barriers, might not be compatible with a balanced Intellectual Property Rights (IPR) policy based on FRAND (fair, reasonable, and non-discriminatory) licensing terms. FRAND licensing requires a per-copy payment, which open and free software are not able to comply with, because of the unmonitored and wide sharing of such software. In the previous versions of the European Interoperability Framework (EIF), the intellectual property could still be made available on a royalty-free basis (which does not require any payments), and therefore was fully compatible with open

⁽⁹⁾ Traity website www.traity.com (accessed 30 August 2016)

source solutions (Ars Technica 2016). This could hamper the development of solutions based on open standards.

Addressing the risks of profiling and discriminatory practices in platform-mediated labour markets

The use of algorithms to build workers' reputational ratings and to match service requests with its delivery is expected to become more complex with the expected growing relevance of platforms. Platforms could create extensive workers' profiles by collecting and processing an increasing amount of data in automatic and dynamic processes through complex algorithms. Such processes can generate inaccuracies or implicit prejudices based for instance on gender, age or ethnicity. Possibilities for surveillance of workers and their patterns of behaviour, health, preferences or reliability could be enhanced without strong safeguards, or checks and balances to counter such practices. Possible discrimination against racial, ethnic, religious or other minorities, or reinforcement of societal inequality and unfair treatment towards users with low technical competences or skills, should be closely monitored across Member States.

Algorithmic processing as the basis of workers' profiles may undermine trust in the platforms' services in case it becomes non-transparent. Complex and dynamic algorithms would be hard to explain in lay terms to workers or users, and can become very difficult to verify. Understanding the logic of such algorithms would also be restricted in case most of the algorithms would be commercially protected by patents or other copyright rules, and thus difficult to obtain.

Effective and appropriate means to build and maintain a profile or a work portfolio will become a crucial issue for platform workers. Platforms today have an upper hand in controlling and managing workers' profiles. This can have significant impacts on working conditions, income and employability, and further exposes workers to exclusion and discontinuation of their accounts. Mechanisms protecting workers in cases of erroneous and malicious ratings are not yet well developed. An alternative could be to clearly attach data management to the person and not the company. This would imply also the use by the workers of appropriate tools or third-party services for self-management in order to maintain visibility, support self-marketing and ensure a good online reputation.

With an increasing activity via labour platforms, the possibility for workers or users to react to past evaluations or even to erase personal data also gains importance. The 'right to be forgotten or to erasure' is included in the recent GDPR, according to which users have the right for their personal data to be erased and no longer processed in specific situations: when the original purposes for which the data was collected or processed no longer apply; withdrawal of consent for processing; objection to the processing of personal data; or unlawful processing of personal data. The possibilities to erase a public profile and the reasons for doing it can be manifold, although such individual right would need to be checked against reasonable exceptions, such as historical, statistical and scientific research purposes, public interest in the area of public health, right of freedom of expression, or legal obligations. The 'right to be forgotten' is situated in a fragile balance between the right to privacy, societal memory and legal requirements. There is a need for further research and clear guidelines for its implementation, particularly in an online environment.

New frontiers of privacy and data protection in the collaborative economy

The anticipated proliferation of professional and private activities carried out via online platforms implies that more and more information on individual activities will become public or potentially reused by third parties and public authorities. Information about professional skills and experience of workers is more readily available to a wider number of people. Such transparency can sometimes be considered as a requirement for

asserting one's professional credibility. In a future hypertransparent, collaborative or highly community-oriented scenario, privacy could be greatly dissolved for the benefit of full transparency.

Would 'informed consent', that is, the requirement to ask for consent from individuals to use or reuse their data, still be in place in a hypertransparent scenario? Who would own the data? Currently exceptions to informed consent need to be justified by the platforms under a 'legitimate interest'. What falls under 'legitimate interest'? How can its proper use be verified and how can the balance between the platforms' legitimate activities and the fundamental rights of workers be checked? These questions might need to be further monitored in order to avoid uncertainty and divergent interpretations (Quadrature du Net 2015).

Furthermore, demand for techniques such as anonymisation (removing personally identifiable information where it is not needed), pseudonymisation (replacing personally identifiable material with artificial identifiers), and encryption (encoding messages so only those authorised can read it) might increase in the future to counter risks of unfair and/or commercial use of private or sensitive data, prejudices or discriminatory practices. Currently such techniques are faced with considerable limitations. Recent research (de Montjoye, Hidalgo, Verleysen, & Blondel, 2013) has demonstrated that only four spatio-temporal points/pieces of information from mobile phones are needed to identify 95 % of the individuals (in a sample of 1.5 million). Technological advances could make it ever easier to use any identification numbers, location data or other online data to track and/or identify natural persons. Therefore, it is expected that data protection safeguards in the future will be built into products and services from the earliest stage of development, and privacy-friendly default settings will be the norm. Current regulation already includes this principle of 'data protection by design' and 'by default'. There is, however, a fundamental difference between a 'by-design' and 'in-design' approach. While in the former users are provided with predefined forms of protection, in the latter digital architectures are opened up to users, and in the process also the values and norms embedded in these architectures are made visible (European Group on Ethics in Science and New Technologies (EGE), 2014; Tallacchini & Pereira, 2014).

As more and more data will be processed and made available, the risk of a digital divide or the lack of sufficient digital skills can increase. People will have different competences or levels of technical proficiency, which will also lead to different levels of perceptions of privacy risks. The definition of privacy should be further explored taking into account such differences, including available technology, business practices, industry sectors, geographic location, education, social capital, culture, religion and existing regulatory frameworks (Nissenbaum, 2015; Baldini, Botterman, Neisse, & Tallacchini, 2016). Competence or ability to deal with data could also be influenced by clear power imbalances between workers and platforms, such as in a situation of dependence or ambiguous status.

5.3. Competences and skills for platform-mediated work

While providing flexibility for workers and employers, platform-mediated work often has significant disadvantages in terms of job insecurity, potentially lower earnings and less work-related benefits including employer-sponsored training. In relation to career and skill development platform workers face several challenges (which may not apply equally to all forms of platform work). While a longer-term perspective in career development will be more difficult to establish, the need for constant further development of skills and competences will increase. This is due to permanent competition with other platform workers, also at a global level, against the background of changing work requirements, e.g. because of automation and artificial intelligence applications. However, the responsibility for skill development and training is on the platform worker. Self-marketing and entrepreneurial skills, as well as an advanced level of digital literacy will be indispensable for platform workers to generate sufficient income and be successful in this new, more competitive labour market. In addition, working conditions such as income insecurity, performance rating, performance of tasks out of comprehensive contexts and with unknown objectives, varying quality of tasks, working outside a team and an increasing blurring of work and private life require resilience and stress management capacity.

Against the background of an expected future increase of platform-mediated work, it becomes important to better prepare individuals for the requirements of this new way of working. Education and training are obvious tools to support the acquisition of the needed knowledge and skills.

Adapt education

Entrepreneurship competence is a recognised key competence in the EU and should be included in educational systems (European Parliament and Council 2006) (European Commission 2016f). In its Communication Rethinking education (European Commission 2012a) the European Commission called for fostering entrepreneurial skills from primary school onwards. The above identified needs of platform workers emphasise the importance of this approach for the future and beyond the objective of business creation. Still, more needs to be done as many Member States have not yet fully mainstreamed entrepreneurship education in schools including respective training for teachers (European Commission/EACEA/Eurydice, 2016). Furthermore, the increasing reliance on work mediated by digital platforms also requires skills related to self-marketing, resilience and privacy management. The additional integration of this skill set in school and university education could be beneficial for optimising participation of younger generations in the future labour market.

Support lifelong learning

Technological progress and decreasing shelf life of skills require from any worker a certain continuing investment in skill and competence development. The regular need to update and develop skills and the importance of lifelong learning is generally recognised (OECD 2007; World Economic Forum 2016; ILO 2016) and also by the Commission and Member States (Council of the European Union 2009). This requirement is even more pronounced in the context of digital skills. In its recent Communication *A new skills agenda for Europe* (European Commission 2016e), the Commission underlines the demand for different skill sets for the collaborative economy and the challenge to provide upskilling opportunities for digital skills. Thus for platform workers who need to maintain their competitiveness to remain 'employable' and who need to advance their careers outside a stable employment framework, lifelong learning becomes a necessity. It will be important in the future to ensure availability and accessibility of training.

The broad range of online education tools including formal university qualifications and the freely available massive open online courses (MOOCs) could contribute to fill the

need. Furthermore, collaborative platforms also offer learning possibilities, e.g. P2PU⁽¹⁰⁾ (offline peer-led study groups), Konnektid (offline courses by skilled neighbours or professional teachers), Skillshare (online short classes on creative skills).

Encourage platforms to step in

As pointed out in the recent Presidency discussion paper supporting a Council discussion on the New Skills Agenda (Council of the European Union 2016), investing in skills beyond formal education is a task in which both businesses and workers play a key role. According to Eurostat, the most common providers of non-formal education and training in 2011 were employers (32 %) (Eurostat 2015). This indicates a need to explore whether, in the future, opportunities for lifelong learning will be available and accessible to platform workers who often remain outside of the employment relationship.

Offering training towards expanding qualifications for participating in platform work could be an opportunity for labour platforms to improve their attractiveness both to service providers and the final customer and thus also boosting their own competitiveness. Platforms are in a unique position to tailor training to the needs of the final customers and service providers.

⁽¹⁰⁾ Examples include <https://www.p2pu.org/en/>; <https://www.konnektid.com/>; <https://www.skillshare.com/> (accessed 1 September 2016)

6. Potential beyond the economy – collaborative economy for public services and social innovation

The current discussions are largely focussing on the commercial part of the collaborative economy that has grown considerably, is most visible and, apart from potential benefits, might also have serious drawbacks. However, the collaborative economy can be understood as a broader concept, including non-profit initiatives and transactions as well as the participation of a wide range of actors and, as such, also has a far-reaching potential in terms of innovative public services, fostering citizen engagement and community building, and social innovation in general.

This potential, of which examples are given below, should be explored in terms of new approaches, costs and benefits to avoid missing opportunities and to devise effective ways to support it.

Public services

Alongside private individuals and businesses that have underused assets, cities and municipalities also have buildings and other spaces, machinery and cars that are not needed 100 % of the time. Thus local governments could actively participate in the sharing/renting of goods and services in government-to-government transactions, government-to-business transactions and even government-to-individual citizen transactions. The sharing of resources can also include human resources, e.g. cities sharing employees with a specific profile. This can contribute to public budgets via cost reductions and efficiency gains. Examples of platforms facilitating such exchanges include Munirent⁽¹¹⁾, a US-based platform facilitating the exchange of equipment and personnel between member cities or Cohealo⁽¹²⁾, a US platform that supports the sharing of medical equipment across facilities.

According to Rauch and Schleicher (2015), collaborative economy platforms could become contractors for municipal services. They point to a partnership between San Francisco and BayShare, an advocacy group funded by sharing economy firms, to provide services in city-wide crisis situations, such as accommodation, food sharing or transport, e.g. during a natural disaster. The German platform Refugees Welcome⁽¹³⁾ is an example for a donation-based bottom-up initiative that complements public services in helping to find private accommodations for refugees, independent of government support.

Collaborative platforms produce a lot of data through the activities of their users that could provide useful information to local governments. For example, data about ride services could inform, e.g. planning of public transportation services (Rauch & Schleicher, 2015). Also data collected, stored and processed by the platforms on the workers can be valuable for public authorities for taxation, fighting fraud, social security or planning purposes. Cooperation between platforms and official authorities regarding data access is increasingly considered of crucial importance. If considered of high enough importance to enable the development of new innovative solutions, governments might request availability of such data. For example, Uber recently released a transparency report (Tencer 2016), where it states that it shared data on at least 13 million riders and drivers in the US between July and December 2015, in response to 33 regulatory requests. However, it also criticised the ambiguity or vagueness of such requests, which failed to provide clear explanations of why the data was needed or how it would be used. In addition, local governments might also have data that could be

⁽¹¹⁾ Munirent website <https://www.munirent.co/> (accessed 1 September 2016)

⁽¹²⁾ Cohealo website <http://cohealo.com/> (accessed 1 September 2016)

⁽¹³⁾ Refugees Welcome website <http://www.refugees-welcome.net/> (accessed 1 September 2016)

useful for developing and supporting collaborative initiatives. The provision of access to this data for better solutions for the public good should be explored as well.

Collaborative economy approaches also open up a way for direct contribution of citizens to the development of their municipality. So-called civic crowdfunding platforms are donation- or debt-based and collect funds for, e.g. urban projects. Examples are Spacehive⁽¹⁴⁾, Neighbor.ly⁽¹⁵⁾ or Eppela⁽¹⁶⁾, the Milan crowdfunding platform. Another example relates to the cultural and creative sector using crowdfunding as a possibility to deal, e.g. with funding cuts. The pilot project Crowdfunding 4culture, funded by the European Commission, aims at identifying best practice in Europe's crowdfunding market in relation to the cultural and creative sector and at community building⁽¹⁷⁾.

Having realised the potential that a collaborative economy in all its facets can have for a city's development and transformative social innovations, some city governments have engaged in targeted support of collaborative economy activities. The Sharing Cities Network⁽¹⁸⁾ counts 11 European 'sharing cities', among others, e.g. Amsterdam and Barcelona. Activities include, e.g. the provision of city-owned spaces for free or at low cost for initiatives such as FabLabs, or as in Seoul, the opening of almost 800 public buildings for public meetings and events when they are not in use (NESTA 2016).

Social innovation

Several of the above examples contribute to social innovation, i.e. new ideas that meet social needs and create at the same time new social relationships or collaborations (Hubert 2010). In particular the not-for-profit activities are often targeted towards community building and bottom-up solutions for social issues. Examples include Goodgym⁽¹⁹⁾, a platform to link physical activity with community projects and support vulnerable people or timebanking initiatives, building local social networks on a reciprocity basis⁽²⁰⁾. Initiatives such as co-working spaces including creative hubs bring together people from different backgrounds and disciplines and foster collaboration and community spirit while sharing a set of common values⁽²¹⁾.

Other initiatives emphasise even more strongly the bottom-up, participatory aspects ultimately aiming at new ways to meet society's needs and transforming the current economic system. For this direction of development stand the FabLab community⁽²²⁾, the Commons Collaborative Economies initiative⁽²³⁾ and the P2P Foundation⁽²⁴⁾. Important common elements of these initiatives are an inclusive, participatory approach, open access, an orientation towards the common good and sustainability. Truly peer-to-peer interactions via platforms that operate in a decentralised manner, originating on the Darknet or maybe using the blockchain technology in the future, without a platform provider or intermediary will be an element of this and is expected to contribute to

⁽¹⁴⁾ Spacehive website <https://www.spacehive.com/> (accessed 1 September 2016)

⁽¹⁵⁾ Neighbor.ly website <https://neighborly.com/> (accessed 1 September 2016)

⁽¹⁶⁾ Eppela website <https://www.eppela.com/it/news/61-crowdfunding-civico-del-comune-di-milano-ci-siamo> (accessed 1 September 2016)

⁽¹⁷⁾ Crowdfunding 4culture website <https://www.crowdfunding4culture.eu/> (accessed 1 September 2016)

⁽¹⁸⁾ Sharing Cities Network website <http://www.shareable.net/sharing-cities> (accessed 1 September 2016)

⁽¹⁹⁾ Goodgym website <https://www.goodgym.org/> (accessed 1 September 2016)

⁽²⁰⁾ Timebanking website <http://www.timebanking.org/> (accessed 1 September 2016)

⁽²¹⁾ For examples see Betahaus <http://www.betahaus.com/berlin/>, Coworking <http://wiki.coworking.org/w/page/16583831/FrontPage>; Factoria <http://factoriaculturalmadrid.es/en/>, European creative hubs network <http://creativeconomy.britishcouncil.org/blog/16/02/24/european-creative-hubs-network-innovative-models-s/> (accessed 1 September 2016)

⁽²²⁾ Fab Foundation website <http://www.fabfoundation.org/> (accessed 1 September 2016)

⁽²³⁾ Commons Collaborative Economies initiative website <http://procomuns.net/en/> (accessed 1 September 2016)

⁽²⁴⁾ P2P Foundation website <http://p2pfoundation.net/> (accessed 1 September 2016)

empowering its users. However, there might be new challenges as regards public control (Balaram 2016).

The Commons Collaborative Economy initiative recently put forward a number of EU policy recommendations to strengthen the commons-based collaborative economy (Procomuns 2016), including a call for more research into understanding and further developing the approach.

7. Outlook

In the initial part of this foresight project, four future scenarios for the collaborative economy in the EU in 2030 were developed. They were used to identify relevant challenges for workers linked to digital labour market platforms and for a first exploration of possible contributions of the collaborative economy to public services and social innovation. Two participatory workshops with stakeholders and experts from different backgrounds and perspectives were the cornerstones of this scenario-building and analysis process.

This project has shown how scenarios can be used to inform policymakers. Not only do scenarios provide a backdrop to reflect on current issues, but they are a powerful tool to explore future opportunities and challenges, to assess which issues are fundamental to the topic and must be addressed in any case and which are context dependent. By allowing people to imagine themselves (or in a role) in different contexts, they can also help identify opportunities and threats that can be used to chart a positive policy course 'informed' about the future. As shown in the preceding sections, thanks to this approach, this study has been able to identify numerous concrete points for possible follow-up.

The scenarios and know-how developed so far within this project provide a valuable basis for further work. They can be put to use, for example, to:

- carry out a more in-depth analysis of the future development of specific types of digital labour market platforms and the working conditions and possibilities for social protection of platform workers,
- analyse in more detail the role of the collaborative economy approach for the provision of public services,
- explore the possible developments and implications of other sectors of the collaborative economy such as the renting or lending of assets or transport,
- investigate in depth the implications of different governance approaches on the development and impacts of the collaborative economy,
- explore the implications of new technologies such as the blockchain technology on the future trajectory of the collaborative economy,
- analyse the role of the collaborative economy in the transformation towards a sustainable EU economy.

The growing evidence that is becoming available on the current status and impacts of the collaborative economy in the EU will support the further refinement of the scenarios and thus their effectiveness.

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Annex

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