[dstl] The Science Inside

People: Horizons

The Gig Economy

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The Programme

The People: Opportunities, Threats and Radical Approaches (POTRA) Project sits within Dstl's Future Workforce and Human Performance (FWaHP) Programme. POTRA aims to assess future opportunities and threats to the People component of Defence & Security as well as develop radical and potentially game-changing concepts and solutions. Alongside this newsletter series; POTRA also hosts regular conferences in partnership with King's College London for our community of interest. Past conference topics have included The Impact of Robotics and Automation in the Workplace; The Future of Leadership; Wellbeing + Disruptive Impact of Future Technology; Human Augmentation and The Future of Skills.

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The Gig Economy is the latest edition of the POTRA newsletter for all our stakeholders across government, academia and industry. These newsletters highlight recent developments in technologies, methods and societal attitudes within a chosen focus area. In addition to this, interviews are conducted with subject matter experts, reflecting their opinions and showcasing current work.

Definition

According to the UK's Department for Business, Energy and Industrial Strategy (BEIS) the Gig Economy can be defined as:

"…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" (The Characteristics of those in the Gig Economy, 2018).

More-recent literature defines the Gig Economy as a phenomenon involving alternative work arrangements for pieces of jobs, or more generally short term contracts which are agreed upon via digital platforms for different services (Freni-Sterrantino & Salerno, 2021).

UK Statistics

Based on fieldwork and data collection by the University of Hertfordshire and Ipsos MORI in 2019:

• Around 9.6% of UK adult population was involved in platform-based work at least once a week.

• Most of these people were involved in gig work to supplement their other incomes. Such work made up less than half the total income for 71.5% of gig workers.

• 48.1% of gig workers said they were also in full time employment.

• Around 18.7% were involved in renting out rooms through online platforms such as Airbnb.

• Around 20.2% were involved in selling self-made products on platforms such as Etsy.

• Men were slightly more likely to be involved in platform work than women.

• Although platform workers were found in all age groups. Just under 60% were between the ages of 16 and 34.

• Most people involved in platform work reported doing more than one kind of job, e.g. online work, home services, driving, delivery or running errands.

• 60.7% of the UK population was said to have used platform services at some point in time.

Source: Platform Work in the UK 2016-2019. Statistical Services and Consultancy Unit (SSCU), University of Hertfordshire and Hertfordshire Business School (HBS).

https://www.feps-europe.eu/resources/publications/682-platform-work-in-the-uk-2016-2019.html

Pros and Cons

The following pros and cons have been derived from the academic research and interviews in the later sections.

Pros

- ✓ Better employment prospects: Britain's Gig Economy more than doubled in size in the three years after 2016, accounting for nearly 5 million workers. This provides a strong indication that these online marketplaces are a significant source of employment.
- ✓ Employer benefits: There are zero costs for employers to take on full or part-time employees via such platforms.
- ✓ Rapid access to workforce: Freelancers can be found quickly and with little marketing.
- ✓ Community aspect: From the Switch Gig study (discussed later) it has been discovered that gig cyclists: develop relationships with taxi drivers, are involved in WhatsApp groups with other bikers / riders and are part of large virtual communities.
- ✓ Flexibility: Workers are able to choose work patterns to suit their current needs, for instance short stints of work rather than long-term contracts. This also benefits companies whose business models are more suited for such casual employees.
- ✓ Independence: Gig workers are often given a task to complete without supervision, which supports the development of confidence and independence.
- ✓ Variety: The wide choice of work mitigates monotony and fatigue.
- ✓ Pay: Earning potential within the Gig Economy is more heavily dependent on individual skillset, meaning that gig workers could actually earn more than their full time equivalents.
- ✓ Business costs: Gig working can reduce business costs, e.g. on boarding and equipment.
- ✓ Scalability: Businesses can quickly scale up employee numbers to meet new goals.
- ✓ Diversity: Provides diverse pools of flexible workers for all.

Cons

- ✗ Legislation: Lack of UK government policies designed to protect gig workers, such as working hours or minimum wage restrictions. Legislation in place can also vary significantly from country to country.
- ✗ Scoring: Potential for negative feedback ratings on marketplace platforms can disadvantage certain workers. Those with more negative reviews tend to receive fewer work opportunities and are regularly reminded of their risk of termination from the platform.
- ✗ Agency: For hiring companies there is a lack of control over the daily working pattern of an employee, which increases the risk that contracts will not be delivered on time or be of the expected quality.
- ✗ Liabilities: Organisational risks and costs are pushed onto freelance/gig workers. Unlike full time employees, gig workers must be prepared to insure themselves or financially deal with litigations related to property damage or third party harm whilst working.
- ✗ Clarity: Work is often managed via an ambiguous platform relationship, e.g. 'half employed, half self-employed'.
- ✗ Lack of benefits: E.g., pension, sick pay and paid leave allowances.
- ✗ Lack of worker protection: E.g. for the UK furlough scheme during the recent pandemic gig workers had to prove that they had been working independently for 2 years in order to access the government scheme via the self-employed assessment route. If they had not worked for 2 years, then support was not available.
- ✗ Development: Lack of corporate training and upskilling opportunities.
- ✗ Scarcity: Not enough jobs for the increasing number of people working in the Gig Economy.
- ✗ Social isolation: Gig workers may spend their entire working week alone.
- ✗ Wellbeing: Potential stress and anxiety from job insecurity.
- ✗ Reliability: Temporary employees' motivation and quality of work is highly variable.
- ✗ Regulations: There are separate policies and regulations for gig workers as opposed to full time workers which advantages those in full time employment.
- ✗ Tax: Gig workers need to manage personal tax payments.
- ✗ Expenses: Travel and equipment may have to be self-fulfilled.

Academic Research

New Forms of Creating Value: Platform-Enabled Gig Economy Today and in 2030 (Hamann et al, 2021)

This paper provides an understanding of the platform-enabled Gig Economy, highlighting both the positive and

negative aspects of this model, as well as proposing a framework for its development out to 2030.

A gig is a single assignment within relatively limited period. The term "Gig Economy" refers to a part of the economic system where requesters (individuals or companies) place single assignments with providers (individuals) for a short time period outside of permanent employment relationships.

To allow for short-term work to take place, requesters and providers are usually matched together by third parties. This can be done either by a virtual marketplace or by a matchmaking process in which the third-party mediator checks the requirements for the tasks to be assigned against the qualifications and suitability of the providers. The use of platforms to connect requesters and providers is known as the platform-enabled Gig Economy. Examples of this model are Amazon Mechanical Turk, Uber and Deliveroo.

For 25% of European gig workers, platform-enabled gig work accounts for 50% or more of their personal income.

Four types of gig workers were identified:

- People who receive their primary income from gig work and have actively chosen to work this way.

- Individuals who derive their primary income from gig work but would prefer different employment types.

- People who supplement their income by choice from gig work.

- People who need to supplement their income with gig work.

The authors expands on some of the positive and negative aspects of the gig economy noted on page 2 of this newsletter, these points are summarised in the table below.

Positive aspects of the Gig Economy	Negative aspects of the Gig Economy
Value Creation for Providers - the third party platforms offer broader access to potential clients than would be possible through respective personal networks. This increases the chances of getting work. In addition, the geographical scope of work is expanded because it avoids barriers such as any necessary work permits and travel costs.	Termination Risk - A project or a task can be withdrawn from the worker at short notice without compensation by the platform or client. Platform workers should be wary of this and have enough work lined up with the expectation that some tasks may fall through.
Value Creation for Requesters - The Gig Economy enables a reduction in labour costs by providing organisations with access to a large pool of people and cheap temporary workers. Even if the gig workers are more expensive than permanent employees, being able to have flexible and short-term contracts is cheaper overall.	Lack of Transparency - Only a minority of digital matchmaking platforms display a fully open and transparent approach about their terms and conditions. Most platforms tend to obscure their inner workings.
Value Creation for Intermediary Platforms - The traditional platforms mediate between requesters and providers free of charge. Members and externals can contact the registered providers directly and award contracts without involving the platform. The newer commercial platforms however claim a share of the value they generate as payment. They have been found to be more efficient than their non-platform competitors, like traditional recruitment agencies; they generate roughly the same revenue with fewer employees because they access resources outside the company and build a business without owning many assets.	Lack of Access to Data and Breaches of Data Security - When it comes to feedback, the digital matchmaking platforms are not concerned with the personal and professional development of their workers. The data behind worker ratings is often not made transparent to the platform worker as qualitative feedback is not shared. Some platforms do not push the clients for feedback at all or discuss it with the platform worker for professional development.

Around 36% of US workers currently participate in the Gig Economy with the number of workers using this model of employment at some point in their career being estimated as rising to 52% by 2023 in the US. The current economic crisis emerging from COVID 19 has also exacerbated the desire for companies to reduce their personnel costs, therefore turning to the Gig Economy as an alternative.

Measures need to be put in place now to address potential future disadvantages of the Gig Economy for both employers and employees such as;

- Regulatory interventions by responsible governing bodies.
- Promotion of more peer-to-peer oriented platforms with elements of decentralised platform governance. Such platforms are less prone to the concentrations of power which can then be misused.

Link to paper: https://www.springerprofessional.de/en/new-forms-of-creating-value-platform-enabled-gig-economy-today-a/18991710

POTRA thoughts for Defence

Defence should proactively consider the four different types of gig workers and the rising number of people engaging in this model to develop and adopt a more flexible approach to the identification and recruitment of the people required to deliver future defence requirements effectively. Embracing a

gig economy based approach would help Defence to reduce costs whilst allowing greater access to a broader range of skills sets. Adopting this newer way of working will allow greater flexibility for both employees and employers.

The ethical debate about the Gig Economy: A review and critical analysis (Tan et al., 2021)

This article outlines and analyses the key ethical challenges of the expanding Gig Economy. It refers to the Gig Economy as "markets in short-term, on-demand, occasional, and typically task-based labour" (p2).

The main ethical challenges identified include the following three categories:

1. The new organisation of work

The main ethical concern in relation to the future use of platforms is the utilisation of tools that use algorithms to support human resource management. Algorithms derive reputation scores and ratings for gig workers based on customer feedback. The scores are used to supervise and monitor workers as well as match them with new work requests, however this can result in an unequal distribution of work, where the more experienced receive more requests. Platform administrators may also hold significant power and be able to manipulate scores to influence job allocation decisions unfairly. The reputation and matching systems within the platforms can also generate competition and conflict between workers. Another ethical concern is price discrimination via algorithmic gig platforms, where different consumers are charged differing prices for the same service.

These algorithms are often protected by trade secrecy laws that guard them from scrutiny by third parties and this is exacerbated by the fact that platform administrators are not required to inform workers of algorithmic changes that influence their ability to secure work.

2. The new nature of work

The key ethical issues around the nature of work are predominately focused on the flexible/precarious nature of the gig work, and the lack of social and legal protection due to the misclassification of gig workers as non-employees.

The flexibility of gig work is both positive and problematic; workers are given more control over when they work, and how they schedule their work. However, this can be difficult for personal and practical reasons; flexibility is not always a choice of the workers, it is rather an enforced element of gig work. Some workers may prefer a routine and fixed-schedule employment for their wellbeing.

Since the pandemic, an increasing number of people in wider areas of industry have taken up work in the Gig Economy in order to make up for lost income; this increase in the number gig workers does not match service demand. The commodification of human labour through the algorithmic platforms has led to increases in the precarious nature and uncertainty of gig work. Gig platforms often portray themselves as being attractive, having positive values and being under the 'share economy' but this distracts from the continuation of low-wage work and the instability of gig work.

3. The new status of workers

The rapid growth of the Gig Economy has increased the need to better protect a new type of worker from misclassification and discriminatory effects.

The Gig Economy has challenged traditional types of employment and the employment laws in many countries. Some gig platforms have tried to avoid social, legal and economic obligations (and therefore operating costs) by "misclassifying" their workers as self-employed contractors. This results in a lack of legal, social and economic rights for gig workers, compared to more formal employees, e.g. minimum wage thresholds.

Two approaches have been suggested as potential ways to 'draw distinction between the genuinely self-employed and those requiring protection'. The first approach is to widen existing employment law categories, classifications and forms of employment protection to include gig work. The second approach looks into ways to develop completely separate categories of employment for gig workers with proposals including the creation of a 'special labour law' for this context.

Discriminatory effects on workers

Many gig workers have experienced discrimination; particularly women, ethnic minorities and those in low-income countries. Work on delocalised[1] gig platforms is often carried out by workers in lower-income countries. This type of gig work has benefits as well as ethical concerns. Outsourcing gig work can benefit a local economy, and in low and middle income countries, could lead to poverty reduction. Conversely, it does raise the issue of ethics dumping, where ethically questionable practices are used in areas where workers have fewer labour and human rights, alongside a greater economic necessity that forces them to take on such work.

Studies have reported that some female gig workers earn as little as two-thirds the average hourly rate of their male counterparts[2]. Another study has also observed gender stereotyping in platform hiring[3]. In addition, there is also

evidence of racial discrimination in the Gig Economy, an example being where African-American workers were given lower ratings by customers[4]. The implications of such discrimination are significant in platform gig work where consumer ratings are used by the platforms and can influence the gig workers' wage, work prospects and likelihood of termination.

However, research has shown that the large data sets collected by the Gig Economy could be used to create positive change in reducing ethical harm through detecting discrimination and possibly 'correcting algorithmic discrimination' by adjusting the algorithms to counteract potential racial or gender bias[5].

Other areas under discussion include various policy initiatives by governments relating to the Gig Economy, including the High-Level Expert Group (HLG) commissioned by the EU in 2019 which aims to address the issues around the digital transformation on EU labour markets. If the ethical challenges discussed are addressed, the Gig Economy could become an ethically preferable development of the market economy. However, further research is required around critical areas such as data protection and privacy challenges developing from the expansion of this market.

[1] Delocalised Gig Economy refers to services that are offered on gig platforms regardless of worker-requester locations.
[2] Arianne Renan Barzilay, Anat Ben-David, Platform inequality: gender in the gig-economy, Seton Hall Law Rev., 47 (2017), pp. 393-432).
[3] Hernan Galperin, "This Gig Is Not for Women": Gender Stereotyping in Online Hiring, Social Science Research Network, Rochester, NY (2019), 10.2139/ssrn.3501207, SSRN Scholarly Paper ID 3501207.
[4] Alex Rosenblat, Karen E.C. Levy, Solon Barocas, Tim Hwang, Discriminating tastes: Uber's customer ratings as vehicles for workplace discrimination, Pol. Internet, 9 (3) (2017), pp. 256-279, 10.1002/poi3.153.
[5] Ryan Calo, Alex Rosenblat, The taking economy: Uber, information, and power, Columbia Law Rev., 117 (2017), pp. [i]-1690.

Link to paper:
https://www.sciencedirect.com/science/article/pii/S0160791X21000695?via%3Dihub

Image credit: Pixabay

POTRA thoughts for Defence

Defence should be mindful of the negative factors currently being seen in parts of the Gig Economy regarding inequality. By providing safety and security, Defence could get the best of both worlds by pushing the positives of having gig workers whilst simultaneously contributing to the wider economy.

For serving military personnel there may be little difference, as there remains the need for security, loyalty and dedication to the service, and so temporary recruitment is less likely to be an option. However, while mercenaries are not protected by law, under the Geneva Convention, we see controversial proliferation of Private Military Contractors (security personnel for hire on a contract by contract basis), and thus, there may be a need for such flexibility under certain circumstances for the military.

In supporting roles, for example the security of defence, it seems likely that the gig community may provide more opportunities, i.e. transferrable security clearances.

Exposure to Psychosocial Risk Factors in the Gig Economy: A Systematic Review (Bérastégui, 2021)

A recent paper from the European Trade Union Institute (ETUI) reviewed the psychological and social factors that can be linked to the organisation, design and management of online labour platforms. The overarching aim of this paper was to list the most prevalent risk factors linked to gig working, alongside strategies to address them.

Gig work was defined as any job that involves an online digital platform, a pay per piece system, short-lived missions and bogus self-employment (pseudo-self-employment relationships where workers enjoy no social protection yet bear most of the risk of doing business). The review included searches of Google Scholar; OpenGrey, Medline and PsychInfo and provided exploratory analysis based on well-established psychosocial models, constructs and theories. Only papers employing the definition of gig work chosen by the author and which examined/discussed the working conditions of gig workers were included.

The primary output was a comprehensive overview of working conditions. These were then assessed to infer psychosocial risk factors and worker outcomes attributable to the Gig Economy. Three dimensions were identified;

- Physical/social isolation
- Algorithmic management/digital surveillance
- Work transience/boundaryless careers.

It was suggested that each should be viewed as a continuum that varies depending on the gig in question. For example,

physical isolation is probably not an issue for someone providing physical services, and boundaryless careers are probably insignificant to freelancers who go from one long running project to the next.

Aspects of all three dimensions have wide evidence bases in organisational science which can be used to predict the potential effects of gig work on gig workers. Each dimension has the potential to give rise to multiple psycho-social risk factors, subsequently leading to negative worker outcomes.

According to the author, physical/social isolation, i.e. a lack of interaction with human colleagues, supervisors and even customers, gives rise to risk factors such as low social support, bad work-life balance and a weak professional identity. Literature has shown these risk factors to be linked to the emergence of stress, anxiety, depression, commitment issues, family conflicts, burnout and alienation.

Work transience/boundaryless careers, i.e. careers transcending the boundaries of a single employment setting, are said to give rise to risk factors such as feelings of job insecurity and higher emotional demands. Both of these psychosocial risk factors have been shown to be associated with worker stress, burnout, anxiety, poor health and resentment.

Algorithmic management/digital surveillance, i.e. a set of supervision, governance and control practices driven by mathematical algorithms, are said to give rise to risk factors such as hectic workloads, low organisational trust and imbalanced power relations. These risk factors have been linked to stress, depression, anxiety, aggression and retaliation type behaviours.

The primary foundation of all these risk factors is the imbalance between what is demanded of workers and the organisational resources available to help them accomplish this. Gig working platforms provide almost no traditional workplace support; few channels to voice concerns and exercise agency; a limited capability for employees to contest unfair decisions or unethical practices, and next to no job security. However, the same platforms still hold high expectations of task performance requiring workers to be highly autonomous, flexible, affable and productive. This interaction between high job demands and low organisational resources is the likely cause of the strains listed above.

More quantitative analyses covering a wider range of gig work platforms are required to truly ascertain the drivers of these risk factors and possible mitigations for them, alongside greater scrutiny concerning the following:

- Professional identity of gig workers.

- Which aspects of gig work platforms are detrimental to work-life balance.
- Which forms and sources of support are most critical to gig workers.
- The interaction between the hectic pace of work (quantitative overload) and the division of jobs into many simple tasks (qualitative overload).
- The issues surrounding unfair pay, procedural inconsistencies and ambiguous algorithmic management.

A deeper understanding of the factors above could support the improvement of the regulatory and the legal environment for gig workers. Most importantly, more evidence on the magnitude and effects of these risk factors is needed to create a political push for change.

This paper provides new insights into the psycho-social dynamics surrounding Gig work and opens up several pathways for future research within this area.

Link to paper:
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3770016

POTRA thoughts for Defence

If Defence starts to utilise the Gig Economy space it will need to mitigate the psychological risk factors identified putting measures in place to prevent low social support, bad work-life balance, weak professional identity etc. Mitigations for this could include implementing official role titles, social events for gig workers and appropriate channels to voice concerns. This would underpin the prevention of stress, anxiety, depression, commitment issues, family conflicts, burnout, alienation etc. Additionally, having more traditional work benefits such as sick pay could be beneficial to gig worker wellbeing.

While not necessarily a direct concern of Defence, the implications of the risks of low payment must be acknowledged. For those that thrive under the flexibility and uncertainty that the Gig Economy presents the new way of working can be beneficial, but for others there is significant risk of being imprisoned within a lower than minimum wage trap.

Image credit: Pixabay

Interview: Professor Paul Lewis

Professor Lewis is the research and development lead at Vindico. He became a Professor at both the Medical School and School of Management at Swansea University. Paul is also involved in a piece of POTRA scoping work that is seeking to understand how the gig economy can contribute to the delivery of military effect through alternative means.

1. What is your background / career timeline?

- *I have a BSc (Hons) in Genetics and a PhD in bioinformatics.*
- *Following postdoctoral work at Swansea University and the University Of Wales College Of Medicine, I became a Lecturer at Cardiff University in 2003 specialising in analytics before returning to Swansea University to take up a Senior Lectureship at the new Medical School.*
- *In 2015, I was awarded a joint chair between the Medical School and School of Management.*
- *In 2017 I became the Director for the Centre for Health and Environmental Management Research and Innovation.*
- *In 2019, I became a Director of Vindico ICS, which specialises in technology innovation and communications to build the analytical consulting arm of the business.*
- *In January 2021, I retired from full-time academia to become Head of Research & Development at Vindico ICS. I still retain a Professor Emeritus position with Swansea University.*

2. How did you become involved in Gig Economy related work?

I first became interested in the Gig Economy whilst leading the Strategic, Operations and Analytics Group in my Business Department. Then with academic colleagues, I became interested in how big data can be used to analyse the gig economy. As an analyst, I was specifically interested in how we can apply pattern discovery approaches to determine geospatial trends in Gig Economy data and the potential career pathways for data scientists. On joining Vindico as a Director I met the human factor specialist Barry Kirby from K-Sharp (Vindico's sister company), a company who work extensively on people, behaviour and technology in Defence – the first discussion we had was on the potential of the Gig Economy in Defence.

3. What Gig Economy related research are you currently working on?

I am currently working on a POTRA funded proof-of-concept project called #UKDef500 which is a collaboration between K Sharp, Vindico, Aleph Insights and initially the University of Manchester. The team formed during a POTRA Sandpit event[1] and developed a Technical Proposal in response to a

Statement of Requirement (SoR) from the Human Social Science Research Capability (HSSRC). The project is investigating the proposition that the number of uniformed personnel that are being put in harm's way should be minimised. Its main objective is to explore how the uniformed contingent of the Armed Forces could be reduced to a very radical and arbitrary 500 personnel by 2040 with the delivery of required effect being supported by technology and other contracting models. My role in one of the work packages is to investigate the potential for the Gig Economy to provide a new avenue for the Ministry of Defence to find the right people with the right resource to deliver the right effect. Specifically, I have been looking at current contracting models in Defence as well as capability gaps alongside establishing how Gig based platforms are used, how they differ in their exploitation and how they could complement Defence employment models.

4. What Gig Economy related work are you looking to pursue in the future?

The research in the #UKDef500 project for me has been purely qualitative. It is very much blue skies research and could set the foundations for a more detailed and in-depth assessment of how Gig contracting could work in Defence. I would like to pursue quantitative analyses within this area, putting real figures on what the costs and benefits could be to Defence in operating a Gig contracting model to support existing employment models and delivery of effect. We are interested in how a Gig workplace platform could and should work in Defence. This may include carrying out research to establish the gaps in Gig freelancer skills and how a new marketplace would need to attract skilled workers, perhaps in full-time employment, to take on jobs with a rapid turnaround for delivery.

5. How do you think the Gig Economy could affect the future work force?

I think that this depends on which country the Gig worker resides and how legislation will change and vary globally. It also depends on how we define what a Gig worker is. The term Gig worker has traditionally been synonymous with an Uber driver or additional work-at-home on top of the day job. The term freelancer on the other hand tends to suggest a professional or more skilled worker. In reality there is often no difference between contracts taken by a Gig worker in one country and a freelancer in another. The whole perception of the Gig Economy has been recently tainted by Uber's Supreme Court battle on drivers' rights.

We also need to see how the Gig Economy emerges out of the Covid-19 pandemic with some estimates suggesting that around half of the 50 million Gig workers worldwide have lost their jobs while those still working have seen average reductions of their income by up to two thirds.

Interestingly, a recent survey suggests that over 90% of employees have considered looking for Gig work, no doubt

impacted by job loss during the pandemic as well as revaluating one's future during unprecedented times. Perhaps the greatest reason is the unpredictability of the current economic situation and the imposed need for greater home working. A number of workers used their increased time at home to upskill which could lead to expansion of skillsets as well as higher quality freelancers on existing Gig marketplaces. Highly skilled and professional workers impacted by job loss during the pandemic but now attracted to Gig work will also change the worker pool, the so called 'expert economy' and the likelihood of companies to seek this talent through Gig marketplaces.

6. How do you think the Gig Economy could affect the future of Defence?

I think the answer depends on how the Gig Economy is defined and perceived in the future. Defence already uses freelancers indirectly such as in logistics and transport and given that these skills and services are common in Gig marketplaces, freelancer usage could increase especially for requirements with immediate effect. I think we've learnt a lot from the research to date on the #UKDef500 project around how Gigs could and could not likely work in Defence.

Many non-combat job roles exist outside of the Armed Forces within the Gig Economy and in companies already engaged in defence related work. Freelancing is common in construction, engineering, computing, healthcare and transportation with at least 20% of all workers being freelancers in these sectors. These sectors could be an initial focus for Defence in utilising freelancers for a number of roles. Gig 'jobs' as seen in traditional Gig marketplaces are mainly home-based, computer-based jobs so current platforms will need to adapt or new ones emerge to serve Defence. It is highly possible that Gig contractors could also take on roles in human resources and finance, intelligence, IT and communications. It is also feasible that employees of current Defence contractors could become freelancers in the future if short-contract jobs were advertised in Defence-orientated Gig marketplaces once they exist. Furthermore, existing companies already working on Defence contracts could use employees to engage with Gig advertised work rather than just focus on work requiring complex contracts with a long lead time.

7. How do you think the Gig Economy might change in the future?

Again, I think it depends on how Gig is defined. What is certain is that fewer workers will want to return to a 9 to 5 work pattern. The term 'Gig' might disappear as more Gig Economy workers consider themselves as 'freelancers'. The number of Gig workers or freelancers will continue to rise post Covid-19 pandemic. The Gig marketplace will expand to include more professional categories and it will be interesting to see whether and how the public sector becomes more reliant on freelancers to deliver public

service. I think in the next decade we will see a rapid growth in freelancer marketplaces with an inevitable and justifiable need for increased legislation to protect workers. I think that there will also be more unified legislation, particularly in more developed countries.

1 A sandpit is an event where academics and industry professionals from different disciplines and institutions come together for three to five days with a view to creating new projects around a given theme.

https://blogs.lse.ac.uk/impactofsocialsciences/2018/10/15/sandpits-can-develop-cross-disciplinary-projects-but-funders-need-to-be-as-open-minded-as-researchers/

Image credit: Pixabay

Interview: Dr Oliver Bates

Dr Bates is a Senior Research Associate at Lancaster University. His research focuses on how computing and data science can be utilised to promote environmental sustainability and social justice.

1. What is your background / career timeline?

I have an undergraduate degree and PhD in Computer Science from Lancaster University. Since then I have worked on a range of research projects, such as understanding how technology can be used to improve memory recall for senior citizens, as well as looking into how the carbon footprint of urban parcel deliveries can be reduced. My interests focus on how computing and data science can be utilised to promote environmental sustainability and social justice.

2. How did you become involved in Gig Economy related work?

I first got involved in the Gig Economy through my interest in human-computer interactions and social, economic and environmental sustainability, including complex social aspects. A project that I was involved in focussed on collaborative parcel logistics in urban areas, e.g. benefits of using a collaborative transport approach between different couriers to increase sustainability and reduce CO2 emissions and congestion in major cities. This work then naturally led onto more Gig Economy focussed research, looking at the whole systems impact of gig work. The Freight Traffic Control (FTC) 2050 (www.ftc2050.com) project involved working

with Menzies Distribution, Transport for London, City of London, City Sprint and other logistics partners. I was involved in conducting quantitative and qualitative analysis, and also spoke with delivery drivers to gather ethnographic data and to understand how deliveries were happening, and the decisions being made.

3. What Gig Economy related research are you currently working on?

A pilot study I have been involved in is 'Switch Gig' (https://switchgig.wordpress.com). Switch Gig explores opportunities surrounding how technology can be used to support courier gig workers, rather than being used to exploit them. The project aims to switch the current gig-economy focus from profit and exploitation to equality and empowerment of individuals. As part of the study, workshops were organised in Manchester and York which involved sharing ideas and experiences via interactive activities using post-it notes and a city map. The researchers were able to engage with the gig workers to gain a beneficial understanding into the issues they face and their needs, including; how gig-workers are misunderstood by the public and councils, and how some national policies exclude them altogether. For example, Royal Mail drivers are free to operate in the pedestrianised centre of York but courier cyclists do not enjoy the same freedoms. Some of the ideas that were discussed included; a version of Google Maps purely for cyclists, mutual aid networks for couriers and vans stocked with bicycle spares.

'Flip Gig' (www.flipgig.org) is another project that I have contributed to. It is a 2-year project that received funding from the UK Engineering and Physical Sciences Research Council (EPSRC). The project looks at how fairness and sustainability can be implemented into the Gig Economy through challenging unfair models and algorithms in platform mediated courier work. This involves comparing different types of work and companies, looking at their logistics and supply chain models and using fairness as a metric. For example, understanding the human needs of the workers and their healthcare provisions. The research project used couriers to collect data, such as GPS data through Strava and screenshots of map screens. Couriers were also interviewed. Unfortunately, the pandemic has pushed back the development of a demonstrator model. And an added complication is that some of the key market leaders in the Gig Economy are unwilling to participate in this study.

4. What Gig Economy related work are you looking to pursue in the future?

There are potential opportunities to link food delivery work to other types of courier work for the benefit of gig workers. For example, food deliveries have peak times during the day

and if workers wanted to work a longer day they could potentially link up with another delivery service or type of gig work during the quieter periods. However, longer days could disrupt current platform models and have negative implications for future city based deliveries.

Since the pandemic, more people have been working from home, meaning there are fewer people in cities. A future area of work that I am involved in is looking at opportunities in large residential areas to rethink the future of parcel deliveries.

5. How do you think the Gig Economy could affect the future work force?

The Gig Economy could be a disruptive model. Companies are interested in the current Gig Economy data to predict trends and to understand ways to reduce cost and increase automation in the future. I think that gig workers are working towards their own obsolescence as they are creating the data that the companies are using to learn how to achieve the same output without humans. I believe that we will likely see an increase in automated decision making in the future, which is a concern.

The future trend of the Gig Economy may continue in line with the current reality, where the Gig Economy will be feeding less into the overall economy through its workers who will be making less money despite increasing numbers of workers joining the platforms. The future of the Gig Economy will also have an impact on social mobility; workers will continue to end up 'trapped in gig work', with platforms that do not support their growth or development into other areas. There are also the moral and ethical questions surrounding how we will safeguard against bad practices within the Gig Economy and how we will protect workers from this in the future. I will be working with Trade Unions more in the future to discuss how best to use technology and digital platforms to protect gig workers.

There is a need to concentrate efforts on the disruption of processes and algorithms currently used in the Gig Economy. Companies have a lot of information on human behaviour and infrastructure, and thus it is important to understand what data is collected and how it is being used. This knowledge has the power to disrupt economies. Technologists do not always communicate with people in the Gig Economy; there could be many opportunities to develop technology that could benefit Gig Economy workers if these conversations took place.

6. How do you think the Gig Economy could affect the future of defence?

Contractors currently exist in defence and the government; if these individuals were gig workers, could this increase the

risks of sharing or leaking of sensitive information? These people may have knowledge and 'in roads' in many different sensitive areas as they may be currently working in a range of different companies, organisations and departments, or even different states. This extensive knowledge has positives and negatives. The positives being a broad knowledge of systems and departments that could lead to improvements, and the negatives including less security and control over knowledge management.

Considering the knowledge that the companies who are operating in the Gig Economy have, you have to consider what could happen if this data was compromised, or was used to create bigger picture understandings of human behaviour and economic infrastructure. If this type of data was compromised, could it be exploited and potentially used against a person of interest, and is this something that Defence could prevent? The same data could also be used to manipulate or attack economies in a similar fashion to the behaviours seen in the stock market and crypto-trading, e.g. by manipulating work availability for a period if a large proportion of the population relied on a certain platform.

The security of Gig Economy workers needs to increase, many companies do not perform any checks for eligibility to work in the UK, and it is often the case that workers are not required to disclose this type of information; this could lead to illegal employment.

Dr Bates also discusses the topic of hackable drones and poses the question of what could happen if someone with intent got access to these; there could be significant security implications. The access to technology systems and data given by hacking into a drone would reveal building layouts and sensitive information thus creating opportunities for those who would want to cause harm. Finally, Dr Bates raises the issue of pilotless vehicles and their potential use in the movement of illegal goods, which would also have implications for defence and security.

Image credit: Pixabay

A Plausible Future?

THE LONDON ECHO

Public Rage Against The Machine Continues

18th April 2033
By *John Smith*

The last week has seen a significantly alarming rise in coordinated attacks against parcel drones and other automated systems operating within the capital. In response to the additional armouring and safety measures implemented by major companies such as Deliveroo and Amazon to protect their units against all too common ground and docking station attacks, anti-automation activists have turned to software based attacks in a bid to carry on their crusade against the rise of automated services.

On Monday evening 300 Amazon parcel drones were electronically hijacked and flown into the river Thames. Costing the company (hundreds of) thousands in drones and lost deliveries. A spokesperson for the responsible group, which rose to prominence following its concerted campaign against Uber's plans to completely axe out human supervisors from their now fully automated fleet of service vehicles, released a video statement to the UK press claiming responsibility and stating that such physical and electronic attacks would not stop until "big business reverses the widespread decimation of the human based Gig Economy which has left many Britons with a significantly reduced income and quality of life".

Peaceful (and sometimes not so peaceful) protests around the country have also continued as Parliament continues its debate on better regulating what many Britons see as the over-surveillance of employees by organisations. The sharp rise of workplace related stress and anxiety within the last five years has been strongly attributed to the holistic tracking of worker movements, practices and behaviours via automated management systems. Although increases in profitability and efficiency have fuelled unprecedented growth for many organisations, the adverse effects on human agency and well-being have clearly become unacceptable for much of the population.

Image credit: Pixabay

What's' Happening Elsewhere

Effects of COVID 19

Where next for the Gig Economy and precarious work post COVID-19? -
https://blogs.lse.ac.uk/management/2020/05/01/where-next-for-the-gig-economy-and-precarious-work-post-covid-19/

Military Spouses

'It's nice to just be you': The influence of the employment experiences of UK military spouses during accompanied postings on wellbeing-
https://www.kcl.ac.uk/kcmhr/publications/assetfiles/2019/Gribble2019.pdf

The Gig Economy Hub (Chartered Institute of Personnel and Development)

"The Gig Economy is a relatively new concept but could be a game changer in the world of work. Explore the questions, and answers, to the issues that this new way of working raises"
https://www.cipd.co.uk/knowledge/work/trends/gig-economy-hub#gref

POTRA People Futures Community of Interest: Videoconference on the Future of Workplace Skills

https://www.youtube.com/watch?v=Lt2Ulr9ZHCk

What's On?

1. **Future of Work Conference (24th Nov 2021)**
   The aim of this event is to bring together key executives from the HR, recruitment, education and training sectors. The event will focus on the opportunities and challenges in the workplace and what tools you will need to drive transformation across your workplace. It will also explore where key opportunities will lie in the jobs market.
   https://www.eventbrite.ie/e/future-of-work-conference-tickets-90632990715

2. **Webinar: Sharing Economy 2.0: A Model from the UK for Improving the Gig Economy for Workers (already available on site).**
   A webinar covering the creation of a centralised gig work provider-seeker platform.
   https://www.aspeninstitute.org/events/webinar-sharing-economy-20-model-uk-improving-gig-economy-workers/

3. **Sterling Live session-** Watch this on-demand webinar where the scalability, safety and global programs of the Gig Economy are discussed.
   https://www.sterlingcheck.co.uk/blog/2021/04/sterling-live-the-gig-economy/

4. **The Cambridge Judge Business Debate podcast series- The Gig Economy-** *From Uber to Deliveroo, the 'Gig Economy' is increasingly visible. However, with flexibility for workers comes uncertainty, so what is the future of the Gig Economy including the role of government?*
   https://www.jbs.cam.ac.uk/insight/2020/the-gig-economy/

Blogs

Side jobs bring stability for many military spouses – This blog shares accounts from spouses who explain their experiences of working whilst being married to military personnel - https://www.stripes.com/side-jobs-bring-stability-for-many-military-spouses-1.594158/mil-spouses-1.594159

Many Military Service Members Turning to the Gig Economy for Income – This blog explains why military service members and their families face financial insecurity, difficulty finding and keeping private sector jobs and why the Gig Economy could be the answer to their problems- https://www.writeraccess.com/blog/many-military-service-members-turning-to-the-gig-economy-for-income/

Image credit: Pixabay