

Understanding the health and safety implications of the gig economy

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Growing numbers of people in Great Britain are working in the gig economy – it is an upwards trend that is anticipated to continue. As the regulator of workplace safety and health, it is important that HSE understands the implications of gig work – both positive and negative. This report describes a literature review to gather evidence about the size, characteristics and health and safety implications of the gig economy. The aim was to improve HSE’s understanding, not to develop a definition, of the gig economy.

The literature review’s findings are as follows. Gig economy work was found to be characterised by short-term informal working relationships. This work is generally on-demand, obtained via an on-line platform and delivered, and paid for, on a task-by-task basis. It is casual, unpredictable, irregular, contingent, and temporary, with the possibility of increased work intensification. Determining the size of the gig economy, and identifying typical number of hours worked, is challenging. Gig economy workers in GB are estimated to be around 2.8 million. There is a possibility that for many the hours are excessively high, and that gig work is used to supplement other income. For some, gig work offers benefits such as variety and flexibility. However, the main health risks associated with participation in the gig economy were found to be work-related stress and the development of other mental health issues. This study has provided a useful working description of the gig economy to help inform HSE policy.

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Understanding the health and safety implications of the gig economy

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KEY MESSAGES

- Growing numbers of people in Great Britain (GB) are working in the gig economy, an upwards trend that is anticipated to continue. Evidence from the literature review set out in this report improves HSE's knowledge regarding this way of working.
- Gig economy work differs from the standard (full-time, regular, stable and long-term) employment contract. It is characterised by short-term informal working relationships where work is generally on-demand, obtained via an on-line platform and delivered (and paid for) on a task-by-task basis. It is casual, unpredictable, irregular, contingent, and temporary, with the possibility of increased work intensification.
- The literature refers to the gig economy as a new business model where work is mediated by online platforms, and managed and performed differently – for example disaggregation of tasks and workers. Digital platforms (e.g. Uber, TaskRabbit) refer to gig economy workers as independent contractors, freelancers or self-employed; however, the platforms may impose control over how gig workers perform their work. Further advances in technology are likely to widen the services delivered through digital platforms.
- Due to methodological differences within studies, it is challenging to determine the exact size of the gig economy or to identify how many hours gig workers typically work. The number of participants in GB is estimated to be around 2.8 million, with a possibility that for many, the hours are excessively high. Those working in the GB gig economy are predominantly aged between 18 and 34.
- It is likely that many individuals carry out gig work to supplement other income, and possible that those on low incomes predominate in gig work – although available data does not allow this to be accurately quantified. Whilst the overall income levels for gig economy workers are similar to those in the GB population, the majority of gig economy workers in GB earn between £10K and £30K per year.
- For some, gig work offers benefits such as variety and flexibility, for others it may have negative health and safety implications. The main health risks associated with participation in the gig economy are work-related stress and the development of other mental health issues as a result of being involved in a non-standard form of employment. Participation in gig economy style employment relationships could, therefore, have adverse psychological implications for some individuals. There is weaker evidence regarding safety risks, with the main ones being fatigue and an increased risk of occupational injuries.
- The new business model on which the gig economy is based, along with the continued upwards trend in the numbers of those working in the gig economy - and gig work being evident across many industry sectors - is important to understand in relation to HSE's activities..

EXECUTIVE SUMMARY

Background

The emergence of digital platforms (e.g. Uber, TaskRabbit) linking workers and customers for their work is the driving force behind the increasing prominence of the gig economy. The gig economy refers to the growing number of workers abandoning traditional nine to five employment in favour of working independently on a task-by-task basis for various customers, but typically online platform providers. People who work in the gig economy (i.e. gig economy workers) have a portfolio of one-off, small jobs instead of (or as well as) full-time jobs. Instead of a salary, workers get paid on a task-by-task basis i.e. for the jobs i.e. 'gigs' they do, such as food delivery or a taxi journey. Gig economy workers can be classed as self-employed, with little employment protection e.g. no protection against unfair dismissal, no right to redundancy payments, no right to receive the national minimum wage, paid holiday and no sickness pay.

It is important that, as the regulator of safety and health in the workplace, HSE understands the implications – both positive and negative - for the safety and health of the gig economy workforce.

Methods

The approach used was to undertake a literature review focusing on both traditional academic papers and also reputable publications in the so called “grey literature” e.g. reports published by reputable organisations such as the Chartered Institute of Personnel and Development (CIPD) and Royal Society of Arts (RSA). The literature search was done in two stages:

- a database search of peer reviewed literature and
- an Internet search carried out with relevant search engines e.g. Google Scholar

Results

Characteristics: the literature describes gig economy work as:

- short-term, unpredictable and contingent
- involving informal, casual, “non-standard” working relationships
- commissioned on an “on-demand” basis
- typically obtained via on-line platforms
- performed by workers who are typically viewed by the online platform operators as self-employed and/or independent contractors and/or freelancers
- commissioned and paid for on a task-by-task basis

Demographics: in 2018, a UK Department for Business, Energy & Industrial Strategy (BEIS) survey found that:

- the majority of those working in the Great Britain (GB) gig economy (56%) are in the 18 to 34 age range, which is an over-representation as this age group is only 27% of the general GB population
- there is little difference in terms of qualifications between GB gig economy workers and the general GB population
- the majority of workers in the GB gig economy earn between £10K and £30K per year with overall income levels similar to the rest of the GB working population

- the majority of those working in the gig economy (55%) work more than 30 hours per week, a higher proportion than in the GB population

A suggested working description of the gig economy for HSE:

Gig economy work is characterised by short-term informal working relationships where work is generally on-demand, obtained via an on-line platform and delivered (and paid for) on a task-by-task basis. Gig economy work is non-standard, casual, unpredictable, irregular, contingent (i.e. possible but not certain) and temporary. From the perspective of the platforms, gig economy workers are most likely to be referred to as independent contractors, freelancers or self-employed. Gig economy workers have some potential to exercise flexibility around the work they commit to and when it is performed. However, the online platforms also have potential to impose degrees of control over how gig economy workers perform their work.

Size: Surveys undertaken by the RSA and BEIS estimate the current size of the GB gig economy to be between 1.1 and 2.8 million participants.

Safety and health risks:

Gig work has been reported to bring benefits such as variety and flexibility for some, but health and safety risks for others. Overall, only a small proportion of the included literature made reference to either health and / or safety risks arising from participation in the gig economy. The main health related risks were found to be work-related stress and mental health issues.

Health issues identified

- Psychological health issues due to work-related stress linked to working to tight deadlines/time pressures/lack of sick pay protection, the need to be available at all times and lack of job control, control of working time, job security and autonomy are occupational stressors
- Mental health e.g. depression
- Lack of health surveillance/occupational health care
- A Brazilian study found informal employment was significantly associated with obstructive sleep apnoea amongst truck drivers (along with body mass and poor sleep quality)
- Job insecurity linked with poorer health outcomes
- Precarious work associated with poor health outcomes, particularly mental health issues

Safety issues identified

- Drivers who have no maximum driving times, high workloads and the potential to cause accidents.
- Visual fatigue
- An association between occupational injuries and precarious employment
- Lack of proper safety induction

Conclusions

- Gig economy work is a non-standard employment relationship, characterised by work intensification, uncertainty around availability of work, payment on a task-by-task basis and workers classified as independent contractors rather than employees.

- It is challenging to determine the exact size of the gig economy due to differences in methods used within studies. However, it is anticipated that the upward trend in the number of those working in the gig economy will continue.
- Participation in the gig economy is currently, and is likely to continue to be, dominated by the under 35 demographic group, typically described as “Millennials” (24 to 34 years) and “Generation Z” (22 years and under). There is a danger that this younger age group may not be able to move beyond gig work and be perpetually ‘trapped’ in insecure and precarious work, with negative implications for the health of the future workforce.
- It is likely that the new business model, where work is mediated by online platforms, will remove supportive management relationships. The way work is managed, combined with the way gig work is performed, may give rise to new risks which may have a greater negative impact on more vulnerable groups of workers.
- As the number of those engaged in gig work continues to grow, there is a possibility that work-related stress and mental health issues will increase as a result of financial insecurity, high job demands, low job control and little or no support.
- Facilitated by technology, growth in gig working is now evident across many sectors and job roles, with potential implications for how key health and safety issues are defined within HSE industry sector strategies.

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1 INTRODUCTION

Advances in digital technology have enabled the development of online platforms that function to efficiently match buyers and sellers in a range of different labour markets e.g. Uber in the taxi market and Deliveroo in food delivery. These online platforms utilise very different business models compared to the standard operators in these markets, resulting in their presence having a “disruptive” impact on issues such as cost and price, speed of service deployment and the nature of how services are deployed. The arrival of these online platforms and their new business models are impacting on the nature of work and the employment relationship.

The emergence of online platforms linking workers and customers for their labour is the driving force behind the increasing prominence of the gig economy. The gig economy refers to the growing number of workers choosing to work independently on a task-by-task basis for various providers, but typically online platforms. People who work in the gig economy (i.e. gig economy workers) tend to have a portfolio of one-off, small jobs instead of (or as well as) full time jobs. Instead of a salary, gig economy workers get paid on a task by task basis i.e. for the 'gigs' they do, like a food delivery visit or a taxi journey. Gig economy workers might be classed as self-employed or freelance, with little employment protection e.g. no protection against unfair dismissal, no right to redundancy payments, no right to receive the national minimum wage, paid holiday and no sickness pay.

It has been suggested that, as the gig economy continues to gain momentum, companies will need to embrace this growing business model in order to remain competitive. In addition, they will require increased capabilities in order to effectively manage these freelance workers. A 2016 Deloitte survey¹ revealed that the top three challenges cited by executives regarding the freelance economy were: legal or regulatory uncertainty (20 per cent); contingent workers unreceptive to corporate culture (18 per cent) and a lack of understanding among leadership (18 per cent).

2 METHODS

2.1 Aims

The aim of this research was to improve HSE's understanding about the health and safety implications of the gig economy. Specifically, this research set out to find answers to the following research questions:

- What is gig economy work in terms of its key characteristics and the types/categories of work involved?
- Which demographic groups are employed in gig economy work?
- What is an overall description and alternative labels for the gig economy that may be appropriate for HSE?
- What is the current size of the Great Britain (GB) gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?
- What factors are facilitating change in the development of the gig economy, and what factors might hinder this?
- What are the safety and health risks (and benefits) facing those working in the gig economy? Are any of these risks that HSE is not already aware of?
- What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?

2.2 Literature Search

The approach used was to commission a search of the literature focusing on both traditional academic papers and also reputable publications in the so called "grey literature" e.g. reports published by reputable organisations such as the Chartered Institute of Personnel and Development (CIPD) and Royal Society of Arts (RSA).

The search was carried out by HSE's Search Team. A teleconference with the Search Team was the first step in the search process during which relevant background issues were explained and discussed. The search was done in two stages:

- A database search of peer reviewed literature and
- An Internet search carried out with relevant search engines e.g. Google Scholar

The literature search process, including relevant statistics, summarised in diagrammatic form in Figure 1. A more detailed description of the search process is presented in Appendix 1.

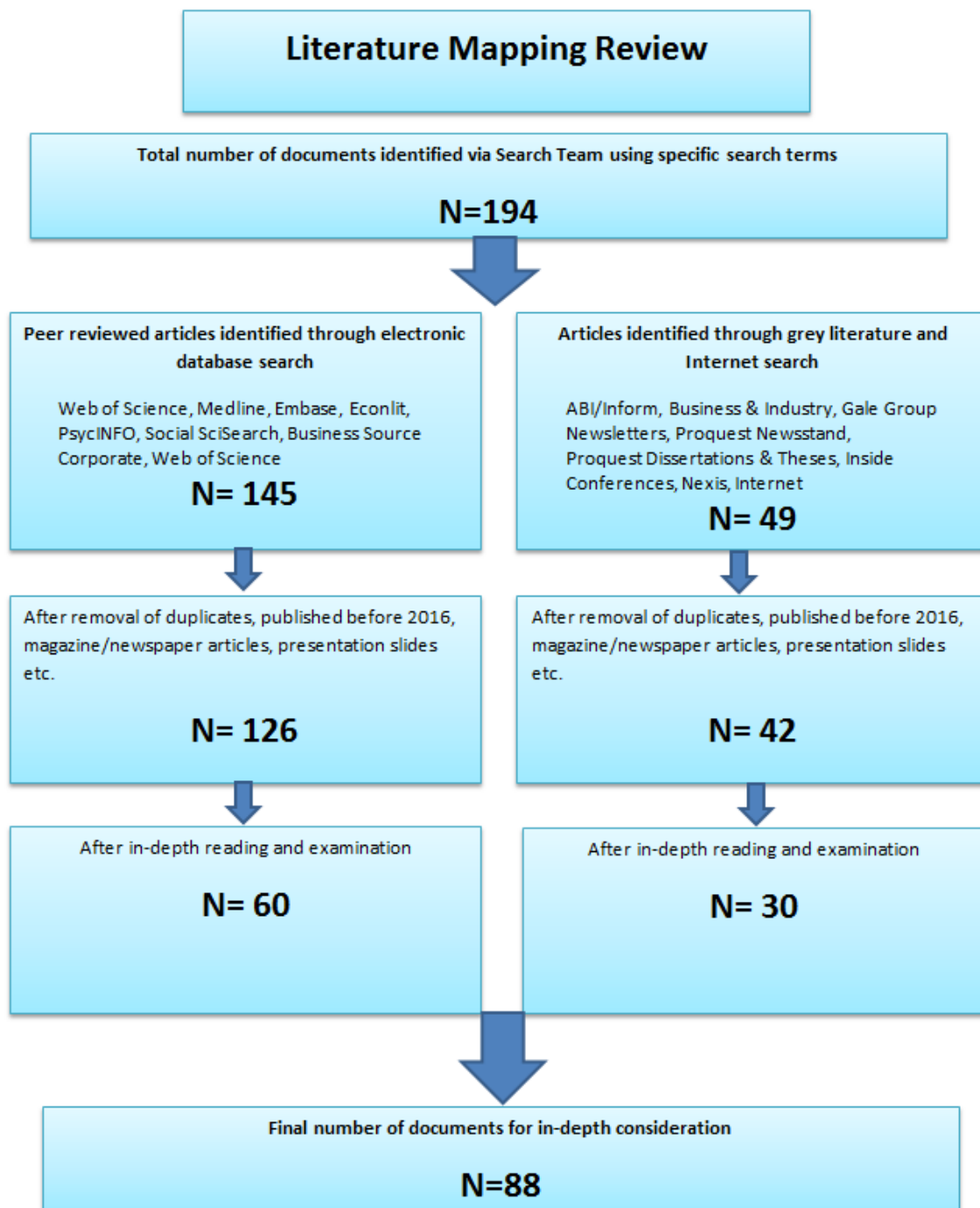


Figure 1 Summary of gig economy literature review inclusion and exclusion process

3 RESULTS¹

An overview of key results is presented as an infographic in Appendix 2.

3.1 Key characteristics and types/categories of gig economy work

The literature describes gig economy work as aligning with a number of different types and categories of work, including:

- Agency workers
- Casual workers
- Freelance workers
- Independent contractors
- Part time work
- Self-employed workers
- Temporary workers
- Workers hired through recruitment agencies
- Workers in small non-unionized businesses

The types of work undertaken by gig economy workers include:

- Blue collar work
- Building work
- Care work
- Catering and hospitality
- Childcare
- Cleaning
- Domestic work
- Flat pack furniture construction
- Food delivery riding
- Gardening
- Harvesting
- Home repair
- Information Technology and services
- Parcel delivery
- Taxi driving
- Unskilled manual work

The literature describes gig economy work as exhibiting characteristics that place it outside the scope of the traditional employee-employer relationship, its typical characteristics being that:

- it is short-term, unpredictable and contingent
- it involves informal, casual, “non-standard” working relationships

¹Please see Appendices 2 and 3 for the full list of references that informed the information in this results section – where the text in the main report mentions specific documents, these are referenced individually in the References section. Appendices 2 and 3 also indicate the documents that were most relevant to the gig economy in GB and/or the UK.

- it is commissioned on an “on-demand” basis
- it is typically obtained via online platforms
- gig economy workers are typically viewed by platforms as self-employed and/or independent contractors and/or freelancers
- work is commissioned and paid for on a task-by-task basis

In this sense, the literature categorises gig economy work as typically “non-standard” i.e. gig economy work is the antithesis of a traditional full-time job that exhibits regularity, stability and long-termism.

3.2 Demographic groups are employed in gig economy work

The UK Department for Business, Energy & Industrial Strategy (BEIS) commissioned the National Centre for Social Research (NatCen) to undertake survey based research into the gig economy in GB². A key objective of the research was to identify some of the important demographic characteristics of those participating in the GB gig economy.

The BEIS survey found that the majority of those working in the GB gig economy (56%) are in the 18 to 34 age range, compared to only 27% in the general GB population. This situation is reversed in the 55 years and older age group where participation in the gig economy drops to just 10%, despite this age group making up 39% of the GB population [Figure2].

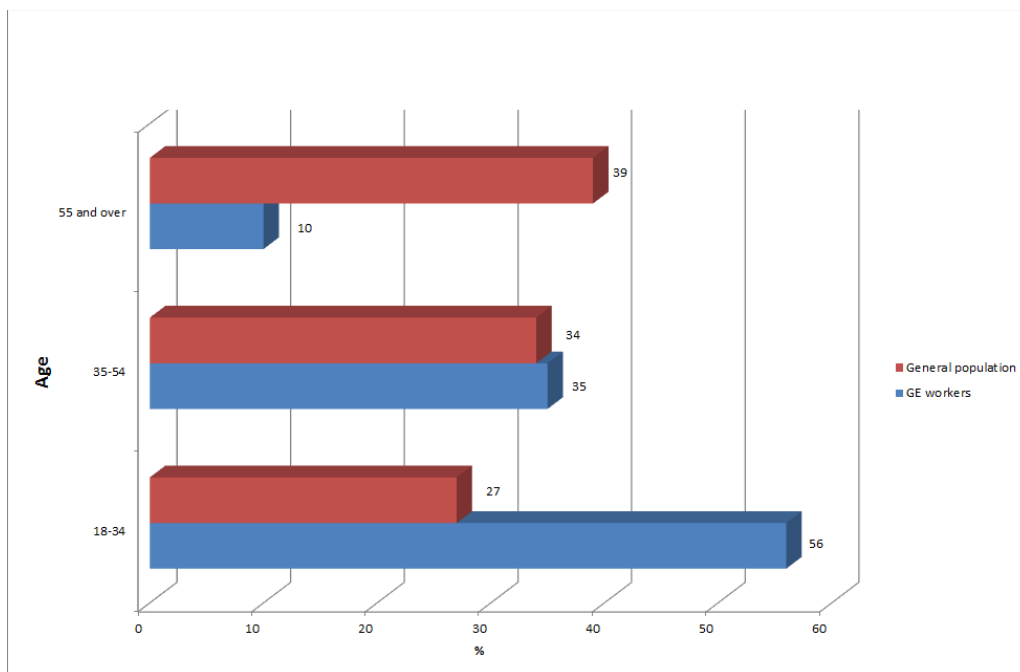


Figure 2 Age Profile of the GB Gig Economy Participation Compared With General GB Population

There is little difference in terms of qualifications between GB gig economy workers and the general GB population [Figure 3].

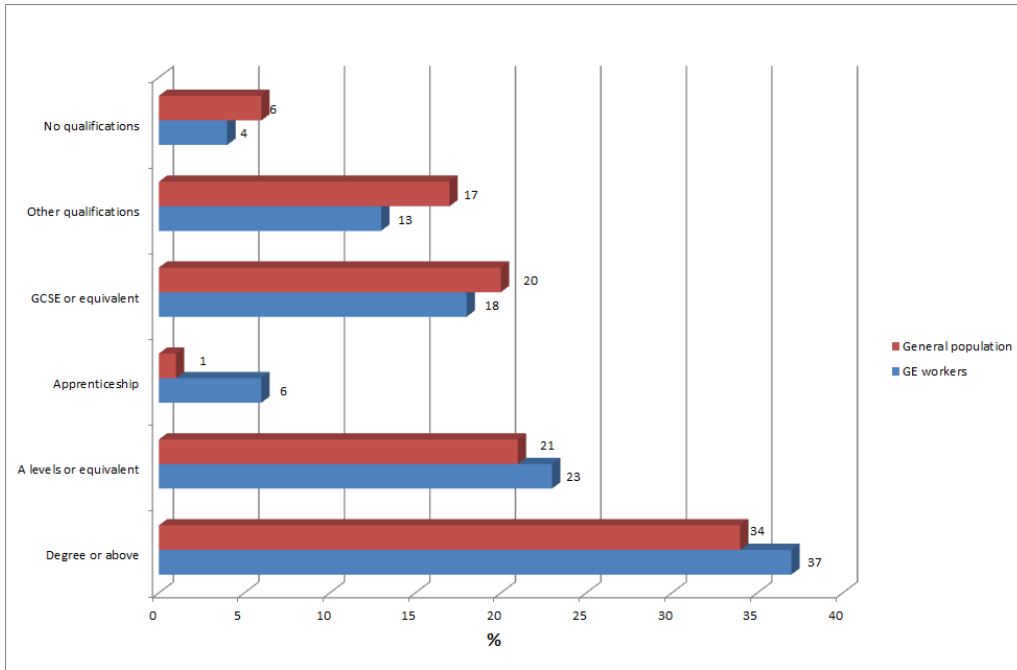


Figure 3 Level of Education of Gig Economy Workers Compared to GB Population

The majority of workers in the GB gig economy earn between £10K and £30K per year [Figure 4]. Overall, income levels are similar to those in the GB population. The data reflect overall income, so it is not possible to infer the proportion of income that is earned solely from gig economy work. As in the overall GB population, around a quarter of those participating in the gig economy could be described as having a low annual income i.e. under £10K. However, Figure 4 also suggests that gig economy is not solely the preserve of those on low incomes.

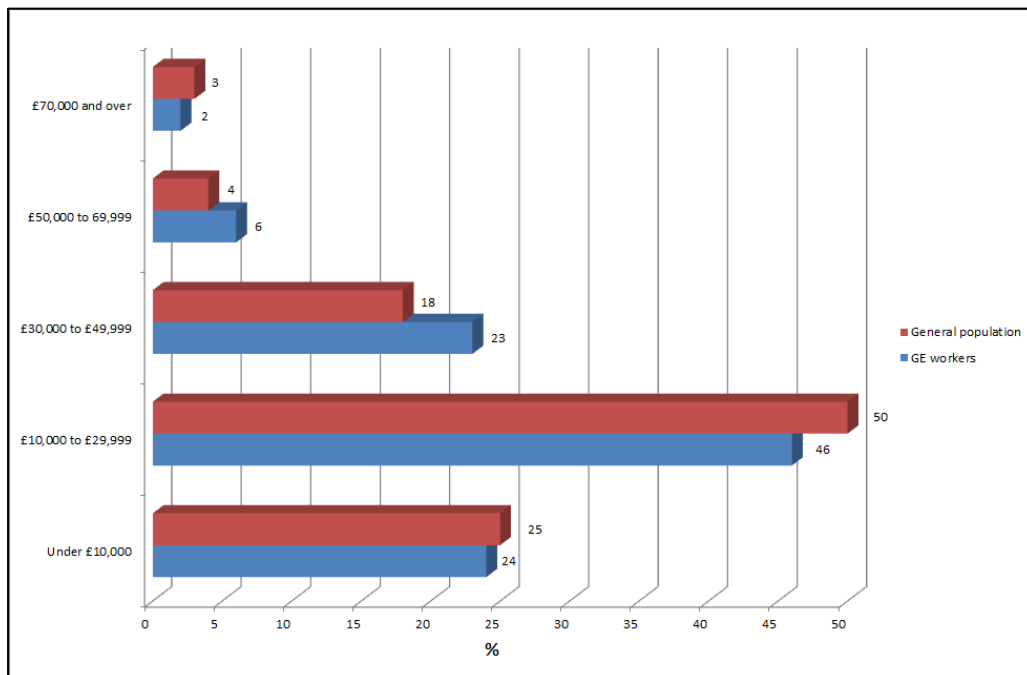


Figure 4 Annual Incomes of Gig Economy Workers Compared to the GB Population

The majority of those working in the gig economy (55%) work more than 30 hours per week, compared to 39% in the general GB population [Figure 5], although overall working hours could be a combination of gig economy and non-gig economy jobs.

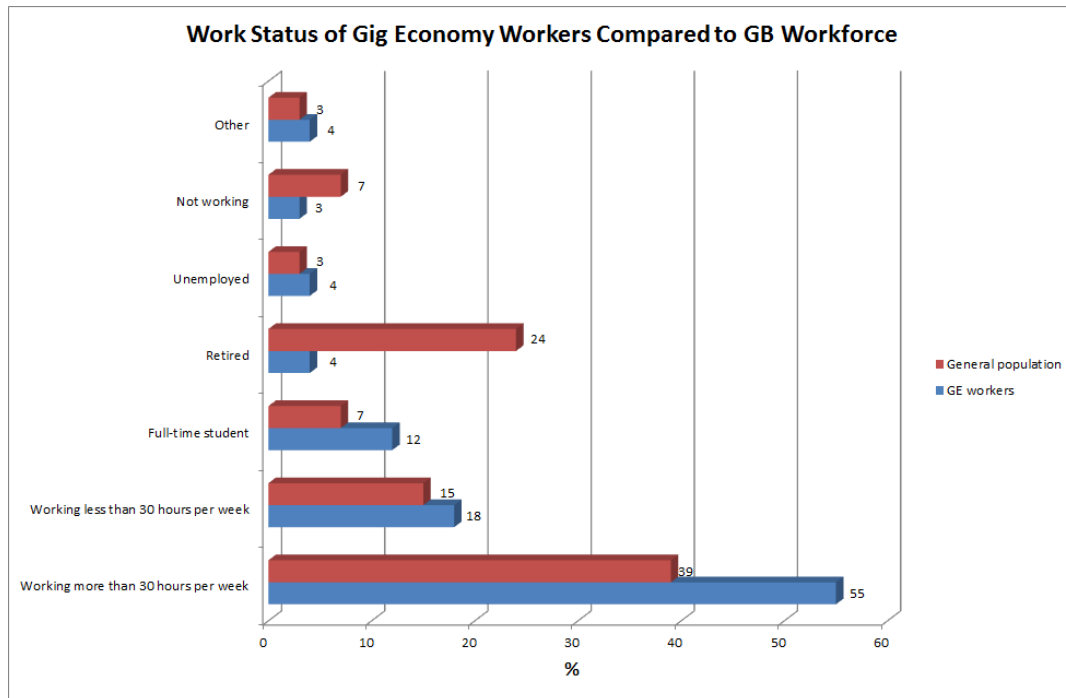


Figure 5 Work status of gig economy workers compared to the GB workforce

3.3 Short descriptions for each of the characteristics, types/categories of gig economy work

Short-term work –work accepted via platforms has a short-term focus with a time horizon typically as long as the duration of the task being undertaken.

Informal working relationship – the relationship between the gig economy worker and the work commissioned is not formalised (i.e. with no standard employment rights or entitlements) and the worker has no long-term connection to any particular business.

On-demand work – non-predictable work generated by the demands of customers requiring the performance of a specific service (e.g. a parcel delivery) at a specific time .

On-line platform – a website designed specifically to function as a digital “market-maker”, bringing together buyers and sellers of labour. The organisations operating the on-line platforms function as paid (i.e. they take a commission fee) intermediaries but who typically distance themselves from the markets they create

Independent contractor – an individual who contracts to perform work or provide services to a customer as a non-employee i.e. no income tax is deducted and the contractor has no traditional employment rights

Freelancer – a freelance worker is someone who works independently (i.e. does not have “employed” status) and typically provides services to multiple organisations that they contract with on a job-by-job basis

Non-standard work – a working relationship between sellers and buyers of labour that falls outside the description of the a standard employer-employee relationship e.g. work is not guaranteed, there are no standard employment rights, payment is on a task-by-task basis (this description is more specific than some in that it excludes part-time, temporary, fixed term etc. work)

Casual work – work that does not involve any expectation of regularity in terms of frequency of the work or the number of hours worked

Task-by-task basis – individuals perform work consisting of separate, unrelated tasks that are offered with a frequency that is unpredictable

Self-employed – working in the capacity as a sole trader in contrast to working as an employee. This typically involves running your own company. Her Majesty’s (HM) government has published a set of criteria that may help identify self-employed status:

- your business is run for yourself and the self-employed take responsibility for its success or failure
- you have several customers at the same time
- you decide how, where and when you do your work
- you can hire other people at your own expense to help you or to do the work for you
- you provide the main items of equipment to do your work
- you are responsible for finishing any unsatisfactory work in your own time
- you charge an agreed price for your work
- you sell goods or services to make a profit (including through websites or apps)

Unpredictable work – work where there is no predictable or structured pattern to the way tasks are allocated to workers i.e. unpredictability in the quantity and timing of task allocation could mean that after finishing an evening shift at 23:00 a worker could be asked to start an early shift at 05:00 the following day

Contingent² work - also termed casual work, is an employment relationship that is typically considered to be non-permanent, likely to be part-time, paid on a task-by-task basis and offering limited job security

² The term contingent is defined here as “possible, but not certain to happen”

3.4 An alternative overall description and alternative labels for the gig economy which may be appropriate for HSE

The Department for Business Innovation and Skills defines the gig economy as:

“Involving the exchange of labour for money between individuals or companies via digital platforms that actively facilitate matching between providers and customers, on a short-term and payment by task basis.”

A suggested working description of gig economy work for HSE is:

Gig economy work is characterised by short-term, informal working relationships where work is generally on-demand, obtained via an online platform and delivered (and paid for) on a task-by-task basis. Gig economy work is non-standard³, casual, unpredictable, irregular, contingent and temporary.

From the perspective of the platforms, gig economy workers are most likely to be referred to as independent contractors, freelancers or self-employed.

Gig economy workers have some potential to exercise flexibility around the work they commit to and when it is performed. However, platforms also have potential to impose degrees of control over how gig economy workers perform their work.

3.5 The current estimated size of the GB gig economy and potential future trends

Balaram, Warden and Wallace-Stephens of the RSA worked with Ipsos Mori in 2017 to survey workers in GB.³ Balaram et al estimated that around three per cent of adults aged over 15 years have at some time or another been involved with gig economy work i.e. around 1.6 million people. The RSA survey estimated the number of current workers in the gig economy at around 1.1 million people.⁴ Balaram et al define gig economy workers as “sourcing one job at a time, but by logging into an app or clicking through to a website. Each ride an Uber driver accepts is a ‘gig’ or a single job, as is each booking a Hassle cleaner makes to tidy a flat or every errand run through TaskRabbit”. Furthermore, Balaram et al report that gig economy workers are “37 percent are employed, 25 percent work full-time and 12 percent work part-time. Of the remaining 31 percent, 24 percent are in some form of self-employment and 7 percent are on a temporary contractor or in work of other means.” There is also some overlap between these categories.

The 2018 Department for Business, Energy & Industrial Strategy (BEIS)/ NatCen survey was a probability-based online survey of 2,184 individuals in GB, and was used to estimate the number of people involved in the GB gig economy. The BEIS/NatCen survey concluded that around 2.8 million people in GB had worked as gig economy workers during the previous 12 months.⁵ The BEIS report defines gig economy workers as:

³ From an employment contract perspective

⁴ 95 percent confidence interval (+/- 0.33 percent) of 0.96 million to 1.3 million

⁵ 95 percent confidence interval (+/- 1.4 percent) of 2.05 to 3.8 million

- *“Individuals completing tasks using platforms which play an active role in facilitating work and take a proportion of the pay or charge providers fees for using the platform (for example via Uber, TaskRabbit, PeoplePerHour).*
- *People providing services who are either freelancers or may have set up a one-person business to offer their services.*
- *People for whom gig economy is the main source of income and those who use it to top up their income from other sources.”*

The BEIS survey identified gig economy workers as working full and part-time, full time students, retired, registered unemployed, and not working [assumed not registered unemployed]. The literature did not specifically report on trends for the gig economy relating to the period 2010 to 2018. Vaughan and Hawksworth (2014) of Price Waterhouse Coopers published a short position paper summarising the results of their forward looking research on the so-called sharing economy⁶, of which the gig economy is a part.⁴ Globally, Vaughan and Hawksworth predicted that revenues from the sharing economy will increase from \$15 billion in 2014 to around \$335 billion by 2025. For the UK as a whole, they predict the sharing economy to be worth approximately £9 billion by 2025. This prediction of growth with regard to the gig economy was a view taken by the European Parliament.⁵

3.6 Factors that may facilitate change in the gig economy

The literature suggests that there are a range of factors contributing to the increase in size of the gig economy. For example, The European Agency for Safety and Health at Work (digitisation)⁶, the International Labor Office (ILO) (growth of technology)⁷ and the Institute for Public Policy Research (the acceleration of professional freelancing)⁸ comment on different factors that may help the gig economy to grow. The literature overall suggests that the following factors may be influential:

- An increasing “on-demand” economy
- Increasing digitisation and connectivity
- Growth of online platforms
- Increasing demand for services
- An increase in role of service industries
- More decentralised and less capital intensive forms of production
- Under employment
- A drive for greater flexibility and cost savings related to work
- Globalization
- Neoliberal politics
- Technological advances
- Deindustrialization
- Expansion of supply chains
- The popularity of franchising
- The global financial crisis
- Changes in work organization as regards the place and time of working
- An increasing need of both employers and employees for more flexible work relationships

⁶ The sharing economy is a term synonymous with online facilitated, economic activity based around the sharing of goods and/or services either for free or for a fee. A well know example of a sharing economy service is Airbnb. The gig economy is typically seen as a component part of the sharing economy.

- The existence of well-educated young professionals looking for alternative forms of employment
- Companies that are no longer willing to provide security and training for their workforces

3.7 The potential safety and health risks (and benefits) facing those working in the gig economy

Overall, only a small proportion of the included literature made reference to either health and / or safety risks arising from participation in the gig economy. The key health risks reported were work-related stress and the development of mental health issues as a result of work-related stress. The predominant safety risk was fatigue (which increases the risk of accidents) and increased risk of occupational injury. Regarding health risks, eight peer reviewed papers reported original quantitative research involving the analysis of primary or secondary data. One paper reported a meta-analytic study. Regarding safety risks, there was less evidence with only one peer reviewed paper reporting evidenced based on quantitative data analysis.

Health issues identified

- Work-related stress - working to tight deadlines/time pressures/lack of sick pay protection, the need to be available at all times, a lack of job control, a lack of control of working time, low job security and low autonomy are potential work-related stressors
- Lack of health surveillance/occupational health care
- A Brazilian study found informal employment was significantly associated with obstructive sleep apnoea amongst truck drivers (along with body mass and poor sleep quality)⁹
- Poorer health outcomes (for example an elevated risk of depressive symptoms¹⁰) were linked with job insecurity and precarious work
- Mental health issues (e.g. depression) - precarious work, typical in the gig economy and defined as work described as an atypical, non-standard, contingent, marginal, and unstable form of employment, characterized by job insecurity¹¹ was associated with poor health outcomes

Safety issues identified

- Fatigue e.g. drivers who have no maximum driving times, high workloads may increase the risk of road accidents.
- Visual fatigue (increasing the risk of accidents)
- Association between occupational injuries and precarious employment

The summarised evidence in Tables 1 and 2 suggests that the quantity of evidence relating to safety issues arising from participation in the gig economy is less than that relating to health. There is no obvious evidence from the literature that the gig economy is associated with any new, previously unknown health and safety risks.

Table 1 Health risks relating to gig economy

Health Risk	Factors associated with the risks	Number of Papers / Reports
Work-related stress	Uncertainty / heavy workload / tight deadlines / time pressures / needing to maintain high levels of availability / lack of control / precarious work / Platform work organisation e.g. arbitrary terminations, long hours	11
Mental health problems	Cyber bullying / Non-standard work / precarious work / temporary work / long working hours	9
Musculoskeletal disorder (MSD) development	Poor set up of display screen equipment (DSE)	2
Poor health outcomes overall	Job insecurity / non-standard work / precarious work / uncertainty	3
Lack of health surveillance/occupational health provision	Online platform operators do not consider themselves as employers	1
Women at greater risk of health problems	The nature of precarious work	1
Visual problems	DSE issues with poorly set up IT equipment	1

Table 2 Safety risks relating to gig economy

Safety Risk	Factors associated with the risks	Number of Papers / Reports
General risk of occupational injuries	Precarious work / contingent work	3
Driving risks e.g. road traffic accidents (RTAs)	Distractions from electronic message devices	2
No maximum driving time (e.g. Uber drivers)	High workloads and tight deadlines	1
Visual fatigue		1

3.8 The things that HSE may need to do differently in order to mitigate/manage risks from the gig economy

An important theme running through the reviewed literature on the gig economy is that of “non-standard” work. The term “non-standard” refers to those aspects of gig economy work that differentiate it from the standard employment relationship e.g. precariousness, payment on a task-by-task basis, on-demand, workers regarded by the online platform operators as self-employed.

If the gig economy increases in size, HSE may need to consider this new business model in terms of how the health and safety of gig economy workers are protected.

4 CONCLUSIONS

This research set out to answer a specific set of questions pertaining to the GB gig economy but with an emphasis on implications for health and safety, and specifically the regulation of health and safety in GB. The main conclusions are:

- **The size of the GB gig economy** – In terms of the number of participants, the literature is imprecise when estimating the size of the GB gig economy. The two surveys identified in the literature providing the best evidence of size offer somewhat different estimates. These surveys suggest that numbers participating in the GB gig economy are likely to be between one and just under three million people. However, the uncertainty inherent in the research methods employed could mean that the upper estimate could be just fewer than four million people.
- **The demographics of gig economy work** – We conclude that participation in the gig economy is dominated by the under 35 demographic group, typically described as “Millennials” (24 to 34 years) and “Generation Z” (22 years and under). This conclusion is important in that these demographic groups will likely have differing values and expectations compared to older demographic cohorts. This demographic profile of the GB gig economy workforce may be relevant in any future attempts by HSE to communicate with and / or influence gig economy workers.
- **Key characteristics of the gig economy** – The key characteristics of the gig economy identified by the research included a trend towards work intensification, uncertainty around work availability, payment on a task-by-task basis and workers classified as independent contractors rather than employees. These characteristics suggest that gig economy work appears to be a different way for workers to earn an income that does not align with traditional employment practices.
- **Potential risks associated with the gig economy** – The literature suggests that it is health rather than safety risks that will be faced by workers in the gig economy. The precarious nature of gig economy work, coupled with issues such as lone working and low levels of worker control over their work, suggests that issues such as work-related stress and mental health problems are likely to be key risks faced by gig economy workers. Similarly, the geographic dispersion and social isolation of gig economy workers could make it hard for health and safety issues to get reported. As the prevention of work-related stress is currently one of HSE’s priority health policy areas, the gig economy, and its attendant health risks, could be an area of future interest for HSE.
- **New risks associated with the gig economy** – Although the literature did not highlight any obvious new health and safety risks, the role of the online platforms in mediating gig economy relationships is suggestive of two new potential areas of risk:
 - the impact of a lack of leadership support at individual worker level could engender the potential for the development of work related stress
 - the online nature of the platforms could create the potential for workers to be exposed to cyber bullying

Future trends - In terms of trends over the next five years therefore, a reasonable position appears to be a prediction that in GB, the gig economy will grow by value and in overall numbers of workers participating. As the gig economy in GB is growing, and is likely to continue to grow in future years, this could have potential implications for the regulation of health and safety for the workers involved. Gig economy work essentially characterises a new type of employment relationship based on the key characteristics of gig economy work. The online platform operators are very clear that the workers who contract with them are independent contractors as opposed to employees. This blurring of the traditional employer-employee relationship that characterises gig economy work could potentially impact on HSE as a regulator in this area. This may have implications for the current way in which health and safety is regulated in GB. The reason for this latter comment relates to the Health and Safety at Work Act (1974) which is largely predicated on the existence of a traditional employer-employee relationship.

5 REFERENCES (REPORT TEXT)

1. *Global Human Capital Trends 2016. The new organization: Different by design*, Deloitte University Press, page 106, 2016
2. *The Characteristics of those in the Gig Economy - Final report February 2018 (latest statistical estimates)* Katriina Lapanjuuri, Robert Wishart and Peter Cornick, Department for Business, Energy & Industrial Strategy (BEIS) commissioned report, February 2018
3. *Good Gigs : A fairer future for the UK's gig economy*, Brhmie Balaram, Josie Warden and Fabian Wallace-Stephens, Royal Society of Arts, 2017
4. *The sharing economy: how will it disrupt your business? Megatrends: the collisions:* Robert Vaughan and John Hawksworth, Price Waterhouse Coopers, August 2014
5. *The Social Protection of Workers in the Platform Economy*, European Parliament 2017
6. *Protecting Workers in the Online Platform Economy: An overview of regulatory and policy developments in the EU.* European Risk Observatory Discussion paper 2017, European Agency for Safety and Health at Work.
7. *Organizing On-Demand: Representation, Voice and Collective Bargaining in the Gig Economy*, Johnston, H., & Land-Kazlauskas, C. Conditions of Work and Employment Series No. 94. International Labour Office, Geneva, 2018
8. *Flexibility for who? Millennials and mental health in the modern labour market*, Craig Thorley and Will Cook, Institute for Public Policy Research, 2018
9. Lemos, L.; Marqueze, E.; Sachi, F.; Lorenzi-Filho, G.; Moreno, C. 2009. "Obstructive sleep apnea syndrome in truck drivers," *Jornal Brasileiro De Pneumologia*, 35, pp. 500–
10. Woorim Kim, Eun-Cheol Park, Tae-Hoon Lee, Tae Hyun Kim (2016) *Effect of working hours and precarious employment on depressive symptoms in South Korean employees: a longitudinal study*, *Occupational and Environmental Medicine* 2016;73:816–822
11. Kyu-Man Han, Jisoon Chang, Eunsoo Won, Min-Soo Lee, Byung-Joo Ham: *Precarious employment associated with depressive symptoms and suicidal ideation in adult wage workers*, *Journal of Affective Disorders* 218 (2017) 201–209

6 APPENDIX 1 DETAILED DESCRIPTION OF LITERATURE SEARCH METHODOLOGY

Search strategy and terms

The HSE Search Team developed the following set of search terms and criteria for the peer reviewed literature search:

Search Concept 1: gig or platform or platforms or platforming or “on line” or online or flexible or crowd or “on demand” or precarious or insecure or “multi party” or multiparty or independent or freelance or portfolio or agency or sharing or zero or “non -permanent” or no-permanent or “task by task” or “task to task” or “job to job” or “project by project” or casual or homework* or atypical or piecework or contingent or temporary or irregular or “crowd work*” or crowdwork* or “peer economy” or “peer to peer”

AND

Search Concept 2: work or worker or workers or workforce* or working or job or jobs or employ* or economy or economies or occupation*

AND

Search Concept 3: health or safe* or wellbeing or welfare or mental or stress or risk or risks or accident* or incident* or wellness

OR

Search Concept 3: trend or change or changes or changing or demographic* or statistic* or trend or trends or pattern* or predict* or size or relationship or factor or factors or analysis or future or regulat* or legislat*

Databases searched

The Search Team ran searches of the following databases and of the Internet:

Peer Reviewed Literature:

- Web of Science
- Medline
- Embase
- Econlit
- PsycINFO
- Social SciSearch
- Business Source Corporate

Grey Literature:

- ABI/Inform
- Business & Industry
- Gale Group Newsletters
- Proquest Newsstand
- Proquest Dissertations & Theses
- Inside Conferences
- Nexis

Internet search:

Sources:

- Government websites such as Gov.uk, BEIS, IES and other official organisations such as OECD, ILO, EU-OSHA
- Associations/Societies such as CIPD, Royal Society of Arts, Manufactures and Commerce
- University research bodies such as The iLabour Project, Oxford Internet Institute
- Other research organisations such as The Work Foundation, Foundation for European Progressive Studies
- Trade Union publications

The Internet search was carried out using an adapted version of the peer reviewed paper search strategy above. The search was limited to documents published within the last five years i.e. between 2013 and 2018.

Evaluation and Information Extraction

A total of 194 documents were identified from the database and Internet search. The material was evaluated in two stages:

Stage 1 – initial exclusion criteria

The research team developed a set of initial exclusion criteria based on the following criteria:

- Duplicates – duplicate papers were automatically excluded
- Documents published before 2016
- Any document that was a magazine or newspaper article
- Documents discussing any country other than the UK, US, EU member state, Canada, Australia and New Zealand
- Presentation slides
- Documents not available due to problems accessing a website
- Any document that was obviously “off topic”
-

Based on these exclusion criteria, 26 documents were excluded from the review process.

Peer reviewed:	19
Web / Grey literature	7
Total	26

Therefore, 168 documents were selected for further consideration.

Stage 2 - in-depth reading and analysis

The Stage 2 selection process involved the Research Team undertaking an in-depth reading and examination of each document and applying a further set of criteria to determine inclusion / exclusion status. Three researchers agreed the criteria and undertook the in-depth reading. The Stage 2 inclusion criteria related directly to the research questions i.e. does the document help answer one or more of the research questions? Specifically, the inclusion criteria questions were:

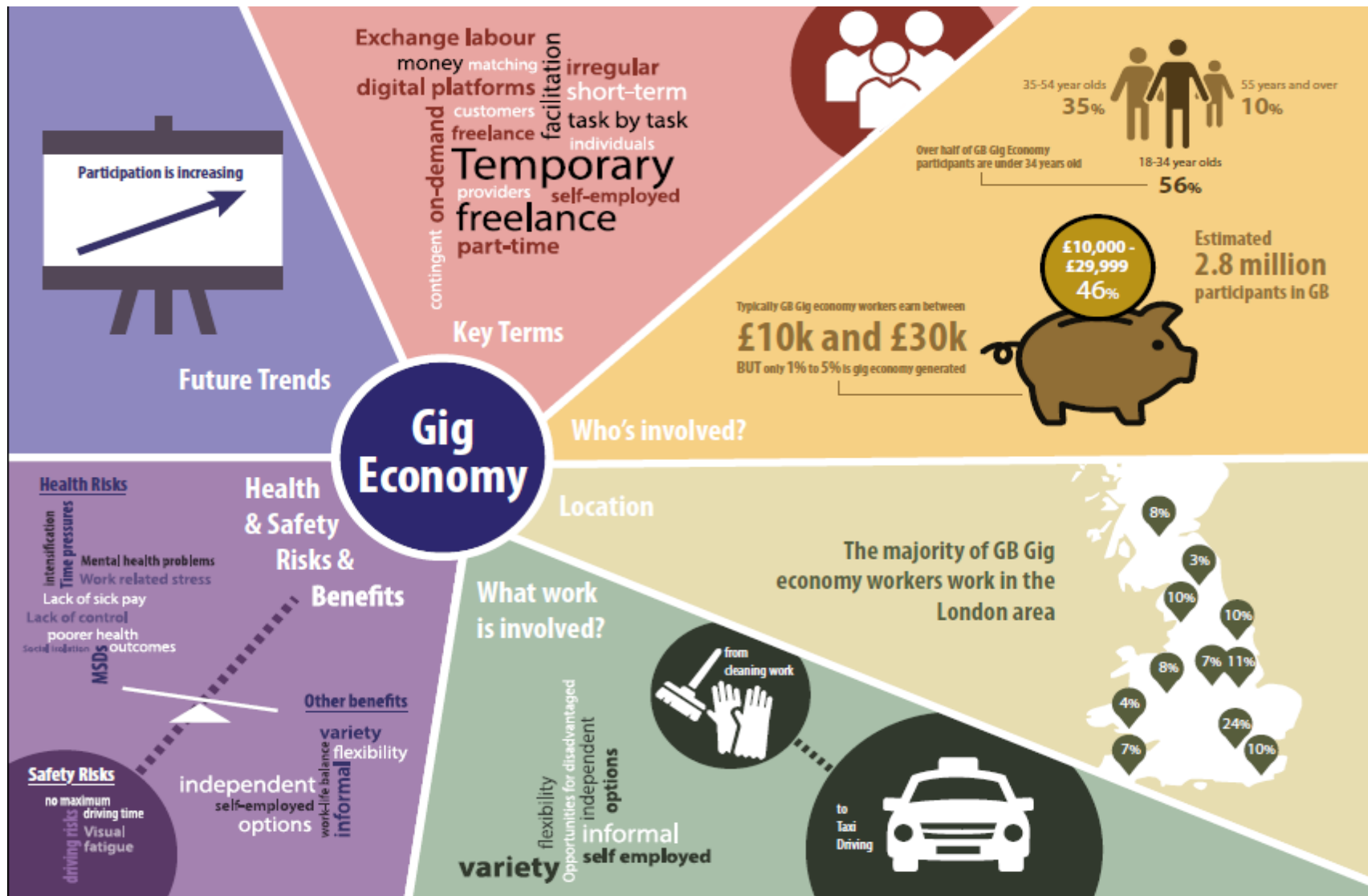
Does the document

- Describe and/or define the gig economy?
- Describe types, categories of work or demographics related to the gig economy?
- Attempt to estimate of size of the gig economy?
- Describe the drivers for growth in the gig economy?
- Mention any health and safety risks attributed to the gig economy?
- Mention control measures that mitigate any health and safety risks attributed to participation in the gig economy?

At this second stage, 80 documents were excluded, 66 peer reviewed papers and 14 grey literature/web documents, leaving a total of 88 documents included for further consideration. Information from the in-depth reading and assessment was recorded on separate spreadsheets for the peer reviewed and web/grey literature documents. Figure 1 in the main text summarises the inclusion / exclusion process.

Seven documents were identified as reporting information relating specifically to the GB and/or UK gig economy.

7 APPENDIX 2 INFOGRAPHIC OF KEY RESULTS



8 APPENDIX 3 REFERENCES FOR WEB AND GREY LITERATURE SEARCH

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Abraham, K. G., Haltiwanger, J. C., Sandusky, and Spletzer, J. R. (2017) <i>Measuring the Gig Economy: Current Knowledge and Open Issues</i> RSA	✓				✓			
Balaram, Brhmie and Wallace-Stephens, Fabian January 2018 <i>Thriving, striving, or just about surviving? Seven portraits of economic security and modern work in the UK.</i> RSA	✓			✓				✓
Balaram, Brhmie, Warden, Josie and Wallace-Stephens, Fabian (2017) <i>Good Gigs : A fairer future for the UK's gig economy</i> RSA	✓	✓	✓	✓	✓			✓

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Cheng, Denise and Powell, Annie Interviewed by Julian Sayerer <i>The gig economy</i> Lexis Nexis	✓							
CIPD Survey report March 2017 <i>To gig or not to gig? Stories from the modern economy</i>	✓	✓		✓				✓
Department for Business, Energy & Industrial Strategy (2018) <i>The Characteristics of those in the Gig Economy</i> - Final report February 2018,	✓	✓	✓	✓				✓
Drahokoupil, J and Jepsen, M (2017) <i>The digital economy and its implications for labour.</i> Transfer Vol.23 (2) 103-119 European Parliament						✓		
<i>The situation of workers in the collaborative economy</i>	✓							
European Parliament 2017 <i>The Social Protection of Workers in the Platform Economy</i>	✓		✓		✓			

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
European Risk Observatory <i>Protecting Workers in the Online Platform Economy: An overview of regulatory and policy developments in the EU.</i> Discussion paper 2017, European Agency for Safety and Health at Work.	✓		✓	✓	✓	✓		
Grimshaw, D., Johnson, M., Rubery, J., and Keizer, A. (2016) <i>Reducing Precarious Work - Protective gaps and the role of social dialogue in Europe.</i> European Work and Employment Research Centre, University of Manchester, UK, A European Commission project VP/2014/004, Industrial Relations & Social Dialogue.								
House of Lords Library Briefing <i>Gig Economy: Introduction</i>	✓	✓	✓	✓	✓			✓
House of Lords Library Briefing. <i>Gig Economy: Legal Status of Gig Economy Workers and Working Practices</i>			✓					✓

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Hunt, A. and Machingura, F. (2016) <i>A good gig? The rise of on-demand domestic work</i> Overseas Development Institute, Working Paper 07.			✓					
Huws, U (University of Hertfordshire) <i>The rise of platform labour: a fair sharing economy or virtual wild west</i>	✓	✓	✓	✓	✓			✓
Huws, U., Joyce S (2016) <i>Crowd working survey</i>		✓						
ISSUE BRIEF <i>Job quality in the platform economy</i> Prepared for the 2nd Meeting of the Global Commission on the Future of Work 15–17 February 2018 ILO	✓		✓		✓			
Kalleberg, A. L., & Dunn, M. (2016) <i>Good Jobs, Bad Jobs in the Gig Economy</i> Perspectives on Work.	✓		✓			✓		

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Kilhoffer, Z, Lenaerts, K., and Beblavy, M. (2017) <i>The Platform Economy and Industrial Relations - Applying the old framework to the new reality</i> CEPS Research Report No.2017/12 August 2017	✓		✓			✓		
Moazami, Y. (2017) <i>Uber in the US and Canada Is the Gig-Economy Exploiting or Exploring Labor and Employment Laws by Going Beyond the Dichotomous Workers' Classification?</i> 24 U. Miami Int'l & Comp. L. Rev. 609	✓				✓			
Quinlan, Michael <i>The effects of non-standard forms of employment on worker health and safety</i> Conditions of Work and Employment Series No. 67 ILO	✓	✓	✓			✓		

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
RICHARD HEEKS <i>Decent Work and the Digital Gig Economy: A Developing Country Perspective on Employment Impacts and Standards In Online Outsourcing, Crowdwor</i> 2017 Centre for Development Informatics, Global Development Institute, SEED	✓		✓	✓				
RICHARD HEEKS <i>Digital Economy and Digital Labour Terminology: Making Sense of the “Gig Economy”</i> , 2017 Published by: Centre for Development Informatics Global Development Institute, SEED	✓		✓					
Schmidt, F. A. (2017) <i>Digital labour markets in the Platform Economy - Mapping the Political Challenges of Crowd Work and Gig Work</i>	✓		✓					
Schor, J., Attwood-Charles, W., Cansoy, M., Ladegaard, I., Wengronowitz, R., <i>Dependence and Precarity in the Platform Economy</i>		✓				✓		

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Study for the EMPL Committee, European Parliament. <i>Precarious Employment in Europe Part 1: Patterns, Trends and Policy Strategy(2016)</i>	✓							
Tamkin, P, (2017) <i>Work...but not as we know it</i> IES Perspectives on HR 2017.			✓		✓			
Thorley, Craig and Cook, Will <i>Flexibility for who? Millennials and mental health in the modern labour market</i> Institute for Public Policy Research			✓	✓	✓			
University of Hertfordshire (2016) <i>Crowd work in Europe</i>	✓	✓	✓	✓		✓		

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall description and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
<p><i>What Does the Gig Economy Mean for Workers?</i> Sarah A. Donovan Analyst in Labor Policy David H. Bradley Specialist in Labor Economics Jon O. Shimabukuro Legislative Attorney February 5, 2016</p>	✓		✓					

9 APPENDIX 4 REFERENCES FOR PEER REVIEWED PAPERS AND BOOK CHAPTER SEARCH

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall descriptions and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Bajwa, U et al (2018) <i>Towards an understanding of Workers' experiences in the global gig economy</i> . Toronto	✓	✓	✓			✓		
Benach, J., Vives, A., Tarafa, G., Delclos, C., and Muntaner, C. (2016) <i>What should we know about precarious employment and health in 2025? Framing the agenda for the next decade of research</i> International Journal of Epidemiology, pp.232-238 doi: 10.1093/ije/dyv342						✓		
Bensman, D. H. (2017) <i>Port Trucking as a Test Case of Precarious Work in the Grey Zone of Work and Employment Revenue Interventions</i> Economiques Papers in Political Economy, 58.						✓		

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall descriptions and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Berins Collier, R. Dubal, V.B and Christopher Carter. (2017). <i>“Labor Platforms and Gig Work: The Failure to Regulate”</i> . IRLE Working Paper No. 106-17.	✓		✓		✓			
Bosmans, K., Hardonk, S., De Cuyper, N., and Vanroelen, C. (2016) <i>Explaining the relation between precarious employment and mental well-being. A qualitative study among temporary agency workers</i> . Work, 53, 249-264, DOI: 10.3233/WOR-152136						✓		
Campbell, I., and Price, R. (2016) <i>Precarious work and precarious workers: Towards an improved conceptualisation</i> The Economic and Labour Relations Review Vol 27(3) 314-332. DOI: 10.1177/1035304616652074						✓		
Carter, C. <i>Social Media and the Future of Creativity at Work</i> . 2018 543 L. Martin, N. Wilson (eds.), The Palgrave Handbook of Creativity at Work,				✓				

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall descriptions and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Casilli, A. (2017) <i>Venture Labor, Media Work, and the Communicative Construction of Economic Value: Agendas for the Field and Critical Commentary - How Venture Labor Sheds Light on the Digital Platform Economy</i> , International Journal of Communication, Vol.11, 2067-2070			✓			✓		
Cavallini, G. (2018) <i>The Classification of Crowdwork and Work by Platforms: Alternatives and Implications, Chapter 7 in Working in Digital and Smart Organizations</i> , Ales, E., et al. (eds.). DOI: 10.1007/978-3-319-77329-2_7	✓		✓					
Cheng, M. (2016) <i>Sharing economy: A review and agenda for future research</i> , International Journal of Hospitality Management, 57:60-70 DOI: 10.1016/j.ijhm.2016.06.03			✓		✓			
De Stefano, V. (2016) <i>Casual Work Beyond Casual Work in the EU - The underground casualization of the European workforce - and what to do about it</i> , European Labour Law Journal, Vol 7, No.3.						✓		

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall descriptions and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
De Stefano, V. (2017) <i>Non-Standard Work and Limits on Freedom of Association: A Human Rights-Based Approach</i> , Industrial Law Journal, Vol.46, No.2 DOI: 10.1093/indlaw/dww034					✓			
De Stefano, V., Aloisi, A. (2018) <i>Fundamental labour rights, platform work and human-rights protection of nonstandard workers</i> , Bocconi legal studies research paper series, Number 1 February 2018			✓					
Dølvik, J, E., Jesnes, K,. (2018) <i>Nordic labour markets and the sharing economy</i> —TemaNord 2018:516	✓		✓		✓	✓		
Donini, A., Forlivesi, M., Rota, A., Tullini, P. (2017) <i>Towards collective protections for crowdworkers: Italy, Spain and France in the EU context</i> . Transfer 2017, Vol. 23(2) 207–223			✓				✓	

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall descriptions and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Flanagan, F. (2017) <i>Symposium on work in the 'gig' economy: Introduction</i> The Economic and Labour Relations Review Vol.28(3) 378-381, DOI: 10.1177/1035304617724302			✓		✓	✓		
Graham, M., Hjorth, I., & Lehdonvirta, V. (2017) <i>Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods</i> , Transfer, Vol.23(2), 135-162. DOI: 10.1177/1024258916687250					✓			
Graham, M., Woodcock, J. <i>Towards a Fairer Platform Economy: Introducing the Fairwork Foundation</i> . Social Inequality and the Spectre of Social Justice	✓		✓			✓		
Gramano, E., (no date) <i>Digitalisation and Work Challenges from the platform economy</i>	✓		✓			✓		
Gravel, S., and Dube, J. (2016) <i>Occupational Health and Safety for Workers in Precarious Job Situations: Combating Inequalities in the</i>						✓		

What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall descriptions and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
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Workplace. E-Journal of International and Comparative Labour Studies, Vol.5, No.3,

Green et al. (2018) *Fuelling the Gig Economy: A Case Study Evaluation of Upwork.com*. Management and Economics Research Journal, Vol. 4, Iss. 2018, 104–112

✓

Hakansson, K., and Isidorsson, T. (2016) "Between two stools: occupational injuries and risk factors for temporary agency workers", International Journal of Workplace Health Management, Vol.9, Issue:3, pp.340-359, DOI: 10.1108/IJWHM-07 2015-0038

✓

Han, K. M., Chang, J., Won, E., Lee, M-S., & Ham, B-J. (2017). Precarious employment associated with depressive symptoms and suicidal ideation in adult wage workers. *Journal of Affective Disorders*, 218, 201-209. <https://doi.org/10.1016/j.jad.2017.04.049>

✓

	What are the key characteristics of gig economy work?	Which demographic groups are employed in gig economy work?	What are the descriptions for HSE of terms related to the GB gig economy? What is an alternative overall descriptions and alternative labels for the gig economy which may be appropriate for HSE?	What is the current size of the GB gig economy? How had this changed since 2010, and how is it anticipated to change in the next 5 years?	What factors may facilitate change in the gig economy?	What are the safety and health risks (and benefits) facing those working in the gig economy?	What (if anything) might HSE need to do differently in order to mitigate/manage risks from the gig economy?	Document focuses on data specific to GB or UK?
Harmon, E., Silberman, M., <i>Rating Working Conditions on Digital Labor Platforms. Computer Supported Cooperative Work (CSCW) (2018) 27:1275–1324</i>								
Healy, J., Nicholson, D., and Pekarek, A. (2017) Should we take the gig economy seriously? <i>Labour & Industry: a journal of the social and economic relations of work</i> , 27:3, 232-248, DOI: 10.1080/10301763.2017.1377048			✓		✓			
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Understanding the health and safety implications of the gig economy

Growing numbers of people in Great Britain are working in the gig economy – it is an upwards trend that is anticipated to continue. As the regulator of workplace safety and health, it is important that HSE understands the implications of gig work – both positive and negative. This report describes a literature review to gather evidence about the size, characteristics and health and safety implications of the gig economy. The aim was to improve HSE’s understanding, not to develop a definition, of the gig economy.

The literature review’s findings are as follows. Gig economy work was found to be characterised by short-term informal working relationships. This work is generally on-demand, obtained via an on-line platform and delivered, and paid for, on a task-by-task basis. It is casual, unpredictable, irregular, contingent, and temporary, with the possibility of increased work intensification. Determining the size of the gig economy, and identifying typical number of hours worked, is challenging. Gig economy workers in GB are estimated to be around 2.8 million. There is a possibility that for many the hours are excessively high, and that gig work is used to supplement other income. For some, gig work offers benefits such as variety and flexibility. However, the main health risks associated with participation in the gig economy were found to be work-related stress and the development of other mental health issues. This study has provided a useful working description of the gig economy to help inform HSE policy.

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