A REVIEW ON THE FUTURE OF WORK: ONLINE LABOUR EXCHANGES, OR 'CROWDSOURCING': IMPLICATIONS FOR OCCUPATIONAL SAFETY AND HEALTH

1   Introduction

Since the 1970s it has been recognised that the combination of information and communication technologies has the potential to enable the relocation of work. In the 1980s, attention focussed on 'teleworking', involving the relocation of work from a traditional office to the worker's home. In the 1990s it became apparent that work could be shifted internationally, in a development that became known as 'offshore outsourcing'. The next decade saw the emergence of large international companies supplying telemediated services, increasingly using practices described as 'global sourcing', in which workers from different parts of the world could be brought together on a just-in-time basis to deliver particular services, regardless of location. In the present decade, these developments have reached critical mass, enabling the emergence of entirely new forms of work organisation, co-ordinated by online platforms.

2   What is crowdsourcing?

Confusing terminology aims to characterise these new forms of work: sharing economy, human cloud, workforce on demand, digital labour... 'Crowdsourcing' is here defined as *paid work organised through online labour exchanges*. This encompasses a range of forms of work, which can be differentiated along several dimensions including: their professional status (ranging from highly-skilled professional consultancy to routine micro tasks); whether they are carried out online or offline (with online coordination); the location of work (the home, the employer's premises or elsewhere); the employment status of the workers (employee or self-employed); and whether the work is carried out for a company or a private client. Other variables include whether it is carried out as a main job or a supplementary source of income and how it is rewarded (e.g. a regular salary, an hourly rate or a piece rate).

3   Extent of crowdsourcing

The crowdsourcing workforce is highly diverse and poorly defined. Attempts to estimate the global scale of crowdsourcing are rare. One possible basis might be to estimate the number of platforms and an average number of active workers per platform. Unfortunately, both components are extremely difficult to quantify. The number of platforms is large and rapidly growing and the number of registered workers per platform is likely to be inaccurate in a number of respects. First, it is possible that some people who have registered are inactive; second, there is a possibility that individuals might register multiple times under different identities; and third it is likely that many register on multiple sites, so any attempt to generate a total figure by adding up the numbers registered on different sites may result in some double-counting.

In the case of offline work organised via crowdsourcing platforms, statistics are somewhat harder to come by, partly because the local nature of service provision makes it irrelevant for the sites to advertise the total global workforce available to them.

Another category of crowdsourcing is work carried out by employees organised internally via crowdsourcing-type online platforms. This can be subdivided into two broad categories: the assignment of people who are full-time employees to 'virtual teams' in project-based work; and the assignment of contingent staff on zero-hours contracts (or other forms of flexible working arrangements) to tasks on a just-in-time basis. Statistics for these forms are concealed in general employment statistics and there have been no systematic attempts to assess their scale. There is a large literature both on changing

forms of work organisation and on changing employment practices which provides some indication that these trends are growing but without clear definitions it is not possible to use them to extrapolate growth rates. In addition, zero-hours (or 'on call') working is not legally recognised in many European countries so no data exist on its prevalence.

It can be concluded that, whilst there is clear evidence that crowdsourcing labour in each of these categories exists on a significant scale, and is growing rapidly, there are currently no reliable estimates of its extent. The crowdsourcing workforce is extremely diverse, but further research is required before its demographic profile can be sketched out with any certainty.

4   Health and safety risks of crowdsourcing

The enormous variety of tasks carried out by crowd workers and the diversity of locations in which this work is carried out indicates a wide range of health and safety risks.

4.1   Physical risks – online work

Work with computers may lead to stress and physical disorders such as visual fatigue or musculoskeletal problems. Employers have to carry out risk assessments and to take the appropriate measures to ensure that working conditions and the working environment are safe. When work is classified as freelance, these obligations can be externalised, with the risk transferred to individual workers. Although systematic survey evidence is lacking, it seems highly likely that in crowdsourcing many of these requirements are breached, for instance:

- Workers may be working on laptops or other computing devices on which the screen, keyboard and mouse do not meet ergonomic requirements.
- They may be working in domestic environments or public spaces where seating and work surfaces are at the wrong height or otherwise require them to adopt poor postures that will lead to musculoskeletal problems.
- They may be working in environments which are inappropriately lit, noisy, polluted, over-crowded or too hot or too cold for comfortable work.
- Pressure to meet tight deadlines or work targets may force a rapid pace of work without breaks, exacerbating visual strain, leading to repetitive strain injuries and to work-related stress.
- Workers may be unable to afford (or unaware of the need for) eye tests and the use of suitable lenses for screen work, also leading to visual strain and attendant problems such as headaches.
- Lack of workers' training, including OSH training.

4.2   Physical risks – offline work

Crowdsourcing work that is carried out offline takes place in a space which is even harder to map than online work, both physically and legally. Some of the activities carried out by crowd workers are in occupations that are notoriously dangerous for workers, e.g. construction work. Other activities, such as driving a taxi, leave drivers vulnerable to attack and harassment by customers. Risks of inter-personal violence or harassment are also present, along with many possibilities for potential accidents, in situations where crowdsourced workers provide services in the homes of clients.

Physical hazards to offline workers may be exacerbated by a number of factors, including:

- Lack of training.
- Lack of certification (or understanding of what certification should exist) for the skills provided.
- Lack of knowledge or understanding of the relevant regulations (by either workers or clients).
- Lack of clarity in work specification, leading to situations where the worker (or client) cannot predict what tasks are required or what tools, equipment or materials should be provided.
- Lack of safety equipment and clothing.

- Pressure to complete work to tight deadlines leading to cutting corners in terms of OSH procedures and failure to take breaks.
- Interruptions and distractions leading to errors. Some of them may be external (e.g. caused by the presence of children or members of the public) and some may be related to the specific conditions of crowdsourcing, for instance the need to pay attention to alerts sent by the crowdsourcing platform to workers via mobile phone apps. Such risks are particularly high when driving, when distractions caused by audio messages or phone calls could lead to serious accidents.
- Exhaustion caused by long working hours.
- Exposure to risks which would not be accepted in a workplace environment.
- If a work-related disease occurs, establishing a causal relationship between work-related exposures and the disease will be problematic.

All these factors, in combination, may create synergistic effects leading to musculo-skeletal disorders and psychosocial risk outcomes, such as work-related stress.

4.3 Psychosocial risks

Psychosocial risks may arise from a variety of working conditions typical of crowdsourced employment, but the traditional job content/context model does not apply to these new forms of work and standard preventive measures may not be applicable. These conditions include:

- The precariousness of much of the work, with many crowd workers unclear from one day, or even one hour, to the next, whether they will have work, and if so, what that will consist of, or when, or even if they will be paid (in some cases no payment may be received at all because the work is deemed unacceptable by the client).
- The role played in many forms of crowdsourced employment by ratings from employers or clients, which may determine not only whether the worker continues to receive work, or is able to charge a reasonable rate, but also whether they remain on the database at all.
- Crowd workers are often required to work at very short notice. Those working online may miss a job if they hesitate before clicking the button to 'accept' a task. Offline workers may find themselves summoned to jobs on a just-in-time basis via a mobile application, sometimes in the knowledge that if they arrive too late the job may have been given to someone else or cancelled.
- The interpenetration of work and non-work activities also means that crowd workers are exposed to a range of interruptions and distractions (for instance from children, pets or members of the public) making concentration difficult.
- The intensity of work also contributes to psychosocial, as well as physical, disorders. Online crowd workers may be working to tight deadlines (more skilled freelance workers) or on low piece-rates for micro-tasks (lower-skilled clerical workers) while offline workers are under pressure to complete fixed-fee jobs and move on to the next, all of which encourage a rapid pace of work without breaks.
- Crowd labour are often asked to tag offensive content on the Internet. It seems probable that the requirement to look repeatedly at pornographic, sadistic or violent images must take a psychological toll.
- Like other workers providing personal services, crowd workers working offline in people's homes are placed under pressure to perform emotionally-demanding work.
- In many cases, the cost of insurance and the risk of ensuring safety and health is externalised to the crowd worker. In Europe, the extent to which lack of secure and permanent employee status affects access to and the costs of health services varies from country to country. But even when healthcare is available free of charge, many workers may face the worry of lack of pay during periods when they may be incapacitated by illness or injury. They may also lack other benefits, such as maternity or paternity leave. The absence of such benefits not only

increases precariousness but also creates a psychological burden, impacting family life as well as working life.

- Crowd workers may lack direct channels of communication with the ultimate client and are thus deprived of an individual or collective voice. Even if online work is carried out by employees working in 'virtual teams', it is likely that many of these effects will still occur, because of the geographical distance from the employer. Isolation, the need for self-management, lack of social support and the requirement to be autonomous all increase psychosocial risks.

- A worker who is unmonitored and unsupervised is also unobserved in other ways. For instance, a worker may develop anti-social and/or health-threatening habits as a means of coping with stress (such as dependence on alcohol or drugs) which would be spotted by the employer in a normal working situation but can escalate rapidly if nobody is aware of them.

5 Unresolved issues

The rapid growth of online work exchanges has created major challenges, both conceptual and regulatory. Some European countries as well as the Senior Labour Inspectors Committee (SLIC) have initiated discussions about this new form of work but it is still much unexplored. Some of the unresolved issues are:

5.1 The status of online work exchanges

Online work exchanges take multiple forms and are therefore difficult to categorise. Should they, for instance, be regarded as temporary work agencies, labour exchanges, social enterprises, service providers (supplying, for example, taxi, cleaning or care services), advertising platforms or just online directories? Until this can be answered it is difficult to know what regulations should apply.

5.2 Who is the employer?

The variety of different models, as well as variations in national law, means that there is not a single answer to this question. Where online platforms are used internally by companies to manage their own employees, there are only two actors: the employer and the worker, and the main question is whether the worker has the same rights as other employees. Otherwise, typically at least three actors are involved in any transaction taking place via one of these platforms: the ultimate client, the online intermediary and the worker. In the case of platforms matching professional freelancers with clients, the self-employed status of the freelancer is generally clear. The most contentious cases are those involving the online co-ordination of low-skill online work and of offline work.

The situation is unclear in Europe but it seems likely that, in many Member States, workers doing manual or low-skilled clerical work organised via online platforms might be regarded as their employees. In the case of more highly-skilled freelance workers, further tests would have to be applied to establish whether workers are genuinely self-employed according to national regulations. A resolution of this question is crucial for occupational safety and health because without a clear designation of who the employer is, there can be no clear apportionment of responsibility.

5.3 Insurance and legal liability

In relation to offline work if an accident occurs in the home of a client, who is responsible? How can work-related diseases be tracked back to work-related exposures and who is responsible in case of occupational diseases? Should it be covered by the insurance of the householder or that of the platform or could the individual worker be held responsible? What if the worker had an accident on the way to or from the job? In the case of online work, who would be responsible if an article commissioned from a writer via an online platform turned out to be libellous? Whilst some online platforms include clear

statements about insurance and liability (usually in the form of disclaimers) this is by no means universally the case. Some, on the other hand, reassure their users that insurance is in place.

5.4 Applicability of EU Directives and national labour regulations

Another area of uncertainty is how national and EU regulations can be applied, including Directives on Working Time, Part-Time Work, Temporary Agency Work, Undeclared Work, Equal Pay and Equal Treatment and Parental Leave. Of particular relevance is the Directive on Health and Safety in Fixed-Term and Temporary Employment (91/383/EEC) which extends the same level of protection to fixed-term and agency workers as to other employees. It is difficult to apply all these Directives to online work exchanges if their legal status, and that of their workforce, is unclear.

At a national level, similar problems arise in relation to the applicability of national regulations such as those referring to minimum wages, equal treatment, tax and national insurance deductions and safety regulations. A particularly important question is what forms of social protection are available to crowd workers, how eligibility can be established and how rights can be claimed.

5.5 Consumer protection and public safety

Issues relating to safe and healthy working practices in public spaces or private residences may affect both workers and members of the public. It is not always clear, however, whether they should be addressed as matters of public safety, using environmental protection or public health regulations, or more specifically as labour or consumer protection issues. In many countries this question has practical implications since it will determine which body should be responsible for inspection, dealing with complaints and enforcement.

5.6 Accreditation of qualifications and professional responsibility

Many online platforms advertise the services of workers with particular skills. However it is not always clear that they actually have the relevant qualifications or whose responsibility it is to check these credentials. This question has implications for professional responsibility, especially important in cases where there are regulations in place requiring that practitioners have the relevant certification (e.g. medical services, electrical installation) or requirements for checks for past convictions (e.g. for theft, dangerous driving). Some platforms, but by no means all, state that all their workers are fully vetted (without necessarily explaining how). The absence of such checks can lead to situations where the safety and health of the worker concerned, and of clients and members of the public, can be put at risk.

6 Concluding remarks

The emergence of online employment exchanges raises major questions for regulators, employers and the social partners. It seems likely that even parts of the labour market not directly involved in crowdsourcing may be indirectly affected by it in a number of ways. These include pressure to reduce prices or wages in order to compete with services supplied by online platforms, with SMEs particularly vulnerable.

European policymakers will have some difficult decisions to make about how, and to what extent, the 'sharing economy' should be encouraged and regulated. Undoubtedly, crowdsourcing brings major new social and economic opportunities as well as risks. The opportunities include:

- Enabling access to work for people who would otherwise be excluded (e.g. people with disabilities, people in developing economies).
- Enabling consumers to access affordable services on a just-in-time basis.
- Creating new opportunities for flexible ways to combine work and private life.
- Enabling low-cost entry into the market for new enterprises or firms trying out new products or services, thus contributing to growth and competitiveness.

- Enabling social innovation.
- Enabling creativity and self-expression and the generation of new cultural products and services.
- Helping to consolidate a European digital single market.

The risks include:

- Widespread evasion of existing regulations designed to protect workers and consumers.
- Health and safety risks to workers and consumers.
- Distortion of markets for existing services (housing, transport, etc.).
- Growing precariousness.
- Threats to European employers through undercutting by companies based elsewhere.
- Loss of quality control (including the ability to verify the authenticity of products and qualifications).
- The possible unravelling of the EU regulatory environment.

The challenge for policy stakeholders is to find a balance and to identify the forms of intervention that will reduce the risks whilst encouraging the opportunities. In order to do so, policymakers will need accurate information about the scale of crowdsourcing, the range of activities involved, the legal and contractual conditions under which they are carried out, the characteristics of crowd workers, their working conditions, the environments in which they work and the associated risks for workers, clients and the general public.

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