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Economic, Social, and Legal Perspectives

By

Rita Remeikiene, Ligita Gasparėnienė, Arnas Paliukenas and Haroldas Šinkūnas

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INTRODUCTION

The rapid development of technologies promotes the intensification of digital economic activity which, in its turn, determines not only socio-economic, but also labour market transformations. Traditional labour markets are significantly lagging behind the rapid changes in the global economy brought about by technology and digitalisation. The digital economy has an increasing influence on the global labour market and provides new opportunities to solve the problems of unemployment.

Crowdsourcing is an innovative model of work, enabled by the widespread connectivity to the Internet and the emergence of digital platforms (Idowu and Elbanna 2020, 241-257). It gained an accelerating impetus during the COVID-19 pandemic, during which some workers lost their jobs (especially in the travel, hospitality and catering sectors), while the other significant parts were asked to start working on a contractual basis (Pereira et al. 2022, 1-17). The new reality has led to an unprecedented involvement of the workforce in digital labour platforms either for part-time or full-time work, and this practice is spreading to numerous sectors and occupations. The size of the global digital workplace market was valued at USD 27.33 in 2021. It is expected to grow by 22.3 percent annually (at a compound annual growth rate (CAGR)) from 2022 to 2030 (Grand View Research 2021, 1-120).

Digital labour platforms are a new form of labour coordination and service delivery, and perhaps one of the most striking outcomes of the technological revolution in the labour market. Possessing intelligent tools and algorithms, which affect work organising and are able to transform distribution of wealth and power (Kenney and Zysman 2017, 329-334), digital labour platforms are accepted to possess an empowering mode of employment, which is believed to ease labour market entry, facilitate working conditions (especially for the population groups that are unwanted in traditional labour markets - the disabled, the elderly, young people without work experience, the migrants), and thus reduce the problems of global unemployment (Forde et al. 2017, 1-128; International Labour Office, 2018, 1-10).

Nevertheless, due to both the complexity of the systems and the extremely light obligations among agents (platform organizers, workers and customers) within platforms, crowdsourcing-based digital labour

platforms tend to transform the labour market processes, as well as the relationship and behaviour of the labour market participants, and thus form a completely new employment landscape. Since this is a relatively new phenomenon, scientists are trying to uncover its features, while politicians are making efforts to regulate the activities of digital labour platforms adequately to protect the rights and interests of platform workers.

The significant difference of digital labour platforms from traditional employment and the transformations in the labour market as a whole stimulate the interest of researchers in digital labour platforms, but comprehensive studies are scarce. The transformations of work, conditioned by the gig economy and digital platforms, determines the need to understand the motives of workers to undertake the work which is based on more open and flexible relationships. On the other hand, given that digital platform labour is related to the performance of fragmented tasks and the considerable degree of uncertainty, it is relevant to understand why uncertain and unstable working conditions can be understood as a certain benefit from the position of workers.

Although it is widely recognised that digital labour platforms provide flexible, temporal and spatial work (Barnes et al. 2015, 16-31; Forde et al. 2017, 1-128; International Labour Office, 2017, 1-454; Burtch et al. 2018, 5461-5959; Woodcock and Graham 2019, 1-171; Anwar and Graham 2021, 237-258; Torrent-Sellens et al., 2021, 81-103; Tusinska 2023, 385-398; the European Institute for Gender Equality (EIGE) and The European Foundation for the Improvement of Living and Working Conditions (the European Institute for Gender Equality (EIGE) and The European Foundation for the Improvement of Living and Working Conditions 2023, 1-8), etc.) and allows outsourcing to independent contractors (Koutsimpogiorgos et al. 2020, 525-545), they are also associated with significant challenges for workers, especially in terms of the low compensation (payment) rates (Muldoon and Apostolidis 2023, 1-23), poor protection of workers' rights, insufficient social security and precarious working conditions (Rogers 2015, 1-46; Risak and Warter 2015; Doorn 2017, 898–914; European Commission 2017a, 1-14; Forde et al. 2017, 1-128; Berg et al. 2018, 1-157; Rani and Dhir 2020, 163-171; Rivera and Lee 2021, 1-22; Torrent-Sellens et al., 2021, 81-103; Tubaro and Casilli 2022, 1-22; Muldoon and Apostolidis 2023, 1-23, etc.). The abovementioned challenges show that it is extremely important to research the economic and social situation of platform workers, and to reveal the features of digital platform work with consideration of labour and social security law, so that the results of the research could help to develop the target measures for protecting the interests of digital platform workers.

The transformations and interventions, which are recommended by the European Commission (European Commission. 2021a., 1-44) and which are expected to be initiated by both platform organizers and national governments, do not focus on in the labour area only, although this is the major topic of discussion. The new methods of work organisation, task distribution and coordination are closely related to the specifics of service provision and product consumption, and the relationships between platforms, workers and customers lead to certain social and economic consequences. In the context of sustainable development, the articulation between platforms, workers and clients is necessary since it contributes to the formation of mutually beneficial situational relationship and allows to balance the structural patterns of the interests and power of the stakeholders (Kornberger et al. 2017, 79-95).

Previous studies provided some evidence on the size and structure of the global gig employment (OECD 2019a, 34; "Cedefop" 2020; Mandl 2020, 1-22; Rani and Dhir 2020, 163-171; Stephany et al. 2020, 561–573; Brancati et al. 2020, 1-72; Grand View Research, 2021, 1-120; International Labour Office, 2021c, 1-13; ASEAN 2023; the European Institute for Gender Equality (EIGE) and the European Foundation for the Improvement of Living and Working Conditions (the European Institute for Gender Equality (EIGE) and The European Foundation for the Improvement of Living and Working Conditions 2023, 1-8)), etc.), examined the nature of the relationship between platforms and workers in terms of the legal status of the latter (Wood et al. 2016, 1-39; Benson 2017, 1-3; Stewart and Stanford 2017, 420-437; Graham et al. 2017, 135-162; Pesole et al. 2018, 1-65; International Labour Office, 2018a, 1-526; Choudary 2018, 1-55; Aleksynska et al. 2018, 1-64; Alvarez-Hernandez and Perez-Zapata, 2019, 275-291; Wood et al. 2019, 56-75; Aleksynska 2021, 1-63; Bucher et al. 2021b; Zipperer et al. 2022, 1-13; Goloventchik 2023, 81-88, etc.), analysed the motives for undertaking digital platform work (Ertz et al. 2021, 5662; Torrent-Sellens et al., 2021, 81-103; Wong et al. 2021, 918-935; "Disability Europe" and International Labour Office, 2021c, 1-13; Nguyen and Malik 2022, 1985-2006; Remeikienė et al. 2022, 186-203; Tusinska 2023, 385-398; Muldoon and Apostolidis 2023, 1-23, etc.) as well as the benefits of digital platform work to individuals and business companies (Cramer and Krueger 2016, 177-182; Forde et al. 2017, 1-128; Spasova et al. 2017; Kassi and Lehdonvirta 2018, 241-248; Berg et al. 2018, 1-157; Lenaerts et al. 2021, 1-43; Kuhn et al. 2021, 1-46; Aleksynska et al. 2019, 1-87; International Labour Office, 2023, 1-18; the ILO, ISSA and OECD 2023, 1-142; Hartmann and Shajek 2023, 1-15, etc.) or highlighted the risks of increased precariousness and exploitation

of platform workers (Aloisi 2015, 1-2; De Stefano 2016, 471–504; International Labour Office, 2017, 1-454; Berg et al. 2018, 1-157; ACFTU 2018; Jabagi et al. 2019, 192-213; Johnston and Land-Kazlauskas 2019, 1-54; Rani and Dhir 2020, 163-171; Veen et al. 2020, 388–406; Zhou 2020, 1-62; Berastegui 2021, 128, etc.). Nevertheless, the problem of the employment status of digital platform workers remains one of the major problems in terms of employment policies. Lithuanian researchers have so far paid very little attention to the status of digital platform workers and their social protection, and there is basically no judicial practice in this area. Foreign researchers also disagree on how to assess the status of digital platform workers: some scholars suggest equating them to employees, while others treat them as self-employed workers or as a newly formed category of workers. Nevertheless, most researchers agree that the rights of digital platform workers are often inadequately protected, which is related to (mis)qualification of the relations between a digital platform and a person working on it. Disguise or inadequate qualification of the employment status limits a person's ability to exercise labour and social rights and creates unequal conditions of operation and competition for business companies, thus negatively affecting the systems of labour relations, as well as the coverage and sustainability of national taxation frameworks.

To fill the gaps, observed in previous studies, this research provides the latest court practice in individual European countries and the European Union as far as it is related to the legal status of digital platform workers, and highlights the peculiarities of the legal regulations which are aimed at protecting the rights of digital platform workers. The study encompasses interdisciplinary and international perspectives in examining the conditions of platform work and outlines the complexities and necessary regulatory adjustments needed to protect digital platform workers, ensuring both their welfare and the sustainable development of digital labour platforms.

The major purpose of this study is to conduct a comprehensive analysis of digital labour platforms, focusing on their fundamental concepts, the global market landscape, the economic, social, and legal conditions of platform workers, and the sustainability implications within the EU, culminating in policy recommendations to enhance the legal framework and improve working conditions for digital platform workers.

To fulfil the defined purpose, the following objectives were raised:

1) to provide the most common concepts of digital labour platforms;
2) to review the global digital workplace market;

3) to highlight the economic, social and legal situation of platform workers in terms of the motives to undertake digital platform work, the working conditions and legal regulation of labour relations on digital labour platforms;
4) to analyse the major advantages and disadvantages of digital platform work in the context of sustainable development in the EU;
5) to review the major policy recommendations, which are associated with the enhancement of the legal framework for digital platform work and the improvement of working conditions for digital platform workers.
6) to analyse the experience of different countries regarding the legal and social protection of digital platform workers.

The research was based on ***the methods*** of the systematic and comparative literature analysis, statistical data analysis, and legal acts analysis.

1

CONCEPTUALISATION OF DIGITAL PLATFORM WORK

Digital labour platforms emerged in the mid-2000s as a modern phenomenon of the digital economy, enabling the innovative organisation of work and transformation of traditional work processes (Vallas and Schor 2020, pp. 273-294; Rani and Furrer 2021, 212-236; Collins 2021; Torrent-Sellens et al., 2021, 81-103; Cruz and Gameiro 2023, 1075808; Tusinska 2023, 385-398, etc.). Operating through digital platforms, workers can see various tasks posted by clients to a crowd, and can choose to complete these tasks (Berg et al. 2018, 1-157).

Literature provides various definitions of digital platforms which are defined depending on specific objectives of a study. Therefore, different definitions highlight slightly different features of digital platforms. In some cases, definitions create the presumptions for the research of different scope (for example, digital platforms can be treated as a base for the provision of goods and services through intermediaries, a space for communication, or the focus falls on digital labour platforms). Since the object of this scientific study is digital labour platforms, we focus on the latter concept. The following subsections provide the most common concepts of digital labour platforms, which can be found in previous studies, and briefly review the global digital workplace market.

1.1 The concept of digital labour platforms

It is worth noting that the concept of a digital labour platform should not be equalised with the general concept of internet platforms since some of them are not intended for the provision of labour services, but for communication (e.g. *Facebook*, *Instagram*, *Twitter*, *Zoom*, *Skype*, etc.), while others are used to manage electronic payments (e.g. *PayPal*, *Apple Pay*, *Google Pay*, *Venmo*, etc.) or coordinate certain services (e.g. *Airbnb*, *Tripadvisor* – for traveling, *LinkedIn* – for employment and career, etc.) (Tusinska 2023, 385-398). There are several criteria for classifying digital

platforms. Depending on their importance in creating a "platform society", van Dijck et al. (2018) distinguish between "infrastructural" and "sectoral" platforms. "Infrastructural" platforms form the backbone of the platform ecosystem because they are the digital foundation on which other platforms are built. The so-called big five, i.e. *Alphabet-Google*, *Facebook*, *Amazon*, *Apple* and *Microsoft*, account for most of the capacities in the Western digital infrastructure. By using their infrastructure, "sectoral" platforms operate in one or more specific sectors of the economy (e.g. retail, transport, food delivery, etc.). For example, *Airbnb* relies on *Google Maps* to provide users with accommodation information, *Spotify* uses *Google Cloud*, and *Netflix* uses *Amazon Web Services*. This reveals the highly hierarchical nature of the platform ecosystem, which digital labour platforms rely on.

In addition, the concept of digital labour platforms should be distinguished from the platforms of the sharing economy (Koutsimpogiorgos et al. 2020, 525–545) since the latter are intended for the exchange and sharing of goods, services, resources, time or knowledge whether with or without monetary settlements and cut out the role of the third party (a platform organizer) noted by Collins.

The concepts of digital labour platforms, most common in previous studies, are reviewed in Table 1.

Table 1. The most common concepts of digital labour platforms

Concept	Explanation	Author(s), year
Digital labour platform as **a mediated interaction, an interface**	An intermediate link between product suppliers/service providers and customers/clients; characterised by a short-term relationship, aimed at a one-time transaction	Evans and Gawer 2016; Farrell and Graig 2016, 1-44; Heeks 2017, 1-82; Berg et al. 2018, 1-157; Constantinides et al. 2018, 381–400; Howcroft and Bergvall-Kareborn 2018, 21–38; Jacobides et al. 2018, 2255-2276; Alvarez-Hernandez et al. 2019, 275-291; OECD 2019b, 1-339; Del Bono 2019, 1-14; Aleksynska et al. 2019, 1-87; Dunn 2020, 232-249; Rivera and Lee 2021, 1-22; European Commission. 2021a., 1-44; Remeikienė et al. 2022, 186-203; Tusinska 2023, 385-398; Cruz and Gameiro 2023, 1075808, etc.
Digital labour platform as **an economic unit**	Digital labour platforms create the basis for resource allocation and exchange, help distribute tasks between economic agents within an economic process, generate a higher market value of a product or service and redistribute this value in new ecosystems, create value added through networking	Durward et al. 2016, 281–286; Kenney and Zysman 2016, 61-69; Fernandez-Macias, 2018, 1-34; Gossling and Hall 2019, 74-96; Idowu and Elbanna 2020, 441-457; Saberian et al. 2020, 315–335; International Labour Office 2021; Remeikienė et al. 2022, 186-203

Digital labour platform as **a digital tool**	It is an integrated system which combines decentralised information networks, big data analytics, intelligent tools and algorithms, machine learning models and automated feedback tracks to conduct labour service transactions	Whiting et al. 2017, 1902–1913; Berg et al. 2018, 1-157; Pesole et al. 2018, 1-65; Vallas and Schor 2020, pp. 273-294; Sasikumar and Sersia 2020, 336-347; Bucher et al., 2021, 44-67; OECD, ILO and the European Union, 2023, 1-142
Digital labour platform as **a technical infrastructure**	Technical infrastructure comprises the computing and network resources (the Internet, data centres, open standards, and consumer devices), which collect and store digital data, make these data available to various systems and devices, and thus allow a large number of stakeholders to coordinate the content and services	Hanseth and Lyytinen 2010; Bygstad 2017, 180–193; Constantinides et al. 2018, 381–400; Berg et al. 2018, 1-157; Choudary 2018, 1-55; European Commission 2021b, 1-229
Digital labour platforms as **employment arrangements**	Platforms allow work and labour sourcing, in which different skills, knowledge and expertise are accumulated and used to accomplish particular tasks for payment (wages)	Cherry 2016, 544–577; Obar and Oeldorf-Hirsch 2018, 1-20; Kassi and Lehdonvirta 2018, 241-248; Drugau-Constantin 2018, 136-142; Broughton et al. 2018; Berg et al. 2018, 1-157; Idowu and Elbanna 2020, 441-457; Zhou 2020, 1-62; European Commission. 2021a., 1-44
Digital labour platforms as **a**	Digital platforms conduct productive activities, they are characterized by a	Gorlich 2010; Irani 2015; Flecker and Schonauer 2016; Parker et al. 2016, 352; Van Alstyne et al.

business model	certain environment of time, space, activity organization and structure, they have an infrastructure through which economic agents interact, tasks to be performed are distributed and prioritised to create value added	2016; Graham et al. 2017, 135-162; Berg et al. 2018, 1-157; Choudary 2018, 1-55; Wood et al. 2019, 56-75; Rani and Dhir 2020, 163-171; Carelli et al. 2021, 1-26; OECD, ILO and the European Union, 2023, 1-142

Source: compiled by the authors.

Many authors refer to a digital labour platform as a mediated interaction or an interface. In these definitions, a digital platform is interpreted as an intermediate link between product suppliers/service providers and customers/clients (Heeks 2017, 1-82; Howcroft and Bergvall-Kareborn 2018, 21–38; **International Labour Office, 2018b, 1-10**, OECD 2019b, 1-339; Rivera and Lee 2021, 1-22; Tusinska 2023, 385-398). Digital labour platforms act as intermediaries between workers and clients (Dunn 2020, 232-249), and connect service users with service providers (Del Bono 2019, 1-14). Berg (Berg 2016, 543–576) defines digital platforms as the transfer of work through digital apps which distribute work in a specific geographic area. According to De Groen and Maselli (De Groen and Maselli 2016, 1-35), digital labour platforms involve a number of organisations and persons and provide them access and connection to other organisations and persons, thus helping to solve particular problems, accomplish particular tasks or provide services for a payment.

In other words, it is a technologically mediated interaction within a particular group of persons (Evans and Gawer 2016; Constantinides et al. 2018, 381–400; Jacobides et al. 2018, 2255-2276), where either a customer or a platform organiser can be treated as an employer, and a product supplier or service provider – as a worker. The European Commission (European Commission. 2021a., 1-44) defines digital labour platforms as internet-based companies which intermediate and organise the work provided by workers to third-parties (customers). Aleksynska et al. (Aleksynska et al. 2019, 1-87) add that digital labour platforms in this way serve as intermediaries to match labour demand and supply. The interaction between/among entities within a digital platform is characterised by various lines, starting with the establishment of an initial connection, placing an order, and ending with the conclusion and execution of a transaction, payment, communication, feedback, and serving target user groups (Remeikienė et al. 2022, 186-203). The term ‘the gig economy’, under which digital labour platforms are classed, refers to ‘gig’ as a short-term relationship, aimed at a one-time transaction (Farrell and Graig 2016, 1-44), and there are no guarantees of continuous engagement. By using a digital platform as an intermediary, the orders posted by customers can be fulfilled by traditional service providers (e.g. business consultants, psychologists, analysts, marketing specialists, etc.), micro-taskers (persons undertaking small tasks that cannot yet be automated, but are related to the processes of machine learning), and offline workers (persons who accept orders via digital platforms, but the provision of the service itself requires physical participation of the service provider (e.g. food delivery, transport services, home improvement,

nursing, etc.) (Tusinska 2023, 385-398). By their geographical dispersion, digital labour platforms are categorised as location-based (e.g. *Deliveroo*, *Uber*, *Bolt*), and web-based (e.g. *Freelancer*, *Upwork*) (Alvarez-Hernandez et al. 2019, 275-291; Tusinska 2023, 385-398; Cruz and Gameiro 2023, 1075808). Work through the first type of platforms requires physical presence of a service provider (a platform worker) (see the examples mentioned above), while work through the second type of platforms is performed remotely.

Digital labour platforms can also be treated as ***economic units***. Gossling and Hall (Gossling and Hall 2019, 74-96) suggest that being an economic unit, digital work platforms create a basis for resource allocation and exchange, and Fernandez-Macias (Fernandez-Macias 2018, 1-34) adds that they help distribute tasks between economic agents (intermediaries, workers) within an economic process. Digital labour platforms as an economic unit use the resource of a decentralised workforce, which is employed in response to an open call to provide goods and services or to solve tasks (Durward et al. 2016, 281–286; Idowu and Elbanna 2020, 441-457). Decentralised workforce is an input which helps to fulfil a productive goal - to reduce the time of presenting a product to a user or providing a service to a client, standardising work, etc. An owner and a manager of a digital platform is a certain economic agent (a natural or legal person) that does not provide final products/services, but provides digital services or applications through which a direct or an indirect interaction between a seller and a buyer or between a service orderer and a provider is conducted or facilitated. In this way, digital labour platforms generate a higher market value of a product or service (Saberian et al. 2020, 315–335), and redistribute this value in new ecosystems (Kenney and Zysman 2016, 61-69). The higher redistributed value contributes to creating a positive customer experience (Remeikienė et al. 2022, 186-203). Digital platforms and processes within them are managed and monitored by a platform owner. This feature distinguishes digital platforms from other digital solutions or programs which are simply sold as a product for a user's disposal (e.g. operating systems, software, antivirus programs, etc.), and a seller no longer monitors or controls the use of the product. In the case of digital platforms, the rules of participation are determined by terms of a service agreement (ILO 2021a). The purpose of digital platforms as economic units is to create value added through networking. This value added can come in the form of the profit, earned by an economic agent – a platform owner, or manifest itself as a social value added (e.g. creation of collective goods, crowdsourcing projects, etc.).

Digital platforms are often treated as ***a digital tool*** which allows providing services or selling goods. In this case, they are not interpreted only as an intermediary that brings together sellers/service providers with consumers/customers. They are understood as an integrated system of tools and services, through which not only orders are submitted/received, but also transactions are accomplished, and payments are made (Berg et al. 2018, 1-157; OECD, ILO and the European Union, 2023, 1-142). Digital platforms can be designed as a website or an app which facilitates crowdsourcing (Berg et al. 2018, 1-157). According to Pesole et al. (Pesole et al. 2018, 1-65), digital labour platforms are digital networks which algorithmically coordinate labour service transactions. Digital labour platforms combine decentralised information networks, big data analytics and smart digital devices, thus providing an extensive digital network, through which labour service transactions are conducted. Intelligent tools and algorithms, machine learning models and automated feedback track the number of the tasks conducted, register the duration of conducting a task, monitor punctuality of workers, ensure feedback from employers, provide rates and reputation assessments (Whiting et al. 2017, 1902–1913). When highlighting the digital nature of platforms, it is worth noting that work on these platforms is conducted digitally, and the platforms are not characterised by the organisational structure inherent to traditional business enterprises (Vallas and Schor 2020, pp. 273-294): the traditional structure has been replaced by digital algorithms which coordinate, regulate and monitor the processes on the platform. The behaviour and performance of workers on the platform are also monitored and evaluated by the algorithms which make automatic decisions without any human intervention (Sasikumar and Sersia 2020, 336-347; Bucher et al., 2021, 44-67).

Also, digital labour platforms are often related to ***the technical infrastructure***. According to Constantinides et al. (Constantinides et al. 2018, 381–400), it is the technical (digital) infrastructure that is the foundation on which digital platforms are built. This is confirmed by the definition of a 'digital labour platform', provided by the European Commission (European Commission 2021b, 1-229), which stipulates that commercial services on these platforms are provided, at least partially, 'at a distance through electronic means, such as a website or a mobile application' (p. 33). The technical infrastructure of digital platforms covers the computing and network resources, which allow a large number of stakeholders to coordinate the content and services (Constantinides et al. 2018, 381–400), and a large number of potential employees, who are spanned/dispersed geographically - to receive the information about the

tasks posted, gain benefits (usually economic - in the form of salary) from the performance of these tasks, and evaluate their performance (Berg et al. 2018, 1-157). The major elements in the infrastructure of digital platforms are the Internet, data centres, open standards (e.g. USB, IEEE 802.11) (collectively referred to as heavyweight infrastructures), and consumer devices (computers, smartphones, tablets) (referred to as lightweight infrastructures) (Hanseth and Lyytinen 2010; Bygstad 2017, 180–193). The general technical infrastructure of digital platforms allows to collect and store digital data, and makes this data available to various systems and devices (Constantinides et al. 2018, 381–400). In the case of digital labour platforms, the technical infrastructure creates conditions for the management of work exchange and compensation for work (Choudary 2018, 1-55), allows workers to identify what tasks have been posted in their location (i.e. the tasks submitted by local requesters are filtered out of the centrally registered tasks advertised by requesters), provides an algorithm for performing work/providing a service to a user, and delivers a financial infrastructure and tools through which workers receive payment for the work/the tasks performed (Berg et al. 2018, 1-157).

Some studies research digital labour platforms as a distinct form of ***employment arrangements***. European Commission's (European Commission. 2021a., 1-44) Proposal for a Directive of the European Parliament and of the Council on Improving Working Conditions in Platform Work, the major purpose of which is to improve the working conditions for digital platform workers by ensuring clear determination of their employment status, and promoting transparency, fairness and accountability of this type of work, interprets platform work as a work performed "by an individual on the basis of a contractual relationship between the digital labour platform and the individual, irrespective of whether a contractual relationship exists between the individual and the recipient of the service". This definition indicates that the contractual nature of the relationship between a platform organiser and a worker, in fact representing employment arrangement, is one of the central elements of digital platform work. According to Idowu and Elbanna (Idowu and Elbanna 2020, 441-457), being employment arrangements, digital labour platforms allow work and labour sourcing, in which different skills, knowledge and expertise are accumulated to accomplish particular tasks. The performance of tasks is paid, which is one of the main elements of the employment relationship (Drugau-Constantin 2018, 136-142; Berg et al. 2018, 1-157). Kassi and Lehdonvirta (Kassi and Lehdonvirta 2018, 241-248) note that though being flexible and short-term, digital platform labour (or crowdwork) is a mode of employment. In spite of the fact that many

workers prefer this mode to earn additional income, it should be noted that digital platform labour is increasingly viewed as a full-time employment (Broughton et al. 2018). Nevertheless, platform task performers or order executors are not commonly treated as employees. Most platforms categorise workers as self-employed persons or independent contractors (Cherry 2016, 544–577). According to Zhou (Zhou 2020, 1-62), work through digital platforms is not based on the traditional concept 'firm plus employee', but adopts the model 'platform plus individual' (sharing model via crowdsourcing, referred to as C2C). In some cases (e.g. the platform '*Prolific*' for academic research and training), the agents performing the tasks are not considered employees, but project participants. Participation in digital platform labour is considered voluntary, so participants receive reward rather than payment for work. The argument is that platform participants do not perform a sufficiently large amount of work to be considered employees. Platforms usually provide potential task executors with the 'terms of service' documents which create a contract effect (Berg et al. 2018, 1-157). Although these documents are rarely carefully read by task executors on digital platforms (Obar and Oeldorf-Hirsch 2018, 1-20), they are significant because they shape and regulate workers' interactions with platform organizers and with each other. The terms of service define the obligations, responsibilities and rights of employees, platform organisers and customers, they provide how the work will be evaluated and how it will be paid for.

Another approach to digital labour platforms is considering them an innovative business model. According to Carelli et al. (Carelli et al. 2021, 1-26), digital labour platforms have already become particular entrepreneurial organisations, following an entrepreneurial business model. Platform businesses are associated with two- or multi-sided markets (Rani and Dhir 2020, 163-171). The most common two-sided markets are transportation service platforms (shippers, forwarders, carriers), while delivery platforms (e.g. a restaurant – a delivery man – a customer) may serve as an example of a multi-sided market. Digital platforms conduct productive activities, they are characterised by a certain environment of time, space, activity organisation and structure, they have an infrastructure through which economic agents interact, tasks are distributed and prioritised (OECD, ILO and the European Union, 2023, 1-142). Participants, interacting on the platform ecosystem, use the platform as a basis for creating value added (Choudary 2018, 1-55). Digital platforms as a business model are characterised by the division of labour and the combination of complementary tasks (Gorlich 2010). The ecosystem of a platform can cover not only direct participants (workers, customers), but also agents from other

sectors that do not directly participate in the platform (e.g. manufacturers of plastic packaging when their packaging is used for home delivery, restaurants that serve customers on their premises, but their food is also delivered by agents working through digital platforms, manufacturing companies whose products are delivered to customers' homes after being ordered through platforms). The essence of this business model is that fees are charged to the customers who post tasks/orders on a platform. Additional fees are charged for the opportunity for a customer to choose the characteristics of a service provider (e.g. age, gender, qualification, etc.). In addition, a fee is charged for every task/order accomplished by a worker. This fee is usually calculated as a percentage of the amount of money paid by a customer. Some platforms (e.g. 'Clickworker', 'CrowdFlower') impose a fee on platform participants for the opportunity to manage the tasks posted on their platforms (Berg et al. 2018, 1-157). Wood et al. (Wood et al. 2019, 56-75) argue that it is the economic motive of profit generation that determines the major focus on satisfying the needs and convenience of a client/customer, rather than on the interests of workers. According to Irani (2015), work on digital platforms is transformed into a commodity, and workers are transformed into a computation service. Although the interaction between a worker and a customer can be one-time (i.e. it tends to last until the order is accomplished), platforms as business models also create the basis for lasting commercial relationships (Parker et al. 2016, 352; Van Alstyne et al. 2016). In the international labour market, not only capital, but also labour begins to compete (Graham et al. 2017, 135-162). In terms of workforce utilisation, digital platforms as a business model provide an appealing option to attract the workforce with the required qualification with small obligations and easy termination of the employment relationship (if any) (Flecker and Schonauer 2016). Nevertheless, digital labour platforms as a business model have a significant impact on workers in terms of whether workers are exploited or empowered on a platform (Choudary 2018, 1-55).

With consideration of the characteristics of digital platforms, highlighted in different definitions, it can be stated that digital labour platforms are most commonly referred to as a mediated interaction/interface, which acts as an intermediary between workers and customers; an economic unit, which creates the conditions for resource allocation and exchange; a digital tool, which combines decentralised information networks, big data analytics and smart digital devices, thus providing an extensive digital network, through which labour service transactions are conducted; a technical infrastructure, which covers the computing and network resources, thus allowing stakeholders to coordinate the content and services, and many potential workers, who are spanned/scattered geographically – to receive the

information about the tasks posted; a distinct form of employment arrangement, allowing work and labour sourcing, in which different skills, knowledge and expertise are accumulated to accomplish particular tasks; and a business model, through which productive activities are carried out and added value is generated. Since hardly any definition qualifies digital labour platforms as traditional employers, digital work is often treated as a certain single service or task rather than labour in its traditional sense. Digital labour platforms are undeniably a product of technological progress, allowing faster and simpler integration into the labour market, but at the same time raising many questions of whether workers on these platforms are more empowered or exploited (Choudary 2018, 1-55; International Labour Office, 2021c, 1-13).

1.2 Review of the global digital workplace market

The size of the global digital workplace market was valued at USD 27.33 billion in 2021; the market is expected to expand at a compound annual growth rate (CAGR) of 22.3 percent from 2022 to 2030 (Grand View Research, 2021, 1-120). The rapid growth of this market is associated with the intensive digitalisation, the increasing demand for desktop-as-a-service, and workers' preference for greater work flexibility to achieve their work-life balance.

Solutions and services are considered to be the major components of the global digital workplace market. The share of the solution component was estimated to amount to 67.6 percent in 2021, i.e. the market share of solutions (mainly the development of social and collaborative tools, cloud storage tools, and content management systems) was greater than that of services in 2021. The segment of services is expected to grow at a compound annual growth rate (CAGR) of 23.5 percent from 2022 to 2023 (Grand View Research, 2021, 1-120). The number of companies operating on digital platforms is estimated around 28 million in the EU. This number is expected to increase to 48 million in 2025, briefing by the European Parliament in 2024.

The United States tend to have the greatest demand for digital platform labour (47 percent of the total global demand for work through digital platforms). During the COVID-19 pandemic, the demand increased significantly in the UK, Australia, Canada, India and Germany, while most of the supply is generated by developing countries, such as India, Bangladesh, Pakistan, Philippines and Ukraine (Rani and Dhir 2020, 163-171).

The online labour index (OLI), which measures the utilisation of digital labour platforms over time and across countries and occupations, indicates that the demand for digital platform work dropped significantly from mid-March to mid-April 2020, i.e. after the start of the global COVID-19 pandemic. This decline was quite sharp compared to the situation in 2018 and 2019. Stephany et al. (Stephany et al. 2020, 561–573) believe that the economic shock and uncertainty, caused by the COVID-19 pandemic, were the reasons why business companies reduced their non-essential spending and investment, including outsourcing costs and investment. The analysis of the situation by country revealed that the demand for digital platform work during the pandemic tended to decline in the USA, but it was increasing in the UK, Australia, Canada, India and Germany (Rani and Dhir 2020, 163-171).

Digital labour platforms are penetrating more and more sectors of the economy. According to International Labour Office in 2021, work through digital platforms is carried out in such key areas as service provision to individual users, work mediation, and exchange facilitation and mediation (see Figure 1).

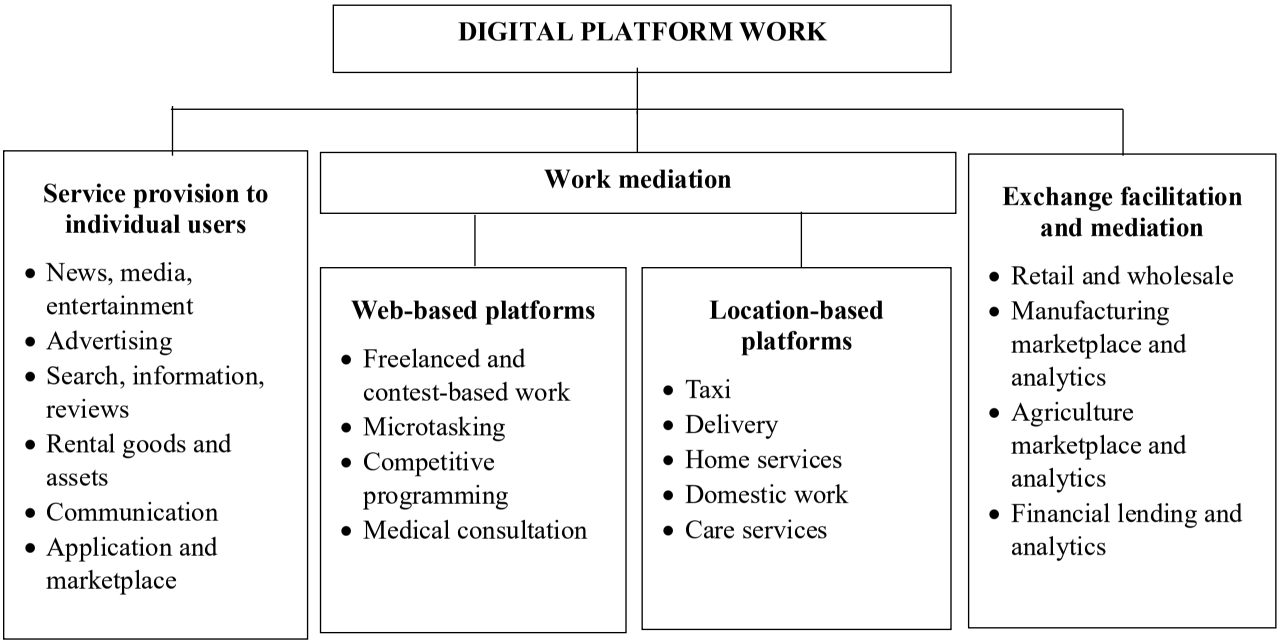

Fig. 1. Areas and sectors of digital platform work

Compiled by the authors with reference to the International Labour Office in 2021.

Figure 1 shows that the area of service provision to individual users covers the sectors of news, media and entertainment, advertising, search, information and reviews, rental goods and assets, communication, and application and marketplace. Work mediation can be carried out through web-based platforms, which are mainly intended for freelanced and contest-based work, microtasking, competitive programming and medical consultation, or location-based platforms, which are widely used for providing taxi, delivery, home, domestic work and care services. The area of exchange facilitation and mediation covers the sectors of retail and wholesale, manufacturing marketplace and analytics, agriculture marketplace and analytics, and financial lending and analytics.

The services provided through digital platforms include:

1) writing and translation (e.g. article writing, copywriting, proofreading, translation, etc.);
2) transportation and delivery services (e.g. driving, food delivery, place moving services, etc.);
3) creative work (e.g. digital animation, graphic design, photo editing, etc.);
4) professional services (e.g. accounting, legal consultations, project management, etc.);
5) software development and technology work (e.g. data science, game development, etc.);
6) microtasking (e.g. object classification, tagging, content review, website reviews, etc.);
7) sales and marketing support (e.g. lead generation, advertisement, social media management, search engine optimisation, etc.);
8) interactive services (e.g. language teaching, interactive online lessons, interactive consultations, etc.);
9) services which are provided at a specific location (e.g. housekeeping, beauty services, on-site photography services, etc.) (Urzi Brancati et al. 2019, 1-26).

Although the variety of the activity sectors is increasing, the share of digital platform workers is still considered to be relatively small. For instance, according to the estimations provided by Kassi et al. (Kassi et al. 2021, 53), 5 largest English-speaking web-based platforms had approximately 14 million active workers in 2021. The majority of the global digital platform workers are concentrated in Asia (notably India (33 percent of all English-speaking digital platform workers in 2021)) (ASEAN, 2023). The estimations of the number of digital platform

workers in European economies provide different results, which is explained by the differences in the definitions and methodologies applied for previous estimations (OECD 2019a, 34; the European Parliament, 2020). Nevertheless, even slightly differing results are in line with the global estimations which propose that digital platform work still accounts for a relatively modest share of the overall economic activity in the EU, although significant growth trends have been observed in recent years (Mandl 2020, 1-22). The results provided by Pesole et al. (Pesole et al. 2018, 1-65) and Brancati et al. (Brancati et al. 2020, 1-72) propose that the number of the individuals who have ever provided platform labour services in the EU increased from 9.5 percent in 2017 to around 11 percent in 2018. 1.4 percent of the working population indicate digital platform work as the major form of their employment (i.e. they work though digital labour platforms at least 20 hours per week), while another 10 percent work on digital labour platforms at different intensity and frequency (Brancati et al. 2020, 1-72; Mandl 2020, 1-22). The research conducted by the European Institute for Gender Equality (EIGE) and the European Foundation for the Improvement of Living and Working Conditions (the European Institute for Gender Equality (EIGE) and The European Foundation for the Improvement of Living and Working Conditions 2023, 1-8) proposes that 1.4 percent of the total employment in Europe is equivalent to nearly 4.7 million workers. Yet the study by the European Commission (European Commission 2021b, 1-229) defines digital platform work in much broader terms and estimates that the number of digital platform workers can amount to nearly 28 million people.

When analysing the age of digital platform workers, it should be noted that much younger persons than in other types of employment exploit the potential of digital platforms to earn their income, i.e. digital platform workers tend to be nearly 10 years younger than persons in other types of employment (34 vs. 44 years of age) (Pesole et al. 2018, 1-65). Young persons tend to enjoy flexibility provided by platform work, they can freely form their work schedule, combine several activities or work on several platforms. Therefore, digital platform work is often selected by students, young people without previous work experience.

In terms of the distribution of digital platform workers by gender, the statistical data show that when the intensity of digital platform work is increasing, the number of female workers is gradually decreasing (digital platform work involves nearly 47.5 percent of women). Nevertheless, this statistic highly depends on the country of operation. For instance, the percentage of female digital platform workers in Turkey is nearly 70 percent, in Italy and the United Kingdom – nearly 52 percent, in Portugal

– nearly 46 percent, in Germany – about 39 percent, in Croatia – about 29 percent, and in Finland – about 18 percent (Pesole et al. 2018, 1-65).

It is worth noting that more than a third of digital platform workers, to whom this type of work is significant, tend to have significant financial obligations (including the obligations to children) (Pesole et al. 2018, 1-65). A typical digital platform worker is a young male with a family and children, who lives in an urban environment and is educated to a degree level (Pesole et al. 2018, 1-65; Brancati et al. 2020, 1-72). These data, representing the profile of a typical digital platform worker, were confirmed by the survey of the International Labour Office (International Labour Office, 2021c, 1-13) which revealed that young male (younger than 35), who live in urban or suburban areas and are generally highly educated, tend to involve in digital platform work even when platform work requires low-skills for simple tasks, such as food delivery or driving. Interestingly, a typical platform worker tends to have less labour market experience than an average worker in the traditional labour market. The distribution of digital platform workers by age, sex and level of education in the aggregate of 17 EU Member States in depicted in Figure 2.

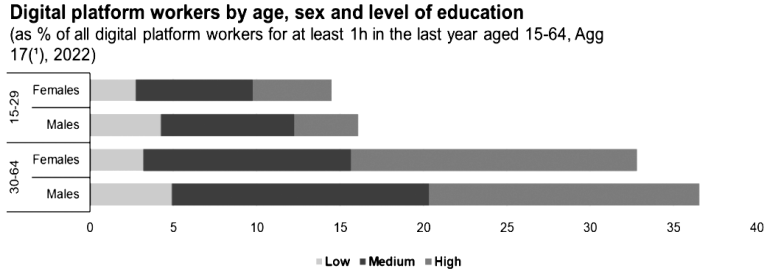

Fig. 2. Distribution of digital platform workers by age, sex and level of education in the aggregate of 17 EU Member States

Source: the 'Eurostat' (2022), pilot survey.

Figure 2 shows that digital platform workers are more likely to be men than women (3.2 percent of all men aged 15-64 compared with 2.8 percent of all women), they are usually under the age of 30, and are more likely to have tertiary level of education.

Although women's participation in digital platform work is statistically lower than men's, the socio-demographic characteristics which tend to increase women's propensity to get engaged in digital platform work and even exceed men's propensity are having children and living with a partner (8 percent of women with children as well as 8 percent of women

living with a partner are more likely than men to start digital platform work). Regularly employed women are 6 percent more likely than men to start digital platform work to improve their work-life balance, while unemployed women are 12 percent more likely than men to start digital platform work to earn extra income. Nevertheless, participation of women in marginal platform work is likely to pose the risk to their career, upskilling and the transfer to regular employment (the European Institute for Gender Equality (EIGE) and the European Foundation for the Improvement of Living and Working Conditions (the European Institute for Gender Equality (EIGE) and The European Foundation for the Improvement of Living and Working Conditions 2023, 1-8).

With consideration of the working time on digital platforms and the income earned, digital platform workers can be attributed to one of the following three categories (Pesole et al. 2018, 1-65):

1) persons to whom digital platform work is their main work or who treat it as very significant, i.e. they do digital platform work more than 20 hours per week or digital platform work generates more than 50 percent of their income;
2) persons to whom digital platform work is significant, but not the main one, i.e. they do platform work more than 10 hours per week or digital platform work generates more than 25 percent of their income;
3) persons to whom digital platform work is insignificant, i.e. they do digital platform work less than 10 hours per week or digital platform work generates less than 25 percent of their income.
4) To understand how significant digital platform work is to workers, it is relevant to analyse the number of workers in each category. According to Pesole et al. (2018, 1-65), 14 EU Member States had 58.2 percent workers who did platform work more than 10 hours per week in 2017 (Lithuania had 61.3 percent). This data shows that slightly more than a third of digital platform workers were involved in this type of work less than 10 hours per week. More than 50 percent of workers did platform work less than 30 hours per week, and only 11 percent of workers did platform work 40 hours per week. This data leads to the conclusion that the majority of platform workers had a work schedule typical of part-time work or did very few hours of platform work. Slightly more than 2 percent of workers, to whom digital platform work is their main work, did this type of work more than 60 hours per week (Pesole et al. 2018, 1-65).

When analysing the earnings generated by digital platform work, it should be noted that 61.8 percent of digital platform workers (60.9 percent in Lithuania) earned more than 25 percent of their income from digital platform work; 24 percent of digital platform workers (17.7 percent in Lithuania) earned more than 50 percent of their income from digital platform work. Nearly 40 percent of digital platform workers earned less than 25 percent of their income from digital platform work. 61 percent of digital platform workers received their earnings for the tasks actually completed, while the remainder were paid a fixed daily payment for their permanent employment (Pesole et al. 2018, 1-65).

According to the estimations by the International Labour Office (International Labour Office, 2021c, 1-13), the average hourly earnings digital platform workers receive in a typical week amount to USD 3.4, but half of the workers earn less than USD 2.1 per hour. Workers on freelance platforms tend to earn USD 7.6, while workers on microtask platforms tend to earn USD 3.3 per hour. The 'Eurostat' (Eurostat 2022) reports that more than half of digital platform workers earn less than a quarter of their total personal income on digital labour platforms.

As for the skill level required for work through digital platforms, it should be noted that theoretically the skill level of a person should serve as a basis for the nature, scale and complexity of the tasks a person can be hired for (i.e. it should determine task allocation on digital labour platforms). Nevertheless, the concept "crowdwork" refers to the idea that a system (a platform) is open to anyone regardless of one's qualifications. It is assumed that workers assigned to tasks are interchangeable (Schmidt 2017). Thus, the requirements of the skills to execute a certain task are not related to and do not reflect the general skills or education of digital platform workers. In other words, digital platform work is characterised by skill mismatch ('Cedefop' 2020).

All in all, the statistical data refute the popular public opinion that digital platform work is mainly selected by young people without any obligations to their families. On the contrary, some previous studies confirm that digital platform work is significant not only to a substantial number of workers, but also to their households. Thus, recognition of the status of digital platform workers in the labour market is the major issue of the contemporary labour policies. Digital platform work provides new opportunities, but it can also mean insecure agreements, the absence of a reliable dispute resolution system, privacy violations, the limited opportunities for education and training, and poor social protection.

Since previous studies contain not much statistical data illustrating the trends of the digital labour market, and some of the data from different