Digital Labor: A Primer

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ABSTRACT

Digital labor refers to value-adding activities performed by humans on Internet platforms. It is a global phenomenon that has come to be associated with the broader relationships between labor and digital technology. It is a multifaceted field that is characterized by exploitation, alienation, power, inequality, ideology, and struggle. These problems of digital labor are due to its inclusion and application in capitalist relations of production. It is already transforming the workplace as advanced software that can mimic many human functions and automate several tasks workers currently do. This paper introduces digital labor and digital labor platforms as well as their applications and challenges.

KEYWORDS: technologies, digital labor, digital work, , digital labor platforms, digital transformation, immaterial labor, robotic process automation, intelligent process automation

INTRODUCTION

Technology is everywhere. The adoption of new technologies will transform every part of life. Technology surrounds every aspect of 21st century life. It is in the cell phones we use, the cars we drive, and even the food we eat [1]. The digital transformation of industries worldwide is already well under way. The term "digital" in digital technologies refers to intensive and extensive use of information and communication technologies (ICTs). "Digitalization" and "digital transformation" are the two most useful terms when describing the impact of digital technology on society.

The digitization of labor is being facilitated by technologies such as cloud computing, social media, big data, artificial intelligence, machine learning, robotics, automation, blockchains, 3D printing, augmented reality and virtual reality. No one doubts these technologies will have an immense impact on workforces everywhere. However, the extent to which these technologies will impact the workforce remains open to debate.

Each nation needs to step up its game if it is going to reap the benefits of new technologies and digitization.

Over the years, the Internet has become a simple-to-join, anyone-can-play system. It is now the playground and factory of digital labor. A new tradition has emerged with regard to the high-paid tech workers who are in charge of managing Internet-related digital technologies. The commercial Internet has introduced new forms of work and corporate cultures as part of digital capitalism.

WHAT IS DIGITAL LABOR?

Labor is the most place-bound of all factors of production. The rise of digital labor has been attributed to two factors: unemployment and digital connectivity. The main factors for participation in digital labor markets [2]: (1) Digital skills, (2) Higher Educational level, (3) Unpaid house workers, (4) unemployed and independent with employees, (5) Owners of devices (computers or laptops).

The digital labor is a new form of work emerging within digital capitalism. The digital labor encompasses all work entangled with the digital economy. The concept of digital labor has been primarily used to analyze highly precarious new forms of work. Terms like gig workers, crowd

workers or prosumers are deployed to describe this new form of labor. Our understanding of digital labor should cover all work activities entangled with the digital economy as a whole. It should include professional digital laborers at Internet-based companies. It should also include tech workers, hardware assembly workers, digital waste workers, rare earth miners, employees in hardware production, IT service desk workers, software engineers, digital designers, crowd workers, gig workers, and the prosumer [3].

The term "digital labour" was first popularized by Tiziana Terranova in her influential article "Free Labour: Producing Culture for the Digital Economy." The concept really took off only after 2009, when conferences on the topic were held at the New School in New York. It has identified an influential theoretical proposition that builds on the Marxist tradition. Digital labor constitutes a global ecology of exploitation enabling the existence of the social media industry, which is a core part of digital capitalism. It includes all forms of paid and unpaid labor that are needed for existence, production, diffusion, and use of digital media [3]. Figure 1 shows some digital labor rights [4].

Digital labor may be regarded as work that is performed by robotic process automation (RPA) systems. It should encompass all human-performed work tasks, whether material or immaterial. Immaterial labor is regarded as that which produces immaterial commodities such as information, knowledge, ideas, images, relationships and affections. Digital labor is the flip side of a particular economic field—the digital economic field. Digital labor includes tech workers, who configure, design and manage the digital technologies. Figure 2 shows some tasks that should be automated with RPA [5].

DIGITAL LABOR PLATFORMS

Digital labor platforms (DLP) is a new form of coordinating the provision of labor services. It one of the most visible results of the latest technological revolution in the world of work. The Internet platforms have been use for the creation of content and the use of blogs, social networking sites, wikis, microblogs, content sharing sites, and similar activities at the heart of profit generation. Since Internet-mediated allocation of tasks crosses national boundaries, the global labor dynamics have turned traditional geographies upside down. The Internet-based platforms connect workers worldwide with companies seeking to have tasks completed. This leads to the availability of online work over different platforms.

Online labor platforms matching labor supply and demand are modifying the world of work. The platforms have attracted a lot of attention due to their potential to disrupt labor markets. The are typically illustrated in Figure 3 [6]. Digital labor platforms promise autonomy to workers and young workers choose the platform because they feel that it allows them to control where and when they work. The dynamics of marginalization of work on digital platforms should be addressed at both domestic and international levels. Although digital labor platforms are leading to profound changes in business models, the organization of labor and labor relationships, the number of people finding work through digital labor platforms is still relatively small.

The transformation of digital labor into digital work is important. Digital work is increasingly being portrayed as a means of allowing workers to tap into an international market. Digital work is now a global phenomenon and is characterized by distinct geographies. The matching of worker to client is digital, while work can be undertaken virtually or physically. The labor of crowd workers is necessary for the digital economy to function. The new generation of tech workers also differs from other professional digital laborers.

APPLICATIONS OF DIGITAL LABOR

Governments of developing nations are increasingly regarding digital labor as a mechanism for helping some of the world's poorest escape the limited opportunities for economic growth in their local contexts. The following are typical areas digital labor is being applied.

➤ **Digital Labor in Government:** Government agencies run on data. This requires endless staff hours spent inputting, processing, and sharing information across departments. Automation technologies are already being installed in government workplaces to take over routine tasks. In developed economies where labor costs are high, employing artificial intelligence (AI) can drastically reduce much of the time-intensive, administrative tasks. AI promises to free up government employees and allow them to focus on creative projects and service to the citizens. This new digital labor could free up huge numbers of labor hours and help government agencies to keep pace with the workload while not sacrificing quality [7]. For example, digital labor in China is shown in Figure 4 [8].

➤ **Digital Labor in Financial Services Industry:** Remote working has proven successful across the industry. Today, remote working is part of the new operating work environment and the use of

digital labor is more crucial than ever. Financial services industry is increasingly turning to digital labor to keep up with surging workloads. The coronavirus pandemic has somewhat changed the way financial firms are thinking about work and physical office spaces. The digital labor is playing a vital role while the coronavirus pandemic is accelerating digital transformation. The industry gradually migrating their automation delivery strategies to accommodate faster time to market for solutions. In stressed, one must have preventative mechanisms to control digital labor [9].

➢ **Digital Labor in Accounting:** Robotic Process Automation (RPA) is an emerging technology that enables the automation of tasks through the use of software bots for accounting tasks. Accounting firms benefit from automating processes that are structured, repeated, rules-based, and with digital inputs. They experience cost savings, improved process documentation, lower error rates, and better report quality [10].

➢ **Digital Labor in Oil and Gas:** Digital labor can automate most of the laborious processes we encounter in oil and gas industry. It is an easy and cost-effective way to automate monotonous tasks and enhance performance. With a minimal investment in time and money, an oil and gas company can deploy software that will automatically gather and format data from disparate sources. This could free revenue accounting professionals from the repetitive, monotonous, mind-numbing task and provide company leadership with more timely, informed analyses that will help the make better decisions [11].

BENEFITS
The most important promise that digital labor platforms make to their workforce is flexibility. They offer flexibility regarding where, when, and how to work. Deploying digital labor could result in reduced costs and better performance in almost any company. Digital labor platforms have been promoted as a solution to the unemployment crisis caused by the COVID-19 pandemic. Governments and organizations are turning to digital labor as an economic development strategy to bring jobs to places that need them.

There are many benefits in using technology to automate time-intensive tasks and free up staff to perform higher-level analyses and forecasting. In some cases, businesses use the new technology to work alongside humans and take advantage of digital labor while minimizing the disruption to employees. Digital labor is not so much a threat to the human workforce as it is the next evolutionary step toward ever smarter, productive and innovative employees.

Digital labor platforms allow workers to pursue work that aligns better with their personal interests. Digital labor can improve job satisfaction because employees feel their work is more valuable and less repetitive. A growing number of affluent digital laborers earn high salaries as software engineers, data scientists, programmers, designers, or managers of digital technologies.

CHALLENGES
Digital labor as a multifaceted field that is characterized by exploitation, alienation, power, inequality, ideology, and struggle. These problems, limits, potentials, and contradictions of digital labor are due to its inclusion and application in capitalist relations of production. Because it is a relatively new concept, the discourse on digital labor platforms often suffers from inconsistencies in the use of terminology and confusion. Some challenges serve to harm workers who are unable to navigate the complexities of a digital work marketplace. Digital workers are often constrained by greater time availability, poor control over workflow, and schedule, and the need to respond promptly to customer requirements. There is no standard labor protections of an employment relationship. Digital labor platforms can have a negative effect by circumventing regulation and lowering the quality of employment. They do not guarantee basic employment rights such as minimum wage, holiday pay, maternity leave or sick leave, social security, and the right to organize into unions [12].

Other challenges include [13-16]:
➢ **Geographic Dispersion:** In the pre-Internet days, geography protected many jobs from competition by lower-cost workers in the rest of the world. Traditional labor markets are exacerbated in online labor platforms, leading to heavy penalty for job seekers in developing countries. Digital labor platforms is usually conducted across borders. Clients, bosses, workers, and users of the end-products of work can all be located in different parts of the planet. There is also a broad geography of the supply of work. Since digital workers are spread throughout the world, it is not easy for regulators to address their working conditions. The geographic dispersion of the workforce makes it hard to organize. Also, since workers are regarded as independent contractors, they are often deprived of the right to organize collectively.

➢ **Ethics:** How can companies be ethical when automating jobs and displacing workers? And what impact would intelligent automation have on the economy and society? The lack of accountability and worker protections have begun to spur conversations about the ethics of digital labor. In the last century, we have witnessed rapid advances in technology that have eliminated entire industries while creating new ones.

➢ **Potential Impact:** Besides ethics, companies need to make every decision about intelligent automation by carefully weighing the potential impact on employees, suppliers, customers, and public perception. Companies also need to evaluate how it might affect the environment, the society where they do operate, and the world economy. Business leaders should understand the crucial role they play in making sure the intelligent automation is used the proper way.

➢ **HR Organization:** The digital world has several complex people challenges. Leading HR organizations, however, are losing little time in both understanding the emerging role of digital labor and actively planning how best to integrate digital and human labor within their workforce. HR leaders make sure their business leaders understand what lies ahead and how to exploit the full potential of integrated workforces and the new division of labor. HR needs to be seen as a function that is taking the lead on understanding what makes people tick and what culture helps people and organizations thrive. HR leaders are in the unique position to lead the business conversation on how the world of work is shaping the 21st century.

➢ **Livelihoods of Workers:** Although there are important and tangible benefits for workers, there are also a range of risks and costs that unduly impact on the livelihoods of digital workers. Major concerns for workers include bargaining power, economic inclusion, intermediated value chains, challenges to traditional unions, and erasure of labor rights organizations. Digital labor has lessened the distinction between life and labor and the 80-hour workweek has become the norm. Digital work platforms attempt to minimize any outside regulation of the relationship between employer and employee. For example, Amazon Mechanical Turk operates in a way that is ruled by anonymity.

➢ **Fierce Competition:** Many employers can easily buy labor from where it is cheapest. There is a pronounced lack of bargaining power for digital workers. Consequently, there is a fierce competition between digital workers seeking earning opportunities through digital labor platforms. Competition for the delivery of certain tasks is also fierce. The global pool of supply of digital workers is often described in terms of "competition" rather than "colleagues." The imbalance between the supply and demand of work seems to disempower many digital workers.

➢ **Economic Exclusion:** Certain segments of the population may be excluded from the labor market. Workers may be discriminated against on the basis of religion, ethnicity, disability, or inability to speak international languages like English or French fluently. Other forms of discrimination may be less obvious. Digital labor platforms may somewhat offer economic inclusion for individuals who do not hold the educational qualifications necessary to secure traditional employment in local labor markets. The growth of the digital economy in developing countries has been hindered by digital exclusion and digital inequality. A change of mind-set is required to take an effective critical approach to global inequalities

➢ **Gender Equality:** On average, women earn 82% of what men earn. This gender pay gap is largely due to devoting less time due to the fact that domestic responsibilities are overwhelmingly shouldered by women. Women are often penalized in occupations that require a full disclosure of their identity. Gender inequalities tend to sustain the segmentation of jobs and the allocation of lower-value jobs to women. Digitally mediated home-based work may enable women with Internet access to overcome barriers to paid work. Recently, labor platforms have started to offer household services such as cooking, cleaning, and care work. Such care services can help create better-quality and more satisfying employment for women.

➢ **Regulatory strategies:** Policy-makers are confined by political boundaries and can only necessarily regulate a piece of a much larger network. The dispersed and global nature of digital work platforms made it challenging for digital workers to organize effectively. So far federal and state regulators have not intervened in digital labor matters. There are currently no government regulation of digital labor platforms; the platforms themselves that set working conditions.

CONCLUSION
Digital labor markets are expanding and connecting companies and contractors on a global basis.

Individuals who feel that they themselves and their work "count" and "make a difference" will be more engaged in their digital labor [20]. Researchers expect to see the demand for digital labor to grow as automation and AI advance. The future of work in developing nations should focus on creating productive jobs and addressing the needs of those left behind. More information about digital labor can be found in the books in [18-35] and the following related journal: *Nordic Journal of Working Life Studies.*

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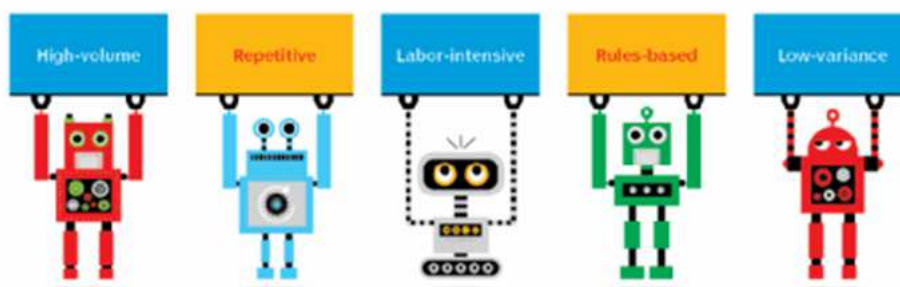
Figure 1 Digital labor rights [4].

Figure 2 Tasks that should be automated with RPA [4].

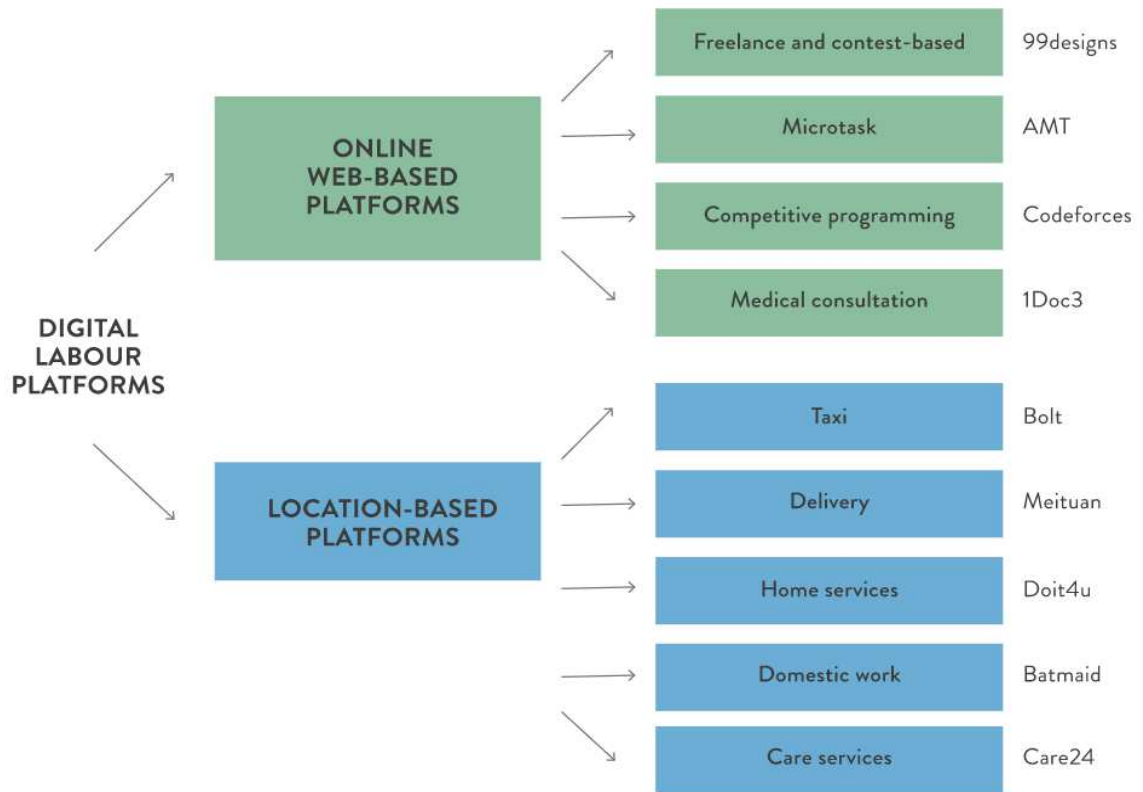**Figure 3 A typology of digital labor platform [6].**

Figure 4 Digital labor in China [8].