

OCCUPATIONAL SAFETY AND HEALTH RISKS OF ONLINE CONTENT REVIEW WORK PROVIDED THROUGH DIGITAL LABOUR PLATFORMS

Introduction

This case study examines **online content review work provided through digital labour platforms**. It explores the occupational safety and health (OSH) risks this type of work presents to platform workers, as well as whether and how such risks are prevented and managed, highlighting practices and actions introduced by platforms. Online content review is a relatively new form of work, driven by technological advancements and the rise of social media platforms, which involves reviewing content generated by users to ensure it is free of illegal and abusive materials.

For the purposes of this case study, digital platform work is defined as all paid labour provided through, on, or mediated by a digital labour platform, which functions as an online marketplace and matches the demand and supply of labour. The main characteristics of platform work include the **use of algorithmic management** to allocate, monitor and evaluate the work performed and the behaviour and performance of the platform workers, **triangular work relationships**, and a **prevalence of non-standard working arrangements**. This case study is part of a project on platform work and OSH, which aims at providing an overview of OSH policies, research and practices in the context of digital platform work, through the review of the literature and available data and fieldwork (EU-OSHA, 2021).

Methodologically, the case study is based on a review of recent academic and grey literature on platform work (including resources published on Eurofound's platform economy repository), focusing in particular on literature covering online content review and moderation and on microwork, considering that online content review is a form of lower-skilled online work and typically involves very small-scale, simple and repetitive tasks of a clerical nature that require little training and coordination, and are poorly paid.¹ Note that literature on these topics was studied covering both the specific case of digital platform work but also looking beyond (for example, OSH impacts of doing online content review work outside of the platform economy, to be able to draw comparisons). Besides a literature review, the case study builds on one interview with a platform worker and one with a global platform. Where possible and relevant, comparisons are made with similar work activities executed outside of the platform economy.

Online content review

What is online content review and how prevalent is it?

Online content reviewers **screen user-generated content** (UGC), such as text, images or videos, in **terms of illegal or abusive content**, according to a predefined set of guidelines and rules, and **decide whether this content can stay online or should be taken down** (Berg et al., 2018; Soderberg-Rivkin, 2019).² All major social media platforms (for example, Facebook, Instagram, Twitter and YouTube) as well as other websites, platforms and forums rely on content review and content moderation. Many have a **global user community** that uploads thousands of posts each day (Arsht and Etcovitch, 2018; Berg et al., 2018).

More specifically, content reviewers review UGC **flagged by other users and/or automated systems** (Soderberg-Rivkin, 2019). Such automated systems use algorithms, based on artificial intelligence and

¹ Most literature either focuses on Amazon Mechanical Turk (MTurk), or bundles research on the main global microwork platforms (such as Appen, CrowdFlower, Clickworker, Prolific, among others).

² Although some platforms and platform workers also label tasks that relate to the more general editing of text or videos as content review (for example, professional language editing services, video editing), such activities are outside the scope of this case study.

machine learning, to identify illegal or abusive content but they currently lack the sophistication to make human involvement obsolete (Berg et al., 2018; Soderberg-Rivkin, 2019). Instead, the decision to take UGC offline is made by **human labour 'invisible'** to the users of the social media platform or website (Cherry, 2016; Berg et al., 2018; Soderberg-Rivkin, 2019; Royer, 2021). Even when algorithms can identify and remove illegal and abusive content fully automatically, for example, based on visual recognition or weighing content against a list of banned items (Soderberg-Rivkin, 2019), the data and parameters used to develop and finetune these algorithms are provided by humans (Matsakis, 2018; Fussell, 2019; Scott and Kayali, 2020). In other words, the content reviewers perform tasks that algorithms and artificial intelligence are not able to do, that cannot be automated, or for which they need the support of humans (Bérestégui, 2021; Tubaro and Casilli, 2021).

Although content review work has existed for over a decade, this **type of work recently gained much attention** due to the growing need for content review and the expanding workforce doing this type of work. At first, content review and moderation on social media was mostly tackled by volunteers from the community of users on the social media platform or website (Roberts, 2014). More recently, both the amount of content and the number of users of such social media platforms have skyrocketed. Berg et al. (2018), for example, state that each minute close to 400 hour's worth of video are uploaded to YouTube, while 50,000 photos are uploaded to Instagram. Similarly, Royer (2021) reports that every hour about 10,000 new tasks - which themselves may be screened too - are advertised on MTurk. To accommodate their growth, social media platforms have increased the workforce engaged in content review and moderation over the past year. Matsakis (2018), for example, finds that YouTube planned to increase its content review workforce to 10,000 workers in 2018, but this number does not include content reviewers they engage through digital labour platforms. Furthermore, there has been much public debate on questionable content in the past two to three years, for example on fake news and conspiracy theories in relation to political elections and COVID-19 (Griffin, 2020; Scott and Kayali, 2020). The COVID-19 crisis forced social media companies to scale back content review and moderation due to lockdowns forcing their in-house staff to stay at home, and as they were not allowed to do content review work from their homes, since some of the content review work was so sensitive, it led to a surge in abusive and illegal content online (Scott and Kayali, 2020; Tubaro and Casilli, 2021).

The **work that content reviewers perform** involves filtering through countless posts, images or videos, of which some may even be playing in real time on the platform or website. Workers must identify, categorise, verify and validate content (Royer, 2021). Examples are tagging objects in a photo or video and categorising text messages based on keywords (Matsakis, 2018). Content reviewers only have a few seconds to go through each step and to decide on whether specific content is allowed on the platform. Content-wise, messages, images and videos under review may contain depictions of pornographic or violent images; homophobic, misogynist or racist content; scams; hate speech; conspiracy theories, pornography, (sexual) harassment; threats, cyberbullying; or related illegal or abusive content (Arsht and Etcovitch, 2018; Berg et al., 2018; Kessler, 2018; Meskill, 2021; Royer, 2021).

How is online content review work organised?

Content review can be **organised in-house or outsourced**. Social media companies tend to combine both approaches ('two-tiered moderation', Berg et al., 2018), keeping a small part of content moderation in-house while outsourcing basic moderation tasks to specialised companies or digital labour platforms (Chen, 2014; Roberts, 2014; 2016). Roberts (2014) identified four main types of work situations among content review work: in-house, boutiques (to be understood as smaller firms specialised in this type of work), call centres and online platforms (for example, MTurk, Appen, Clickworker and Figure Eight).

Although there is **overlap in the tasks executed by content reviewers across these four types of business models, there are also important differences**. As Roberts (2014; 2016) and Tubaro and Casilli (2021) explain, some content reviewers rather serve as 'moderators', for example, Internet forum administrators or social media account managers. While these workers may also be exposed to abusive and illegal content, their work typically does not involve tagging thousands of images or videos which have been flagged as containing such content. In addition, these moderators often work through specialised boutiques and call centres (Tubaro and Casilli, 2021).

On digital labour platforms, content review is often based on **microwork**: that is, very small-scale, simple and repetitive tasks of a clerical nature that require little training and coordination, and are poorly paid (Bérestégui, 2021; Royer, 2021). On MTurk, such microtasks are described as Human Intelligence Tasks (HITs), which are paid 1 USD per task or less (Matsakis, 2018). In EU-OSHA's study on digital platform work and OSH (EU-OSHA, 2021), a distinction is made between: (i) lower-skilled on-location work (such as parcel delivery); (ii) higher-skilled on-location work (such as handiwork); (iii) lower-skilled online work (such as content review); and (iv) higher-skilled online work (such as programming). In Eurofound's platform work typology (Eurofound, 2018), online content review falls in the category of *online moderately skilled click work*: tasks being allocated by the platform based on an offer and requiring mere seconds or minutes to complete.

Apart from in-house content review and moderation staff, workers providing their services through a digital platform are often based in another part of the world than their client and/or platform. Especially through digital labour platforms, clients can access thousands of workers simultaneously and 24/7 (Digital Future Society, 2020). Online content reviewers constitute a **global workforce**, with large groups of workers being based in emerging and developing countries and regions such as India or the Philippines and in Africa, especially in (sub)urban communities (Arsht and Etcovitch, 2018; Berg et al., 2018; Royer, 2021). Berg et al. (2018) identified microworkers in 75 countries. In the global south, most of these workers are men, while the distribution is more equal across genders in the global north. For both men and women, the main reason to do microwork is to complement pay for other jobs, while for one-third of the workers, microwork is even the main income source (Berg et al., 2018).

The digital labour platform interviewed for this case study operates in all OECD countries. While the platform notices many workers who try to sign up from India, Bangladesh, Indonesia, Nigeria and Mali, it does not allow workers from those countries to sign up. The platform checks IP addresses and uses other means to verify prospective workers' locations. Another interesting feature is that the platform has several mechanisms in place to prevent workers from doing microwork as a full-time job. For example, the platform only allows workers to take up one task at a time; it is impossible to create a queue of tasks to be executed at a later time. Moreover, after platform workers have completed a certain number of tasks, it is not possible for them to get new assignments for some time. The platform recognises that the primary motivation for many of their workers to do this work is earning an income, but with these mechanisms in place, it is clear to their workers that this is a supplementary source of income.

In this light, although content review is often described as **lower-skilled work**, online content reviewers need to have good **language skills** and be **culturally diverse** as they are serving a global community (Roberts, 2014; 2016). Moreover, the workers themselves tend to be well educated. Berg et al. (2018) report that 80% of the microworkers who responded to their survey had obtained at least a secondary education degree. The platform worker interviewed for this case study holds a bachelor's degree. Online content reviewers also acquire skills when doing such work over a long period of time, such as learning how to quickly spot certain items (Matsakis, 2018).

Safety and health aspects of online content review

Online content reviewers are exposed to **significant physical and psychological health and safety risks** when performing their work (Royer, 2021; Tubaro and Casilli, 2021). In order to gain further insight into these OSH risks, as well as how OSH risks are prevented and managed, this section first describes the OSH risks that directly follow from the tasks performed by content reviewers (that is desk-based work filtering text, photos and videos to identify, categorise, verify and validate content), and then shows why and how these risks are increased in the case of online content review through digital labour platforms. The section also describes practices used to prevent and manage these risks.

OSH challenges and risks related to the work activities performed in content review work

The **work activities or tasks performed by online content reviewers on digital labour platforms are similar to those carried out in other settings** (such as by in-house content reviewers or content reviewers working through call centres), **and so are the associated health and safety risks** (Huws, 2015; EU-OSHA, 2017; Samant, 2019). Content review is an **occupation that is dangerous** (that is it

has 'occupational vulnerabilities'; Bajwa et al., 2018), and has been associated with post-traumatic stress disorder (Digital Future Society, 2020). When organised through digital labour platforms, online content review requires **extra tasks** (such as account management) that are not required in other settings (EU-OSHA, 2017), and involves **additional OSH risks**, which are discussed in detail below. In terms of the task content, some online content reviewers not only do such work themselves, but also help or teach other content reviewers (for example, the platform worker interviewed for this case study supports other workers) or provide support to clients (such as formulating task descriptions or task design) (Kessler, 2018).

Looking specifically at the **physical risks of online content review platform work**, these risks follow from the desk-based work activities and heavy computer use (such as prolonged sitting, sedentary work, poor posture, frequent/repetitive arm, hand and wrist movements or working with a low-quality screen) (EU-OSHA, 2017). This leads to physical health impacts such as musculoskeletal disorders (MSDs)³, visual fatigue, cardiovascular diseases, and diabetes (Huws, 2015). These physical risks may additionally bring psychological impacts, for example excessive screen time has been associated with depression (Bérestégui, 2021).

Turning to the **psychological risks that online content reviewers face**, two issues warrant particular attention. First, online content reviewers are **exposed to violence, crime, abuse and illegal content** when working. This is very stressful, and it may cause long-term psychological harm and post-traumatic stress disorder (symptoms of which are anxiety or insomnia) (EU-OSHA, 2017; Berg et al., 2018; Kessler, 2018; Meskill, 2021). Given the sensitivity of this work, content reviewers and moderators are typically required to sign **non-disclosure agreements** (NDAs). NDAs help protect content reviewers' identities and thus shield them from cyberbullying and online abuse targeted at them, but at the same time NDAs imply that workers cannot communicate about their employment, working conditions or the health impacts of their work (Arsht and Etcovitch, 2018; Iyer, 2020; Meskill, 2021). They remain alone with their concerns.

Based on interviews, Arsht and Etcovitch (2018) report that many content reviewers experienced fatigue, distress and depression. While the platform worker interviewed for this case study reported being little affected by this type of work, he has seen others 'shivering' and heard them say that they do not want to see this content anymore. Taking regular breaks, however, is necessary to be able to keep going; some platforms do launch message prompts at regular times reminding the workers to take a break. Thus, the psychological impact of online content review work should not be underestimated. Fussell (2019) further explains that being exposed to illegal or abusive content without being able to act on it (for example, to call the police), may trigger workers to distance themselves emotionally, and it dehumanises them. This point also came up in the interview with the online content reviewer, who described how content review can ultimately become 'boring' after a while; like a very routine job that one does without thinking about it.

Second, online content reviewers experience **stress because of the use of algorithmic management and the working and employment conditions**. For example, content reviewers - both platform and non-platform workers - have to meet quotas, defined as a number of messages, images or videos to process within a specific time (Arsht and Etcovitch, 2018), while those doing digital platform work also have to maintain a good reputation in order to get tasks assigned to them (Huws, 2015). Working under time pressure, in particular, may increase physical and psychological health risks (EU-OSHA, 2017). These aspects are elaborated on below.

Factors aggravating OSH risks and complicating risk management in online content review performed through digital labour platforms

While this type of work in itself is highly demanding and creates severe physical and psychological risks, the generally **adverse conditions to which online content reviewers on digital labour platforms are exposed exacerbate the risks** for the workers involved (Roberts, 2014; 2016; Bérestégui, 2021). Of the four business models common in content review and content moderation discussed by Roberts

³ Further information on musculoskeletal disorders and prolonged sitting static is available in EU-OSHA's OSH wiki. It can be consulted at: https://oshwiki.eu/wiki/Musculoskeletal_disorders_and_prolonged_static_sitting

(2014), the highest OSH risks for workers are found when **online content review work is organised as microwork through digital labour platforms** (Huws, 2015; EU-OSHA, 2017; Bajwa et al., 2018; Digital Future Society, 2020; Royer, 2021; Tubaro and Casilli, 2021). In that case, content reviewers not only face the health and safety risks associated with the work itself. They also encounter the psychological and physical health and safety risks common to **microwork**, coupled with a lack of support offered by the **platform** (Tubaro and Casilli, 2021). Content reviewers working for call centres and boutiques can be employees (of the company or of a subcontracted firm) or freelancers, often work at this company's premises, with support of a manager and colleagues, and may receive some support in the form of training or specialised staff (such as a psychologist) (Digital Future Society, 2020; Tubaro and Casilli, 2021). Conversely, content reviewers working through a digital labour platform tend to work at home in an inadequate physical work environment and with inappropriate equipment, in isolation and without any support from the client, platform or other workers, and experience income insecurity and job insecurity. Content reviewers, in all settings, also receive a low pay (Roberts, 2014; Tubaro and Casilli, 2021).

'There were times when Milland stumbled into emotionally taxing work that in a regular workplace would have come with preparation and consent. On one such occasion, she opened a task to find a slide show of still shots taken from ISIS videos. ... It came with instructions similar to any other photo tagging job.' (Extract from an interview with Kristy Milland, see Kessler, 2018)

To prevent such things from happening, the digital labour platform consulted in this project asks clients to provide very clear task descriptions and may reject tasks without clear disclaimers and which are not in line with the platform's guidelines on how to deal with sensitive content.

Urzi Brancati et al. (2020) compare the working conditions of ten types of platform work, including online microwork (such as content review). Based on their survey data, they conclude that online microwork is **the most stressful type of platform work** and **records the highest share of workers stating that this work puts their health or safety at risk**. Online microwork also is the type with the **lowest levels of social contact**; it is mostly performed in **isolation** (Urzi Brancati et al., 2020). Further, online microwork is monotonous, yet flexible and, similar to the other types of platform work, the workers are continuously monitored while at work and they report that maintaining a good rating is important to get assigned work (Urzi Brancati et al., 2020). These aspects are further elaborated on below.

As online content reviewers are often based in a different part of the world than the platform users, they may need to follow rules that are ambiguous and culture-specific and may go against their own values (Arsht and Etcovitch, 2018; Berg et al., 2018; Royer, 2021).

Employment status and contractual issues

Online content reviewers or content moderators working through digital labour platforms are generally classified as **self-employed freelancers** (Arsht and Etcovitch, 2018; Berg et al., 2018; Royer, 2021). As with other forms of platform work, this implies that **the workers themselves bear the costs, risks, and responsibilities related to labour protection, social security and taxation** (Prassl, 2018; Arsht and Etcovitch, 2018; Royer, 2021), including in the area of **OSH** (EU-OSHA, 2017; Tran and Sokas, 2017). As freelancers, online content reviewers working through digital labour platforms are not or only partially covered by the OSH regulatory framework and OSH provisions in many EU Member States and are responsible for their own safety and health (Berg et al., 2018; Digital Future Society, 2020; Royer, 2021). These workers do not have an employer to fall back on to establish an OSH policy. In addition, platforms generally provide limited support and information on health and safety (Eurofound, 2018), a result that was confirmed during the fieldwork. In the case of online content reviewers, this is particularly problematic as they perform highly stressful and emotionally demanding work without receiving any training or psychological support (Berg et al., 2018).

An additional complication here is the global nature of online content review on digital labour platforms. As the platforms intermediating this type of work are usually global platforms, they may not be registered in any EU Member State, which raises challenges as regards the applicability of the EU legal framework. Similarly, the client may also be based outside of the EU.

OSH risk prevention and management related to content review in digital platform work

As online content reviewers work on platforms as freelancers, the responsibility for occupational safety and health fall on them. In the literature on online content review and on microwork via a digital labour platform, **hardly any examples are provided of measures, guidelines or support** that are in place by such platforms in relation to OSH. The interview with the online content reviewer consulted for this case study corroborated this finding. The content reviewer stated that there is no real guidance from platforms in terms of health and safety, or at least - if such guidance does exist - to not be aware of it. One reason may be that microwork platforms tend to intermediate a wide array of tasks, of which content review and moderation is only one type, so there is no tailoring to the specific risks this type of work creates. However, some differences between platforms exist: for example, one of the platforms used by the interviewed content reviewer suggests taking regular breaks. In many cases, clients provide warnings and disclaimers related to the task. The reviewer repeatedly indicated being fully **responsible for their own health and safety**, to prevent any health risks. Interestingly, the reviewer also mentioned performing online content moderation for a traditional company and noticed a **big difference in addressing OSH risks**. That traditional company has a health and safety policy and makes trained counsellors and professional help available to their workers.

One consequence of being freelancers is that **content reviewers on digital labour platforms are also not covered by measures introduced by the client companies** (Arsht and Etcovitch, 2018; Newton, 2020; Tubaro and Casilli, 2021). In this regard, Arsht and Etcovitch (2018) give the example of the “*Employee Resilience Guidebook for Handling Child Sexual Abuse Images*”, a manual prepared by the so-called ‘Technology Coalition’ that provides guidance and resources supporting reviewers dealing with child abuse images, but it does not seem to have reached subcontractors and platform workers working for the member companies of the coalition. Another case in point is Facebook: although Facebook has agreed to pay former and current moderators who developed PTSD due to their work, only workers based in the United States (Arizona, California, Florida, Texas) are covered (Newton, 2020; Tubaro and Casilli, 2021). It is not clear to what extent other measures that Facebook plans to introduce, such as one-on-one coaching, therapy sessions and revised workplace standards, will reach its contractors and platform workers in other countries.

Despite being freelancers, platform workers in microwork typically **cannot set their own price and get a very low pay per task**. They are not paid an hourly or monthly wage or salary (Urzi Brancati et al., 2020). Nevertheless, according to calculations on COLLEEM II survey data, the average pay per hour in microwork is about €7 (Urzi Brancati et al., 2020). Berg et al. (2018) find that the calculated average hourly earnings range between 2 and 6.5 USD, which is attributed to the low pay per task and the fact that many workers spent significant unpaid time (for example, looking for work or working on tasks that are rejected). Hara et al. (2018) find similar numbers, with a calculated average hourly wage of 2 USD, which - according to follow-up research by Hara et al. (2019) - hides significant geographical variation between workers based in the US (calculated average hourly wage of 3.01 USD) and India (1.41 USD). This difference is sometimes attributed to **discrimination**: clients may hold prejudices against workers in the global south, considering them unable to speak English, uneducated, and so on, and thus arguing they should accept lower pay (Berg et al., 2018; Royer, 2021). Some workers try to overcome discrimination by hiding or changing their geographical location as shown on the platform (Graham et al., 2017a; 2017b; Royer, 2021). Matsakis (2018) discusses an example of a content review task posted on MTurk, which paid 10 cents USD and involved watching a video to categorise its content (for example, adult content). The task description encouraged the worker to watch a sufficiently long segment of the video at an increased speed. By doing so, workers can complete more tasks, which could compensate for the low pay per task. The platform interviewed for this case study is unique in that it **sets a minimum pay rate per hour that clients must respect** (which is in line with the minimum wage in the countries where it operates) and recommends clients to pay an even higher amount. Clients are asked to estimate how long it takes to complete their task, after which the pay per task is calculated and set (for example, a task which takes 5 minutes to complete, paid at a minimum hourly pay level of 6.5 USD, amounts to a pay of 0.65 USD for that specific task). This helps ensure that the workers feel respected and can also draw workers to this platform rather than competing platforms.

Another distinguishing feature of online content review platform work is that the client is in most cases a **very large multinational company**. This stands in sharp contrast with other types of platform work, such as handiwork, where the client is typically a private individual. Although platform workers work for

such clients indirectly through the platform, big multinationals may have a different approach to allocating assignments to workers than private individuals, for example in terms of setting prices, expectations on quality and speed of assignment completion, and so on. In addition, platforms intermediating online content review work are typically **global platforms**. Both aspects affect the **power balance between platform worker, platform and client**, leaving online content reviewers generally in a weaker position compared to other platform workers (Royer, 2021), and call into question the nature of the labour relationship. Clients and platforms can change the conditions of work at their discretion (Royer, 2021).

Being freelancers, however, also implies that online content reviewers are **not collectively organised and lack bargaining power** (EU-OSHA, 2017; Royer, 2021). It is indeed challenging to identify, reach and organise online content reviewers as this workforce is global, invisible and isolated. Online content reviewers themselves have launched initiatives to exchange information and tips on how to approach this work. A well-known example is Turkopticon (AMT), which serves as a forum, a platform to exchange knowledge and resources, and a reputation system covering clients. The platform worker interviewed for this case study also indicated being active on a chat forum.

Algorithmic management and digital surveillance

As an online form of platform work, online content review is steered by **algorithmic management**, that is, the use of algorithms to organise, allocate, monitor and evaluate work, and to influence platform workers' behaviour and performance (Möhlmann and Zalmanson, 2017). This is an area where platforms diverge from each other, although there is little **transparency** about the algorithms platforms use and how these algorithms affect aspects such as task allocation. The online content reviewer interviewed for this study is active on multiple platforms and explained that one platform invites workers to apply to open tasks and then matches clients with platform workers; on another platform workers apply to open tasks but then the client contacts them to negotiate on the assignment and the pay. In both cases, maintaining a good rating is critical.

The **behaviour and performance of online content reviewers is continuously monitored**. Platforms keep track of a range of parameters, for example number of tasks accepted/rejected, number of tasks completed/failed, speed, accuracy, availability (time, duration), and so on, allotting a score (rating) to each worker to create a ranking. Information is compiled from clients' reviews of platform workers' work, screenshots taken to ensure that workers are committed to the tasks, tracing of mouse clicks and keystrokes, and so on (Iyer, 202; Bérastégui, 2021; Royer, 2021). This ranking is used to allocate work: tasks are allocated to the workers with the highest rank through a (semi-)automated system. However, such mechanisms deteriorate reviewers' mental health and wellbeing, as having to maintain a good rating is stressful and emotionally demanding (EU-OSHA, 2017; 2021; Iyer, 2020), and these mechanisms undermine their autonomy and job control (Eurofound, 2018).

Online content reviewers indeed usually **get tasks assigned by the platform**⁴ and consequently have little control over when and how much to work. Online content reviewers also tend to have limited task discretion (Urzi Brancati et al., 2020). This leads to job insecurity and income insecurity, with work schedules becoming unstable and unpredictable (Urzi Brancati et al., 2020). It also may result in under-employment, as platform workers spend unpaid time waiting for work to be assigned (Berg et al., 2018; Urzi Brancati et al., 2020). Earlier research by Berg (2016) showed that 90% of microworkers would work more if more tasks were available. In this context, **competition between platform workers** may be fierce, pushing them to be always available and take on any task (Digital Future Society, 2020), and causing a **downward pressure on pay** (Eurofound, 2018; Royer, 2021).

One particular risk that many platform workers doing microwork report is **task rejection** by the client or platform (McInnis et al., 2016; Berg et al. 2018; Royer, 2021), especially when this was deemed unfair (such as unclear instructions, poor task design or technical issues). Task rejection has a significant impact on workers, as they are not paid for work done and may see their rating go down, which in turn affects future task allocation. In many cases, platform workers **have no or limited opportunities for**

⁴ Clients may specify criteria that then are considered by the platform in the task allocation, such as language (Eurofound, 2018).

recourse. This is what Bérastégui (2021) refers to as 'procedural injustice'. On this note, Berg et al. (2018) report that almost 90% of surveyed microworkers have had work rejected. The digital labour platform that was interviewed for this case study indicated having a dedicated support team that workers can reach out to in case of disputes and payment issues.

In this context, it is clear that - like other microworkers - online content reviewers experience both **job insecurity and income insecurity** (Graham et al., 2017a; 2017b; Kessler, 2018; Matsakis, 2018; Royer, 2021). Such insecurity is a **major driver of psychological and physical health issues**, including anxiety, stress, burnout, exhaustion, cardiovascular disorders, MSDs, and so on. (EU-OSHA, 2017; Bérastégui, 2021). This is further aggravated by using algorithmic management, and the individualised and isolated nature of online content review work (see below). The **emotional demands** of being an online content reviewer are indeed very high. Besides dealing with the platform and clients in such a way as to maintain a good rating (Bérastégui, 2021), Riedl et al. (2020) argue that online content review requires significant 'invisible' emotional labour as workers must manage their own emotions when completing the work assignments. This is exhausting, especially when workers are exposed only to abusive or illegal content. In such case, content reviewers also become less accurate (Riedl et al., 2020). The combination of emotionally demanding work with a rapid work pace, pressure to attain a high rating, and a lack of support, is linked to occupational overload, exhaustion and depression (Bérastégui, 2021).

Individualisation, isolation, lack of social support and work-life conflicts

Online content review organised through digital labour platforms involves **individualised work, carried out in physical and social isolation and without support of colleagues and managers** (Bérastégui, 2021). Physical isolation as online content reviewers typically work from home; social isolation as online content reviewers have little contact with their clients, the platform and other platform workers, and in fact compete with the latter for tasks (Tran and Sokas, 2017; Eurofound, 2018; Samant, 2019; Bérastégui, 2021). A related issue is that management roles are taken up by algorithms in the case of digital platform work, and often rely on little to no human involvement (EU-OSHA, 2021). For example, workers may only be able to contact the platform via a chatbot or website, which can cause frustration, especially when platform workers urgently need assistance (for example, due to an accident) (Eurofound, 2018). This may cause mental health issues.

Previous research finds that **platform workers in microwork lack a professional identity**, due to the physical and social isolation, a high task fragmentation, the unclear end goal or meaning of tasks, the overall precarious conditions facing the workers, and the low-skill level and short time required to do the work, which can lead to anxiety, depression and stress (Bérastégui, 2021). Most of these issues also arise with online content review, however a key difference is that the **purpose of the work is clear and its contribution meaningful** (Kessler, 2018; Matsakis, 2018). The platform worker interviewed for this study stated being satisfied with his work because he thinks it contributes to keeping the social media and websites, for which online content review is done, free from harmful content, and in that way helps to protect its users. The platform worker stressed that doing this type of work cannot be about money alone; it is not enough to keep you motivated in this line of work.

Online platform workers in microwork face significant **work-life conflicts**. Overwork and long hours are common, due to fierce competition between workers, the work intensity, and workers' dependence on having a good reputation and appearing constantly available to get work (Graham et al., 2017a; 2017b; Eurofound, 2018). Kessler (2018) describes how a microworker set alarms to be notified of good opportunities and always stays in the proximity of their computer, uses tools to add tasks to their queue and finalises tasks as fast as possible to pick up a next batch (also see Matsakis, 2018). As online content reviewers usually work from home, content review is attractive for parents (mostly women) with young children or individuals with care responsibilities (Roberts, 2014; Royer, 2021). Work-life conflicts cause stress and depression.

Conclusions

Online content reviewers screen UGC - for example text, images and videos - to identify, categorise, verify and validate this content and to filter out what is illegal or abusive. This type of work is stressful and emotionally demanding, and has been associated with post-traumatic stress disorder.

Especially when such online content review work is organised through digital labour platforms, it presents **severe safety and health risks** for the workers involved. Physical risks result from the heavy computer use and desk-based work in online content review work and give rise to MSDs, visual fatigue, cardiovascular diseases and diabetes, and may in turn bring on mental health problems such as depression. Psychological risks follow from online content reviewers' continuous exposure to violence, crime, abuse or illegal content in a setting that in itself is stressful: having to work under high time pressure and in competition with other content reviewers, steered by algorithms that allocate, monitor and evaluate work based on the rating a worker has and without human involvement, in an ill-adapted work environment. In this way, these physical and psychological risks and their impacts are exacerbated.

These work-related health and safety risks, however, **do not seem to be addressed by digital labour platforms intermediating this type of work, or only to a limited extent**. This is mainly because online content reviewers - like most platform workers - are seen as **freelancers/self-employed** by the platforms and, therefore, the EU OSH regulation and the OSH legislation set in most national contexts do not apply to them, and consequently are responsible for health and safety themselves. Platforms push the costs and risks related to OSH onto the workers.

While some platforms offer basic guidelines and recommend that workers take regular breaks (for example, via a message prompt that appears after being active on the platform for some time), **no examples were found of general OSH policies**. OSH clearly is not a priority for digital labour platforms intermediating microwork, under which online content review work typically falls, and this includes those that intermediate content review and content moderation tasks. Online content reviewers do not seem to receive any training or support and are not consulted on OSH issues by the platform.

Being freelancers working through an online platform, online content reviewers are usually **not covered by measures taken by their clients either**. Some clients do provide guidance to the platform workers executing their assignment, but it was also reported that some tasks launched via a platform are not even properly labelled as likely containing abusive or illegal content. This is remarkable, as the clients are usually large social media companies that rely extensively on content review and content moderation, of which some part is done in-house. The working and employment conditions of the in-house staff are superior to those of workers doing similar tasks in boutique companies or call centres, or through digital labour platforms, with the latter facing the worst conditions. For in-house staff, and in some cases also workers in boutique companies and call centres, OSH risk prevention and OSH risk management are in place, examples being the provision of specialised counsellors and/or training, work organised to allow sufficient breaks, and so on.

Online content reviewers working on digital labour platforms have **also been overlooked by regulators at the EU level and in the Member States**, as they are invisible and are usually based in other parts of the world than the client and/or the platform (Arsht and Etcovitch, 2018; Iyer, 2020; Royer, 2021). Overall, attention to cross-border and online platform work is more limited than for other types of platform work (EU-OSHA, 2021).

The academic and policy-oriented literature have called upon policy- and decision-makers to **introduce minimum rights and standards for online content reviewers**, for example, by making it obligatory to flag work that may cause psychological harm or is emotionally demanding (Arsht and Etcovitch, 2018; Royer, 2021). Other suggestions are to persuade platforms to set up training programmes for online content reviewers and moderators, and client companies to establish and enforce minimum counselling standards for the subcontractors and platforms they work with (Arsht and Etcovitch, 2018). Such minimum standards and rights should apply to all online content reviewers using digital labour platforms, regardless of their employment status or location (Digital Future Society, 2020). Finally, improvements in artificial intelligence may reduce the need for content review (Iyer, 2020).

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