Arenguseire Keskus

UNDERSTANDING VIRTUAL WORK

Prospects for Estonia in the Digital Economy

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Executive summary

- In this report, virtual work is defined as paid labour that is carried out and/or managed using a combination of digital and telecommunication technologies and can broadly be divided into three categories: telework, crowd work and emerging virtual occupations.

- Although virtual work is difficult to measure and delineate from other forms of work and online activities, there is some evidence that it is a growing phenomenon. Crowd work in particular is growing rapidly. Virtual workers work across many sectors and occupations.

- In Estonia, the percentage of people doing telework is slightly higher than the European average. However, there is no reliable data about the number of people involved in crowd work and hidden online occupations in Estonia.

- The core characteristics of virtual work can be described in relation to pre-existing labour market trends that involve:

  o **The growth of atypical work:** virtual work creates new job opportunities but also contributes to the growth of atypical work and the dissolution of the standard model of work - a development that leaves a growing number of workers with little to no access to standard employment rights and benefits.

  o **The individualisation of risks:** virtual work contributes to a trend in which the costs of work and economic risks (that were traditionally borne by businesses) are increasingly borne by individual workers. Thus virtual work is moving towards a future that involves income instability and less secure but flexible forms of work.

  o **The internalisation of external risks**: virtual workers are under pressure to treat their working life as a project that they must manage and invest in. This can lead to work intensification, increased levels of stress and a poor work-life balance.

- These trends entail risks but also opportunities depending on the national context and on how the change is managed. There are a range of policies, guidelines and agreements at the European, national, sectoral and organisational level in place that

aim at promoting and regulating telework. Despite some emerging agreements and self-regulatory initiatives, there is still considerable uncertainty among policy makers on how to respond to crowd work. Policy discussions on hidden online occupations are rare.

1. Discussions on the definition of virtual work

Digitisation of information, telecommunication and information technologies have profoundly altered the nature of work. They have transformed labour processes, enabled work to be relocated, created new work-like activities (Webster and Randle, 2016) or new forms of production which require human labour (Fuchs and Fisher, 2015). Many scholars have tried to capture the phenomenon which has led to the use of various terms such as 'telework' or 'telecommuting' (Nilles, 1975), 'digital labour' or 'digital work' (Burston et al., 2010, Cardon and Casilli, 2015, Fuchs and Sevignani, 2013, Pfeiffer, 2014, Scholz, 2013), 'virtual work' (Huws, 2003b, Jackson, 2002b, Robey et al., 2003), 'remote work' (Hardill and Green, 2003, Olson and Primps, 1984), 'online labour' (Caraway, 2010), 'cyberwork' (Hauser, 2000), and 'mobile work' (Andriessen and Vartiainen, 2005, Brodt and Verburg, 2007). In the 1980s and 1990s, the terms 'telework' and 'telecommuting' dominated scholarly discussions. They describe workers who work remotely either from home or another location which is different to the location of their employers or customers by using information and communication technologies (Huws et al., 1990). Telecommuting was seen as a substitute for physical travel (Nilles, 1975). However, after the spread and the commercialisation of the Internet and the emergence of new value-creating online activities or business models that rely on human labour both paid and unpaid, the term 'telework' went out of fashion in academic debates. **Activities emerged that did not fit any of the existing categories of work or the definition of telework**. These include activities such as **crowdsourcing, crowd or platform work** (Estellés-Arolas and González-Ladrón-De-Guevara, 2012, Howe, 2006, Huws, 2017b, Huws et al., 2017, Von Ahn, 2008), **online content production** (Beer and Burrows, 2010, Ritzer and Jurgenson, 2010), **social networking that is discussed as unpaid labour** (Fuchs, 2012, Lazzarato, 1996, Terranova, 2013), **professional online gaming and gambling** (Heeks, 2008, Holts and Surugiu, 2016, Nakamura, 2009, Zhang and Fung, 2013), **'modding'**[1] (Hong, 2013, Sotamaa, 2010). Alongside these developments, the terms 'digital labour' and 'virtual work' - terms that are often used interchangeably - have gained in popularity. However, there is no consensus on what should be

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[1] Modding is an activity where game hobbyists modify/ alter games in a way that it produces content that creates value for the gaming industry.

included in the concept of digital labour or which variables should be used to delineate it from other work activities (Holts, 2013). Some scholars use the terms to refer to specific online activities or types of work such as platform work (Graham et al., 2017, Schörpf et al., 2017b), microlabour (Irani, 2015), participation in online virtual communities (Fuchs, 2012, Terranova, 2013), others use them universally with the aim to capture a wide range of digitally mediated work activities (Cherry, 2010, Huws, 2003b, Scholz, 2013, Webster and Randle, 2016) and see the phenomenon as an extension of telework (Bailey and Kurland, 2002, Harrington and Ruppel, 1999, Huws, 2017b, Messenger and Gschwind, 2016). However, defining or capturing a wide range of digital labour is fraught with difficulties. Firstly, digital labour has become increasingly difficult to delineate from other forms of work as most workers now use information and communication technologies to do their work (Dyer-Witheford, 2015, Webster and Randle, 2016).

> „/…/ it is increasingly difficult to demarcate work from non-work or from unpaid activities such as 'play' or 'consumption' because the boundaries between paid and unpaid work, consumption and production, work and leisure time, play and work have become blurred /…/"

Secondly, it is increasingly difficult to demarcate work from non-work or from unpaid activities such as 'play' or 'consumption' because the boundaries between paid and unpaid work, consumption and production, work and leisure time, play and work have become blurred (Comor, 2010, Kücklich, 2005, Morini and Fumagalli, 2010, Ritzer and Jurgenson, 2010). However, it is at this intersection that new forms of digital labour are emerging (Arvidsson and Colleoni, 2012, Frayssé and O'Neil, 2015, Huws, 2003a, Webster and Randle, 2016). What constitutes virtual work or digital labour is therefore closely linked to how 'work' is defined. Does work outside of waged labour count as work? Should an unpaid online activity be considered as work? What if a person aims to generate income but for reasons that are outside of his or her control fails to do so – does it still constitute work? When does an online hobby that creates financial reward become work? Should an activity that generates income but is not recognised by society be regarded as work? There is no doubt that the spread of digital technologies is challenging and forcing us to revisit our understanding of work (Webster and Randle, 2016). Yet, similar questions have been asked before with regard to work in the

informal economy, unpaid household, voluntary, clandestine, part-time or temporary work (De Grazia, 1980, Fairlie, 2002, Kalleberg, 2000, Pahl, 1988, Parry et al., 2006).

Some authors have concluded that an exact and consistent universal definition of technology-mediated work activities is not possible and that the best way of addressing the difficulties listed above is accepting a broad definition (Huws, 2003b, Huws et al., 1990, Jackson, 2002a, Sullivan, 2003). The broadest definition of digital labour to date comes from Fuchs (2014: 4) who argues that digital labour involves all labour that is 'required for the existence, usage and application of digital media' and should be defined based on the industry rather than on an occupation. This definition includes workers who extract minerals that are needed for the manufacturing of electronic gadgets and assemble computers and mobile phones (Fuchs, 2014, Fuchs and Sandoval, 2014). Apart from this view, the majority of scholars share the understanding that **virtual work involves the use of information and communication technologies and that it is done remotely** (Webster and Randle, 2016) - an understanding that is identical with the concept of telework but opinions vary when it comes to additional defining variables such as remuneration, type of technology or agents involved, the way technology is used, contractual relationship (see e.g. Andriessen and Vartiainen, 2005, Jackson, 2002a, Mrass et al., 2017).
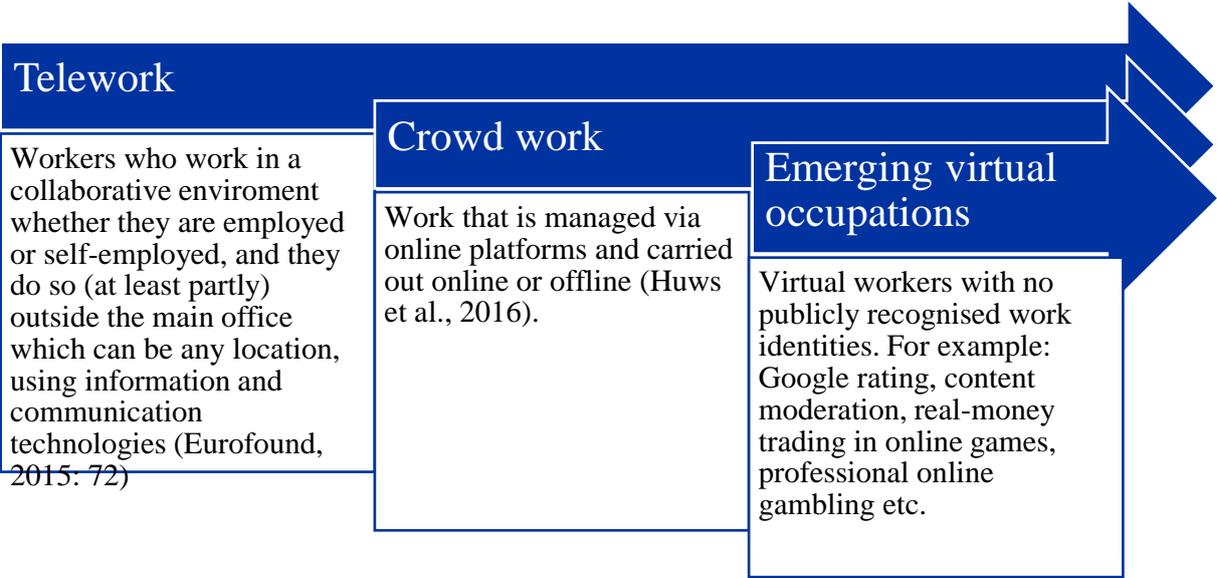
> For the purpose of this report that aims at giving an overview of the literature and identifying trends in relation to the digitisation and virtualisation of work, **digital labour is defined as paid labour that is carried out and/or managed using a combination of digital and telecommunications technologies** (Huws, 2017a).

This definition captures a range of activities that can broadly be divided into three categories according to academic debates that have developed around them: **telework, crowd work and emerging virtual occupations** (see Graph 1)**.** In the category of telework[2], this report considers

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[2] It has also been described as 'ICT-based mobile work' Eurofound. (2015) *New forms of employment.* Eurofound

workers who work in a collaborative environment whether they are employed or self-employed, and they do so (at least partly) outside the main office which can be any location, using information and communication technologies (Eurofound, 2015: 72). The second category includes 'platform' or 'crowd work'. It can be described as work that is managed via online platforms and carried out online or offline (Huws et al., 2016). In terms of activities, it refers to short-lived forms of collaboration focusing on tasks and service work delivered in person. Web-based crowdsourcing platforms act as intermediaries between companies (but increasingly also individuals) and the global or local pool(s) of workers (the 'crowd'). Crowd work is a hybrid category in that it overlaps on the one hand with telework (in particular with self-employed teleworkers), and on the other, with other kinds of service work delivered in person (Huws et al., 2017). The novelty of crowd work lies in the form of management rather than the tasks. The last category gathers together virtual workers with no publicly recognised work identities such as Google rating (Bilić, 2016), content moderation (Huntemann, 2015, Roberts, 2016), real-money trading in online games (Heeks, 2008), professional online gambling (Holts and Surugiu, 2016), and community management (Kerr, 2016) that are sometimes discussed as shadow work outside of conventional working relations (Webster and Randle, 2016). Although the debates about these 'emerging' virtual occupations are scattered, the element that binds them together is their 'hidden', informal character.

Graph 1: Three categories of virtual labour

Telework

Workers who work in a collaborative enviroment whether they are employed or self-employed, and they do so (at least partly) outside the main office which can be any location, using information and communication technologies (Eurofound, 2015: 72)

Crowd work

Work that is managed via online platforms and carried out online or offline (Huws et al., 2016).

Emerging virtual occupations

Virtual workers with no publicly recognised work identities. For example: Google rating, content moderation, real-money trading in online games, professional online gambling etc.

These three categories broadly reflect the stages through which informal activities transition to the formal economy and/ or become recognised as occupations. Thus new forms of work organisation, especially if they are outside the scope of protective employment norms first enter the public debate before they become listed in official classifications and are brought into the scope of employment and labour law. According to this logic, telework represents the last stage of the 'formalisation' process as it has entered official classification systems and is largely covered by formal arrangements. In contrast, crowd work only entered the public debate recently, and many of the 'hidden' virtual occupations are still waiting to be explored and understood. However, it can by no means be assumed that all informal work transitions into the formal sphere (Williams and Windebank, 1999).

This report only considers those work activities that are paid or carried out for the purpose of income generation. It excludes from its scope unpaid online activities that do not aim at income generation including activities that are discussed as unpaid labour such as social networking, browsing the Internet, playing human-based computation games or participating in other computational processes, whether consciously or not (Holts, 2013). It also excludes physical work involved in the production of digital media. Although there are etymological differences between the words 'digital' and 'virtual' (Frayssé, 2014), in order to reduce repetitions, this report uses them interchangeably.

2. The scale and importance of virtual work

It is evident that virtual work is a growing phenomenon. However, it is difficult to determine exact estimates of the number of people involved in it. Firstly, there are no statistics on virtual work in general although data is collected separately about different forms of it. While telework is captured by most national labour force surveys, estimates about crowd work and other forms of virtual work are scattered or entirely missing. Secondly, international comparisons are difficult as definitions of the various forms of virtual work can vary across countries and studies (Eurofound and ILO, 2017). Thirdly, some forms of virtual work are difficult to differentiate

from other types of (also virtual) work or non-work activities (Forde et al., 2017, Huws et al., 2017). This section explores how widespread platform- and telework are by drawing on existing statistics and estimates. However, it is outside the scope of this report to estimate the popularity of hidden virtual occupations. Except for some estimates about specific forms of these shadow activities, data in the form of official statistics is largely missing.

Estimates around the scale of telework vary, depending on how it is defined. The broadest definition that is also used in this report includes employed and self-employed workers who work outside employers' or clients' premises. According to the Fifth European Working Conditions Survey, in 2010, a quarter of European workers were involved in this type of telework (Eurofound, 2012: 95). However, the number varies greatly between 5 per cent (in Albania, Bulgaria, Romania and Turkey) and over 40 per cent (in the Netherlands, Denmark, Sweden and in Finland) depending on the country[3] (Eurofound, 2012: 95). There are also a number of narrow approaches to telework that are more commonly used and that measure the number of employed teleworkers who either work regularly or occasionally from home or other places. The number of employed people who mainly work from home (see Table 1) has been estimated to be around 2 per cent in the European Union (Eurofound, 2017 update, Eurofound and ILO, 2017, Eurostat, 2018). In Estonia, the figure was 3 per cent in 2015 which is slightly higher than the European average but lower than for instance in Denmark, Netherlands, Belgium, Finland and Sweden. When mobile teleworkers or people who work from various places are added to this definition then the figure raises to 9 per cent in the European Union and 10 per cent in Estonia (Eurofound, 2017 update, Eurofound and ILO, 2017). When employees who do occasional phone calls and emails outside employers' premises are added then the figure raises further to an estimated 18 per cent in the European Union and to 20-24 per cent in Estonia (Eurofound, 2017 update, Eurofound and ILO, 2017, Kaldmäe, 2017). This puts Estonia above the European average but behind Denmark, Sweden Netherlands, United Kingdom, Luxembourg and France.

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[3] The survey covered the 27 EU Member States and Croatia, Turkey, Norway, Albania, Bosnia and Herzegovina, Kosovo, and the former Yugoslav Republic of Macedonia.

Table 1: The scale of telework in Europe and Estonia in 2015

Who is included in the definition?	EU28[4] average	Estonia	Source
Employees who work from home			
Employees[5] who usually work from home as a percentage of the total employment[6]	2.6%	3.4%	(Eurostat, 2018)
Teleworkers who mainly work from home as a percentage of all employees	2 %	3 %	(Eurofound, 2017 update, Eurofound and ILO, 2017)
Employees who mainly work from home and mobile workers[7]			
Employees who use information and communication technologies (ICT) at least three-quarters of the time outside the employer's premises (at home or in other locations)	9 %	10 %	(Eurofound, 2017 update, Eurofound and ILO, 2017)
Employees who mainly work from home, mobile workers and those doing occasional phone calls and emails outside employers' premises			
Regular home-based, high mobile and occasional teleworkers	18 %	24 %	(Eurofound, 2017 update, Eurofound and ILO, 2017)
Employees who work partly or mainly outside employers' premises[8]	-	20 %	(Kaldmäe, 2017)

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[4] The surveys covered the 28 member states of the European Union

[5] 'An employee is an individual who works for a public or private employer and who in return receives compensation in the form of wages, salaries, fees, gratuities, payment by results or payment in kind. Professional military staff are also included.' Eurostat Glossary: Employee - LFS [Online]. Available: http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Employee_-_LFS | [Accessed: 15 March 2018]|.

[6] The indicator does not distinguish between workers who work from home using ICT and those who do not (for instance craft workers). However, studies have shown that the majority of people working from home do so using ICT (Eurofound and ILO, 2017).

[7] working in various places, including working from home

[8] It includes those who do it less than quarter of their working time and also those who do it all the time.

Overall, the number of people doing telework has not changed significantly since 2010 when the Fifth European Working Conditions Survey first included this type of workers in its analyses. Similarly, the number of employed workers who work from home as a percentage of the total employment (see Table 1) has not grown much since 2008 (Eurostat, 2018). In some cases, the percentage has even decreased. In Estonia, the percentage of employees usually working from home has increased from 3.2 per cent in 2011 to 3.4 per cent in 2015 (Eurostat, 2018). The survey of Estonian work life (in 2015) found that the percentage of people doing telework (20 per cent) has not changed since 2009 (Kaldmäe, 2017: 20). However, the percentage of workers who would like to do telework (but are not doing) has grown from 18 per cent in 2009 to 34 per cent in 2015 (Kaldmäe, 2017: 12). In conclusion, while overall the percentage of people doing telework is growing, it is a slow, steady growth (Eurofound and ILO, 2017). Data also suggests that the composition of telework is in the process of dynamic change and that there may be new forms of telework emerging that are not captured by official statistics. **For instance, the majority of national statistics do not capture teleworkers who operate outside the employment relationship**. **However, as the next paragraph about platform work shows, this could be the fastest growing category**. Thus if the aim is to have an understanding of the scale and importance of virtual work then these estimates of teleworkers should be treated with caution.

> „Although many authors talk about an explosive or rapid growth of platform work in recent years (Forde et al., 2017, Huws et al., 2017), estimates, in particular with regard to the percentage of the work force involved in it, are scarce."

Although many authors talk about an explosive or rapid growth of platform work in recent years (Forde et al., 2017, Huws et al., 2017), estimates, in particular with regard to the percentage of the work force involved in it, are scarce. There are many difficulties when it comes to estimating the number of platform workers (De Stefano, 2016, Forde et al., 2017, Huws et al., 2016). The largest international study to date (conducted in seven European countries: Sweden, Germany, Austria, the Netherlands, the UK, Switzerland and Italy) found that depending on the country, between 9 and 22 per cent of the population has been involved at some point in crowd work (Huws et al., 2017). However, this figure drops considerably (between 4.7 per cent in the UK and 12.4 per cent in Italy) when the focus is on people who do crowd work at least weekly (see Table 2).

Table 2: People undertaking crowd work at least weekly

Country	Estimated proportion of working population undertaking crowd work at least weekly	Equivalent number of people
Austria	9.5 %	540,000
Switzerland	10.0 %	600,000
Germany	6.2 %	3,560,000
Italy	12.4 %	5,310,000
Netherlands	4.9 %	600,000
Sweden	4.9 %	310,000
UK	4.7 %	2,260,000

Source: (Huws et al., 2017)

According to the same study, only a small minority derived at least half of their income from crowd work (see Table 3) ranging from 1.6 per cent in the Netherlands to 5.1 per cent in Italy (Huws et al., 2017). Thus the number of people (as a percentage of working population) to whom crowd work forms the main source of income is small (2.9 per cent across seven countries). Based on existing research, Forde et al. (2017) estimated that between 1 per cent and 5 per cent of the adult population has participated at some point in crowd work and that a quarter of crowd workers rely on platform work as their main source of income. These results are confirmed by other, small-scale studies often focusing on one country. For instance, Lepanjuuri et al. (2018) found that 4.4 per cent of the population in the United Kingdom had been involved in crowd work at least once in the previous 12 months.

Table 3: People earning at least 50 % of personal income from crowd work

Country	Estimated proportion of working population getting at least 50 % of income from crowd work	Equivalent number of people
Austria	2.3 %	130,000
Switzerland	3.5 %	210,000
Germany	2.5 %	1,450,000
Italy	5.1 %	2,190,000
Netherlands	1.6 %	200,000
Sweden	2.7 %	170,000
UK	2.7 %	1,330,000

Source: (Huws et al., 2017)

In 2015, platform economy produced revenues of around 4 billion euros, and it has been estimated that it will grow at 35 per cent per year across Europe which is ten times faster than the economy as a whole (PwC, 2016). Overall, many authors predict that platform economy and crowd work will continue growing at high speed in the foreseeable future (Forde et al., 2017, Huws et al., 2017). With regard to Estonia, there is no reliable data about the number of people involved in crowd work. However, the average turnover of sharing platforms in Estonia grew 80% per year between 2011 and 2015, and the platform economy is expected to grow further at a similar rate (Eljas-Taal et al., 2016) (see Box 1).

Box 1: The growth of platform economy in Estonia

In Estonia, crowd work platforms entered the market somewhat later than in some other European countries but have rapidly grown since then. The best known example is Taxify - a local ride-share platform that was only founded in 2013 but has expanded to 20 countries since then. Wolt, a Finnish food delivery platform, was launched in Tallinn in 2016. Its turnover was estimated at 1.23 million euros in 2017 compared to 384,903 euros in 2016 (Inforegister, 2018b). GoWorkaBit, an Estonian crowd work platform focusing on service work delivered in person, was founded in 2013. Its turnover was estimated at

> 1.72 million euros in 2017 which is 35 per cent higher than in 2016 (1.11 million euros) (Inforegister, 2018a). There are 110,000 workers registered on the platform - a figure that has doubled in recent years and is expected to grow further given the current 500-600 new registrations every week. There are on average 700-800 tasks a week that are offered to the pool of workers (GoWorkaBit, 2018).

With regard to people's motivation to become involved in virtual work, one of the primary reasons is the desire for more flexibility. This has been confirmed by many studies that focus on tele- or crowd workers (Eurofound, 2017 update, Eurofound and ILO, 2017, Huws et al., 2017, Lepanjuuri et al., 2018). The hope for more flexibility can have many reasons. It can be linked to caring (child care or elderly family members) responsibilities, wish for a better work-life balance or be simply a lifestyle choice. It has also been found that crowd work is easy to access and is therefore seen as a good 'gap filler' while looking for a more permanent job (Huws et al., 2017). However, Huws et al. (2017) also found that **many people did platform work because their another source of income did not provide them with enough income.**

In terms of occupations, virtual workers work across many sectors and occupations. However, Eurofound found that managers, professionals and technicians are more likely to be involved in telework than agricultural workers or service and sales workers (Eurofound, 2017 update, Eurofound and ILO, 2017). In terms of sectors, telework is more common in financial services, public administration and education. (Eurofound, 2017 update). Crowd workers also work across a diverse range of occupations. They range from highly-skilled professional and technical to routine clerical and manual workers including IT specialists, creative workers, lawyers, translators, management consultants, people doing microtasks, survey takers, cleaners, builders, babysitters (Huws, 2015, Huws et al., 2017). However, it is increasingly difficult to define the occupational lines of crowd work as practices typical to platform work are spreading across the labour market.

It has been found that many teleworkers in Europe are highly skilled and tend to be high income earners (Eurofound, 2017 update, Eurofound and ILO, 2017) whereas crowd workers are more heterogeneous ranging from low-skilled to high-skilled workers. Several studies have found that crowd workers tend to be more highly educated than the general population even if they

are doing low-skilled or poorly paid tasks (Brabham, 2012, Forde et al., 2017). However, more research is needed to understand the educational levels of platform workers. Many existing studies focus on one particular platform that attracts workers with similar levels of education.

3. Characteristics of and trends in virtual work

While there is consensus around the growth of virtual work, opinions are divided over its future direction, in particular with regard to the quality and characteristics of these jobs. At one extreme, there are scholars who predict (or have predicted) a future filled with high quality jobs for everyone while machines do the 'dull' work (Toffler, 1981, Zuboff, 1988). However, there is little evidence in studies that have investigated emerging forms of virtual work to support this future scenario. Conversely, there are authors who talk about growing inequality, deteriorating working conditions and the 'new intensification of exploitation' caused by the virtualisation of the workforce (Dyer-Witheford, 2015: 14, Huws, 2014). The answers are likely to be found somewhere between these two extremes, and are likely to vary across countries depending on socio-political factors, their history and location, but also on how the change is managed. Historical developments have shown that technological change can challenge existing regulatory frameworks and put large groups of workers at a disadvantage. However, past events have also shown that an active public debate and transformative policies can create more favourable changes to work. A positive scenario - understood here as decent work[9] for all (ILO, United Nations, 2015) - is not self-evident but is rather a socio-political choice which needs to be managed accordingly (Nübler, 2016).

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[9] According to the International Labour Organization, decent work refers to 'opportunities for work that are productive and deliver a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men'. ILO. *Decent Work* [Online]. Available: http://www.ilo.org/global/topics/decent-work/lang--en/index.htm | [Accessed: 10 February 2018]|.

„A positive scenario - understood here as decent work[10] for all (ILO, United Nations, 2015) - is not self-evident but is rather a socio-political choice which needs to be managed accordingly (Nübler, 2016)."

This report proceeds on the assumption that there are two broad future scenarios depending on whether challenges in relation to the emergence of virtual work are managed or left for markets to regulate. It acknowledges that there are additional country-specific factors that influence the future development of virtual work (Eurofound and ILO, 2017). However, it is outside the scope of this report to analyse these nuances in more detail. The aim of this section is to describe the characteristics of virtual work based on existing research with a particular focus on features that disrupt established standards, norms and regulations.

Although virtual work is described as a 'new labour activity' or a new phenomenon that is based on new value creation or business models on the Internet, the word 'new' is misleading when the focus is put on the aspect of 'work' and its characteristics. While some online business models and ways in which work is organised using digital technologies are indeed new, virtual work continues to draw on work carried out in the real world (Holts, 2013). Studies about the characteristics of digital labour have shown that it is part of larger labour market trends that involve extreme flexibility, the shifting of risks to workers and income instability (De Stefano, 2016, Huws, 2017b, Webster and Randle, 2016). It is believed that virtual work has above all intensified existing developments rather than created something radically new. For instance, according to Huws (2017b), some of the characteristics of platform work are extreme versions of practices that are found across the labour market.

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[10] According to the International Labour Organization, decent work refers to 'opportunities for work that are productive and deliver a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men'. ILO. *Decent Work* [Online]. Available: http://www.ilo.org/global/topics/decent-work/lang--en/index.htm | [Accessed: 10 February 2018]|.

> **The core characteristics of virtual work can therefore be described in relation to the following pre-existing labour market trends:**
>
> 1. The growth of atypical work
> 2. The individualisation of risks: income instability and working time unpredictability
> **3.** The internalisation of external risks: trend towards self-management

3.1.   Growth of atypical work

One of the most discussed characteristics of virtual work is its contribution to the growth of atypical work and the dissolution of the standard model of work which is characterised by 'lifelong full-time work organized in a single industrial location' (Beck, 1992: 143). Although this standard employment model of work is still dominant in most European countries including Estonia (Mrozowicki et al., 2013), it has weakened especially since the financial crisis of 2008. Nonstandard or atypical work is typically understood as work that falls outside the realms of the standard employment relationship and includes own-account and informal work but also temporary, casual and part-time employment (Eurofound, 2015, Eurofound, 2016, ILO, 2015). Many authors believe that on-demand or intermittent, contingent work is becoming the new norm across the labour market (see e.g. Gorz, 1999, Hardt and Negri, 2005, Huws, 2016, Lorey, 2015, Ross, 2009, Smith, 2001, Standing, 2011).

Virtual work's impact upon the growth of atypical work is twofold. **Firstly, many virtual workers, as defined above, work as self-employed freelancers, independent contractors, partially self-employed, disguised or dependent self-employed, are in short-term forms of collaboration involving multiple parties or in entirely new forms of work and employment** (De Stefano, 2016, Eurofound, 2015, Mandl and Curtarelli, 2017, Schörpf et al., 2017a, Todolí-

Signes, 2017, Webster and Randle, 2016). Although these atypical forms of work arrangements have grown in importance across sectors, virtual work is seen as one of the key contributors to this trend. In particular discussions around the classification of crowd workers as independent workers have made this development visible to the public and have created many heated debates. Furthermore, it has been suggested that other industries may be copying practices common to platform industry including the use of intermittent, contingent work arrangements - a development that Huws et al. (2017: 48) describe as a general 'platformisation' of work.

Secondly, some work arrangements associated with virtual workers and in particular with platform workers challenge the existing binary model of employment relationship that distinguishes between dependent employees and the independent self-employed (Casale, 2011: 38, Collins et al., 2000, Collins et al., 2012, Freedland and Kountouris, 2011: 112). Although the majority of crowd workers are classified as independent contractors it has been argued that they are misclassified because there is a degree of dependency and subordination (De Stefano, 2016, Risak, 2017, Rogers, 2016, Todolí-Signes, 2017).

This implies that some forms of virtual work do not fit neatly into the existing legal categories of work. There are many court cases around the globe and an emerging body of literature that addresses this mismatch (see e.g. De Stefano, 2016, Prassl and Risak, 2017, Rogers, 2016, Schoukens and Barrio, 2017, Todolí-Signes, 2017). However, the debate around the shortcomings of existing legal categories of working relationships is neither new nor limited to virtual work and it can be linked to many other changes in the world of work such as the growth of the informal economy or the emergence of new work arrangements (Blanpain, 1997, Countouris, 2007, Davidov and Langille, 2006, Freedland, 2005, Kalleberg, 2000, Marchington, 2005, Mhone, 1998, Stone, 2004, Theron, 2003). This debate has only gained momentum with the emergence of virtual work.

The major risk of atypical work arrangements among virtual workers is that there is a growing body of workers who have no or limited access to standard employment rights and benefits that would assure that there is compliance with minimum wage laws, entitlement to annual leave and sick pay (Eurofound, 2015, Rogers, 2016). Virtual workers who are classified as non-standard are not protected by employment and labour laws, as in most countries these are designed for workers in employment relationships. Workers who are in unrecognised online occupations may be left with no legal rights at all. However, the growth of non-standard forms of virtual work also offers opportunities. Work is becoming more flexible for both workers and

businesses and new job opportunities are emerging. Flexible working arrangements are particularly popular among the young and those with caring responsibilities (De Stefano, 2016, Huws et al., 2017). Yet flexibility is not indicative of good work conditions and sustainable jobs - a topic that the next section focuses on.

3.2. Individualisation of risks: income instability and working time unpredictability

Another labour market trend that virtual work can be linked to is the passing of entrepreneurial risks onto individual workers (see e.g. Bauman, 2004, Beck, 1992, Beck, 2000, Gill, 2010, Neff, 2012, Sennett, 1998). The costs of work and economic risks that were traditionally borne by businesses are increasingly shifted to workers (Gill, 2010). This implies above all that work is becoming less predictable and more precarious with no guarantee of stable income or working hours but also that workers are required to take care of (by investing their time and finances) updating their skills, looking for new assignments, legal protection, carrying out risk assessments and planning their career (Huws, 2016). When traditionally such costs have been divided more equally between companies and workers, in the current trend individual workers are bearing the majority of them (Neff, 2001). The situation is exaggerated by the weakening of national social safety nets. The trend towards the individualisation of risk can affect all workers regardless of their employment status.

Many features of virtual work can be linked to and their future developments better understood in the context of this 'great risk shift' (Hacker, 2006). As it is not possible to list all the costs that virtual workers bear, this paragraph focuses on three that have been pointed out more frequently, especially with regard to platform work: unpredictability of working time, income instability and the externalisation of health and safety obligations to workers.

Firstly, unpredictability of working time is of concern to those digital workers who want to work more or need some stability. This concerns employees on zero-hours or temporary contracts but also platform workers who are classified as independent contractors. Digital technologies make it easier to access a global pool of workers on demand without needing to

employ anyone and thus offering the possibility of avoiding labour costs in uncertain times (Felstiner, 2011). This is facilitated by the fragmentation of tasks that allows the outsourcing of complex tasks to the virtual crowd in the form of small jobs. While businesses profit from this flexibility, workers face unpredictability of their working time and earnings. Studies about platform work have shown that crowd workers respond to this by piecing together work from different sources (Forde et al., 2017, Huws et al., 2017, Lepanjuuri et al., 2018).

Secondly, access to the global pool of workers through digital technologies creates competition between workers around the world and allows businesses to pay wages that are below the national minimum (see Box 2). There is growing evidence that many platform workers earn below the minimum wage (Eurofound, 2015, Forde et al., 2017, Huws et al., 2017, Irani and Silberman, 2013, Lepanjuuri et al., 2018, Taylor, 2017b). Wage dumping, which refers to a practice of paying excessively low wages (or payment rates, in the context of online platforms), is also taking place on online platforms that serve local communities and rely on off-line work that is managed online. Some platforms create imbalances between the supply and demand of work by recruiting more independent workers than are needed (Graham et al., 2017). The oversupply of workers allows them to reduce payment rates (Eurofound, 2015). There is not enough research about the sustainability of platform work but existing studies show that workers in some countries face challenges relying on platform-based virtual work as their main source of income (Huws et al., 2017, Taylor, 2017b).

Box 2: The case of Amazon Mechanical Turk (AMT)

The case of Amazon Mechanical Turk (AMT)

Amazon Mechanical Turk (AMT) is a crowd work platform that distributes micro tasks (also called Human Intelligence Tasks) across a large number of workers. The platform enables firms to access a flexible workforce that sits outside of traditional boundaries of labour laws, save costs and offload risks (Bergvall Kåreborn and Howcroft, 2014). However, from workers' perspective, ATM is known for its unfair working conditions. The micro-tasks that are sometimes described as repetitive and tedious are poorly paid, workers lack income stability but also bargaining power and legal resource to defend themselves against unfair work practices (Bergvall‑Kåreborn

and Howcroft, 2014, Irani, 2015, Irani and Silberman, 2013). For instance, Hara et al. (2017) found that the majority of AMT workers earn on average 2 USD an hour. This is far below the national minimum wage in the United States where the majority of the 'Turkers' (this is how AMT workers are sometimes called) are based (Irani, 2015). Another area of concern is wage theft that occurs when work is completed but rejected by a requester. The AMT participation agreement allows requesters to reject work if they are not satisfied but grants them full intellectual property rights regardless of rejection (Bergvall‑Kåreborn and Howcroft, 2014, Irani, 2015). Although a number of studies have made these unfair practices public, little has changed in this regard.

Thirdly, responsibilities that were traditionally taken care of by employers such as obligation to assess health and safety related risks, the costs of work equipment that meets ergonomic standards and insurances are externalised to virtual workers as they work outside employers' premises or are self-employed and expected to take care of these themselves (Eurofound, 2015, Huws et al., 2016). However, virtual work whether carried out offline or online involves a range of health and safety risks such as ergonomic risks of office work, risks deriving from psychosocial stressors, and physical risks of work carried out offline (European Commission, 2010, Huws, 2015, Huws et al., 2017).

Workers who need to cope with unpredictable working hours and income insecurity without sufficient protection through national welfare systems are at risk of becoming part of the working poor (Huws et al., 2017). This has ignited a debate on the need to not only review existing welfare systems but to clarify the legal categories of work (De Stefano, 2016, Felstiner, 2011, Forde et al., 2017, Schoukens and Barrio, 2017). Traditionally, employed workers have been regarded as those who require protection. However, virtual work is challenging this understanding because there is a growing number of self-employed digital workers in vulnerable situations, largely due to the individualisation of risks. The next section looks at how workers cope with these risks.

3.3. Internalisation of external risks: trend towards self-management

In order to cope with labour market uncertainties and risks, workers are increasingly under pressure to manage the self or treat their working life as a project that they must manage and invest in (Gershon, 2011). It has been suggested that this type of 'wholesale management of the self' (Gill, 2010), 'venture labor' (Neff, 2012), 'self-work ethic' (Heelas, 2002) 'enterprising self' (Bröckling, 2005, Fenwick, 2002, Rose, 1992, Sturdy and Wright, 2008) or 'entrepreneurial labour' (Cohen, 2016, Neff et al., 2005) constitutes the new worker-subjectivity. This means that an increasing number of workers whether employed or self-employed act on themselves in ways that entrepreneurs are thought to do and this becomes part of how they see themselves as workers, their identity. However, compared to entrepreneurs in the traditional sense it is believed that these workers have less power and take more personal risks hence they are in a more vulnerable situation (Cohen, 2016, Du Gay, 1996, Kanter, 1990). There is an emerging body of literature that studies the trend towards self-management and its effects on the quality of workers' lives (see e.g. Du Gay, 1996, Gill, 2010, Lorey, 2009, Neff, 2012, Rose, 1992, Ross, 2003). While self-management can have positive effects on work performance and job satisfaction, there are also hidden human costs. Self-management has been linked to work intensification with workers voluntarily working long hours, increased levels of stress and a poor work-life balance (see e.g. Barnes and Van Dyne, 2009, Burchell, 2002, Moosbrugger, 2008, Muhr et al., 2012, Pérez-Zapata et al., 2016, Ross, 2003).

> „/…/ an increasing number of workers whether employed or self-employed act on themselves in ways that entrepreneurs are thought to do and this becomes part of how they see themselves as workers, their identity. However, compared to entrepreneurs in the traditional sense it is believed that these workers have less power and take more personal risks hence they are in a more vulnerable situation."

The latest addition to this debate comes from studies about virtual workers. Their success depends on self-discipline (as many of them work in isolation) and on their ability to take care of various areas of their work life, especially if they are self-employed. Although there are virtual workers who are satisfied with their activity and the self-directed organisation of their work (Forde et al., 2017, Lepanjuuri et al., 2018, Taylor, 2017b), there is also an emerging evidence of a dark side of digital labour. For instance, Eurofound and ILO (2017) found that teleworkers work longer hours than regular employees. Huws et al. (2017) described how platform workers suffer from psychosocial stress, the intensification of work and the blurring of the boundary between work and private life. These negative effects are confirmed by other studies about various types of virtual work (Baruch, 2000, Eurofound, 2015, Eurofound, 2017 update, Kelliher and Anderson, 2010, Mann and Holdsworth, 2003, Raghuram and Wiesenfeld, 2004). However, it is not entirely clear whether these negative experiences are linked to the spread of 'unfair one-sided flexibility' (Taylor, 2017a: 9) in virtual work or rather, to subjective perceptions and personal capabilities. The need for self-management can cause stress for some workers while others value the flexibility and autonomy over risks and uncertainties (Eurofound, 2015). Taking on risks and responsibilities can help workers develop skills that are associated with entrepreneurs (Caird, 1990, Down, 2010). However, not everyone is in a position to become an entrepreneur or start a business as it requires additional skills and resources. More research is needed to understand the effects that self-management among virtual workers has on the quality of their lives. This can help better understand the sustainability of emerging digital jobs.

4. An alternative route for the future of virtual work

As the last sections have shown, there is some evidence that virtual work is moving towards a future that involves income instability and less secure but flexible forms of work. This entails risks but also opportunities depending on the national context in particular with regard to legal frameworks and welfare systems. Although many workers seek flexibility (Mandl and Curtarelli, 2017), for some it comes at the expense of their

wellbeing, the quality of their working lives, their legal protection, their ability to access government services and the sustainability of their careers. While some individuals are able to cope with these challenges and risks, others struggle depending on their life circumstances and family commitments but also on their personal capabilities. This may explain why despite the interest in and positive rhetoric around crowd work only a small percentage of workers actually rely on it as their main source of income. It has been suggested that virtual and in particular platform work has the potential to boost innovation, job creation, teach new skills and create flexible work that benefits both workers and employers (Söderqvist, 2017). However, the current reality of virtual work does not match the claim of a future filled with high quality jobs where everyone can choose how, when and where they work. If the development of virtual work is not managed then we may instead experience growth of 'the working poor' (Huws et al., 2017), increased income inequality, negative impacts on economic growth and social coherence (Söderqvist, 2017).

Developments in connection to virtual work have created considerable confusion among policy makers on how to respond and create more favourable changes to work. However, initial confusion around new forms of work organisation is not uncommon. For a long time, telework was in the spotlight of many authorities. Now there are a range of policies, guidelines and agreements at the European, national, sectoral and organisational level in place that aim at promoting and regulating telework (Eurofound and ILO, 2017). The most prominent agreement at the European level is the European Framework Agreement on Telework that provides guidelines for carrying out telework in organisations and private companies (Eurofound and ILO, 2017: 44). Many of the national policies aim at promoting telework but also protecting teleworkers' non-working time (to avoid work-life balance conflict) and ensuring that occupational health and safety procedures are in place.

The latest wave of policy debates on crowd work mainly focus on aspects such as legal and social protection, the employment status of platform workers and ensuring fair work conditions including fair pay. Examples of policy responses involve initiating labour market reforms, reviewing existing legal frameworks or classifications of work and welfare systems (De Stefano, 2016). For instance, the government of the United Kingdom announced a plan of action as a response to the Taylor Review of Modern Working Practices that identified shortcomings in protecting workers in atypical forms of work including platform work (Taylor, 2017a). Once implemented it would improve the situation of all flexible workers offering them more clarity on employment status and protection. The plan includes a right to request a more stable contract,

developing guidelines on defining working time for crowd workers, ensuring fair payment and fairer flexibility that benefits both workers and employers (GOV.UK, 2018). At the European level, the European Commission is currently consulting on adapting employment and social security policies to cover workers in the platform economy (Fabo et al., 2017). The general policy trend goes towards adapting existing legislations so that platform workers are included in them and not creating new categories for virtual work.

There are also a number of initiatives by other stakeholders that aim at creating a more favourable future of virtual work. A good example of a self-regulatory approach that promotes fair work conditions is the Fair Crowd Work[11] initiative by the German trade union IG Metall and the Code of Conduct that was signed by eight German crowd work platforms. The voluntary initiative focuses on creating a basis for a fair cooperation between all parties involved in platform work (see Box 3).

Box 3: Code of Conduct[12] - a voluntary initiative by eight German crowd work platforms

> Eight German crowd work platforms have voluntarily committed to follow principles of fair crowd work. They signed a Code of Conduct that lists nine principles of self-regulation:
>
> 1. Tasks in conformance with the law
>
> 2. Clarification on legal situations
>
> 3. Fair payment
>
> 4. Motivating and good work
>
> 5. Respectful interaction
>
> 6. Clear tasks and reasonable timing
>
> 7. Freedom and Flexibility

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[11] See http://faircrowd.work/ [Accessed: 19 February 2018]

[12] See the Code of Conduct: Ground Rules for Paid Crowdsourcing / Crowdworking. Guideline for a prosperous and fair cooperation between crowdsourcing companies and crowdworkers [Online]. Available: http://crowdsourcing-code.com/| [Accessed: 19 February 2018]|.

8. Constructive feedback and open communication

9. Regulated approval process and rework

10. Data protection and privacy

In contrast to these self-regulatory approaches that Söderqvist (2017) calls the Anglo-Saxon way of 'one-sided self-regulation', there is a Nordic approach of 'two-sided self-regulation' of platform work. Instead of the industry creating their own rules of 'best practices', fair work conditions are negotiated through collective bargaining between employer associations and trade unions (Söderqvist, 2017). This is based on the idea that online platforms can innovate and have a positive effect on employment, as long as the innovation does not happen at the expense of workers' welfare. Sweden is one of the first countries where online platforms began classifying their workers as employees with a full access to social protection and employment rights (Bzzt, a platform-based transportation service, is one such example).

Additionally, many workers' organisations and individual workers have instigated change by actively defending platform workers' rights. There are many examples of virtual workers bringing their cases to court and encouraging others to follow. For instance, in 2017, a British tribunal ruled that Uber drivers should be classified as workers rather than self-employed, and have the right to a minimum wage and holiday pay (Davies, 2017). Similarly, London based delivery drivers won a battle and will now be reclassified as workers with access to employment rights (Butler, 2018). They were supported by the Independent Workers Union of Great Britain (IWGB) which they were members of.

In addition to these initiatives, a debate has emerged around the benefits of platform cooperativism (Pazaitis et al., 2017, Scholz, 2014, Scholz, 2016). Worker-owned co-operatives in the platform economy aim at designing their own online platforms and creating more favourable work conditions. One example is CabFair platform - a driver-owned alternative to Uber - that is currently being developed by the New Economics Foundation (Baskerville, 2018). Outlandish[13] is another example of a workers' co-operative for high skilled online workers.

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[13] See https://outlandish.com/

The main focus of current debates about virtual work and policy responses is on platform work. However, there are also many emerging virtual occupations which have not yet entered public debate. Policy responses that can be linked to these hidden workers are rare and cannot entirely be separated from policies that aim at formalising informal work activities such as revising tax rules and introducing regulations regarding certification of skills. How and to what degree hidden virtual workers may contribute to future labour market developments largely depends on the extent to which research into these activities is advanced, and these activities recognised as work.

5. Framing a policy-oriented debate about virtual work

This section identifies some key parameters that can serve as points of departure when thinking about virtual work in a country-specific context. They can also help frame a policy-oriented debate.

- Many of the existing legal categories are based on the 'analogue world' and on the standard model of work that emerged during the Industrial Revolution. However, the world has changed and so have norms. Virtual work activities challenge the existing legal categories of work. They need to be reviewed against a different reality.
- The emergence of virtual work calls for a rethinking of existing welfare systems. If social security systems are to remain then we should ask who needs protection. Is the existing social security system suitable for protecting the most vulnerable? Do virtual workers need protection?
- New forms of work organisation tend to challenge the established notion of work. The diversity of virtual work activities demands consideration of what is understood as work. What constitutes work? What criteria should be used to demarcate work from non-work? What should be included and excluded from the definition of work?

- Virtual work cannot be separated from broader labour market trends. With the growing number of people involved in virtual work these trends are becoming more important and visible. It is therefore important to fully understand the dynamics of existing labour market trends and develop policies that address a range of issues.

- Although the labour market trends that virtual work is part of can be found in most Western societies, there are country-specific factors that can influence their course such as the legal framework, geographical location, history, culture, characteristics of the workforce and other socio-political factors. Consequently, they can influence the future direction of virtual work. It is therefore important to fully understand how these broad labour market trends unfold in a country-specific context before analysing them in connection with virtual work.

- In order to fully understand virtual work and its future development, stock-taking of hidden online work activities is needed. There is little research into hidden virtual work as it is a hard to reach these populations. However, they may offer opportunities when fully understood and recognised.

- Any policy discussions should take into account the diversity of agents involved in virtual work and in particular in the platform economy that is built on a growing number of intermediaries. There are workers, 'clients' and intermediaries such as online platforms contributing to the growth of platform economy. This calls for reflecting about a range of perspectives. Why are workers doing virtual work? Is it out of necessity or a lifestyle choice? What types of virtual work platforms are emerging in the current system? What is the role of 'clients' who generate work that is outsourced to virtual workers?

- Virtual work is in a process of dynamic change (Huws et al., 2017). New business models are emerging that are affecting an increasing number of sectors and occupations. Alongside these developments new terms are emerging. The speed of the change and dynamic character of virtual work should be taken into account when discussing policy responses.

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