Submission by the Work and Equalities Institute (WEI) at the University of Manchester, to the Business, Energy and Industrial Strategy Committee inquiry on Automation and the Future of Work.

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This is a written submission by the Work and Equalities Institute (WEI) in response to the call from the Business, Energy and Industrial Strategy Committee’s invitation for submissions concerning automation and the future of work. The reason for the submission is the potential importance of the expected changes in employment for both work and equalities. The text of the submission is 3000 words but references to relevant WEI research is provided at the end for your information.

The Work and Equalities Institute (WEI) at The University of Manchester

The WEI was founded in 2017 through bringing together two internationally-recognised Alliance Manchester Business School research centres (European Work and Employment Research Centre and Fairness at Work Research Centre). Our research expertise and impact is world-leading and ranges from the local to the global. The WEI is building on long standing strong connections with national and international policy bodies. For more than twenty-five years members of the WEI have been informing the evidence-base and policy agendas of the European Commission, the European Parliament, and the International Labour Organisation, as well as national organisations such as the Equality and Human Rights Commission, the Trades Union Congress, British Standards Institute, the Chartered Institute of Personnel and Development (among others).

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Executive summary

- Considerable uncertainties surround the many (deterministic) interpretations of automation and technology. The impact on jobs and employment will depend on a whole set of policy decisions shaping the environment and on the specific practices adopted by employers.

- In assessing the likely impact of automation, technology and artificial intelligence on the future of work it is important to be specific about the type of innovation/application and whether it is taking a weak or strong form.

- Although the assumption that new technologies are leading to the permanent displacement of the standard employment relationship (SER) is so far not fully supported by the data on employment, the hollowing out of the substantive protections provided by the SER is evident. Whether or not new technologies will result in a further erosion of employment protection depends in part upon government action to regulate and protect work. Research by the WEI has shown that even platform work will have different consequences according to for example the initiator of the work and the form of remuneration.

- Recommendations are made, based on WEI research, for using the expected work revolution to implement major policy changes for a better society, namely to put people first, not growth, to promote more participative design and implementation of technologies; to bring about gender equality, achieve a better work life balance, revalue care work and improve employment regulation, including specifically licensing intermediaries and preventing the use of bogus self employment.
A. Context and Overview: Automation, Technology and Artificial Intelligence

1. Advances in automation, digital technology and artificial intelligence (AI) are generating both exciting opportunities and raising concerns over their consequences for the future of work. Some scholars and policy advocates predict almost half of exiting job categories could be displaced in a little over a decade (Frey and Osborne, 2013) but the challenges and opportunities stemming from technological advancement are highly uncertain and there is already a long history of adapting to technical change (Prassl 2018).

2. Each phase of technological change has differential impacts for occupational and skill groups with implications for inequality and job polarisation. Twenty-first century automation is predicted to affect transport and logistics (e.g. driverless cars), professional services (e.g. medicine, accountancy) and a lot of what remains in manufacturing and high-tech process engineering (among others). The implications for the future of work can be considered far-reaching. Previously, low-skilled occupations were seen as ripe for automation, but today occupations defined as high-skilled and knowledge-based linked to growth and prosperity are now at risk of displacement. Automation can have the effect of deskilling jobs and reducing professional complex tasks and cognate processes to codified and digitised formula. Computer software programmes may prescribe medical treatments based on algorithmic inputs. Loans and financial decisions may be reduced to automated computer programming rather than analysis of investment histories by auditors and actuaries, based on years of training and education.

3. Considerable uncertainties therefore surround the many (deterministic) interpretations of automation and technology. It is often assumed that technology alone will determine the future of work, without recognising there is the potential for a whole set of policy decisions to impact jobs, economic efficiency and productivity, corporate ethics and responsible enterprise, justice and employment equalities, and the future of society. Unfortunately, mainstream media reports have a tendency to detach debates about technical capability from
the day-to-day realities of work and employment in many businesses. This problem is exacerbated by the fact that terminology such as AI or automation remains undefined and imprecise.

B. Defining Automation, Artificial Intelligence and the Future of Work

4. There is a need to more clearly define automation. As an umbrella term ‘automation’ here includes digitalised technologies which affect work tasks. It can aid productivity and efficiency, and it can also offer opportunities for social development and as a social good (e.g. improve health, wellbeing or leisure time). Robotics, computer programming and artificial intelligent technologies also come under the rubric. AI is a label that is given to a collection of specific computing techniques that attempt to simulate (and in some cases) exceed aspects of ‘human-level perception, learning and analysis’. AI automation is commonly considered to be part of computer science, and includes some or all of the following:

- **Visual perception** – identification of specific objects or patterns from unprocessed image data (e.g. facial recognition systems).

- **Neural networks** – models of brain function, with applications in learning and analysis.

- **Speech and natural language processing (NLP)** – discerning meaning from written or spoken text, used in some translation applications for example.

- **Machine learning (ML) and deep learning** – training computer systems to improve their ability to perform certain tasks based on examples. Learning systems are used in simple settings such as in recommendation algorithms that refine results based on user behaviour (deployed by Google, Netflix, or computer gaming for example)

- **Expert systems** – tools that provide specialist information from databases for use by human operators (e.g. decision-support systems in healthcare).
5. AI automation and digital technologies can differ in technical detail and their application utility. For our purposes in this submission however, ‘AI automation’ incorporates the use of artificial intelligence programming, digitalisation and computer technologies which have implications for the skill and nature of work and employment.

6. There can be ‘weak or narrow AI automation’, which is applicable for very small and specific tasks. A longer-term goal for society can be ‘stronger AI automation’, which could have a wide applicability to jobs in the future. ‘Strong AI automation’ is often futuristic and tends to be portrayed through robotics as the future for work.

C. Technological Diversity and the Future of Work

7. The potential expansion of AI and digitally-based employment in the future draws attention to the decline (or demise) of the so-called standard employment relationship (SER). Implications include increased labour market insecurity, atypical employment patterns such as part-time and casual work, job precarity as well as business flexibility (Stone and Arthur, 2013; ILO, 2016). Global data does not, however, signal an end to the SER. For example, US Bureau of Labor Statistics (BLS, 2018) data shows that those in non-SER type jobs (defined as ‘contingent’ and ‘alternative’) is lower in 2017 (3.1%) than it was in 1995 (4.9%) and 2005 (4.1%). In other words, it is not entirely evident that the SER is in a permanent state of erosion and automation does not appear to be replacing full-time jobs (Stone and Arthur, 2013, Grimshaw et al. 2016).

8. However, while SER may not be in permanent decline, research from WEI members shows there is a qualitative shift in the nature of employment, or a ‘hollowing-out’ of several features of the SER (Grimshaw et al., 2016, Grimshaw and Rafferty 2016; Koukiadaki and Katsaroumpas 2017,) which raises policy concerns for the future of work and the impact of automation and technology. Already the OECD (2018) has found that there is a major problem of wage stagnation associated with the growth of low wage and part-time jobs and a failure to share out the gains from growth. These trends are not only associated with the
changing content of jobs, associated in part with the implementation of technology but also with variations in employment policy, in particular the deregulation of employment and the permissive approach to employers passing on risks to those carrying out tasks on their behalf through the use of zero hours contracts or bogus self-employment found in the gig-economy jobs (Dundon and Inversi, 2017).

9. If current trends of non-interventionist industrial policy decisions and employment deregulation continue, the future of work could become more precarious and uncertain, with knock-on effects to societal prosperity, wellbeing and equality. Of particular importance is the fact that AI automation is heterogeneous and the type of digital platforms for work can vary, thereby affecting the future of work in many ways.

10. WEI members have researched the different forms of automated technology with implications for the future of work and SER. In Figure 1 below, there are four ‘ideal types’ of job category based on the remuneration for the job type (paid or speculative), and who initiates the work task (the client/employer or the worker). These digital platforms have implications for the future of work and the employment conditions associated with each type.
- **Type A:** These may be on-line computer tasks which provide a set rate of pay (a type of piece-rate) determined by the initiator (requester/employer). An example of this work future can be evidenced through the unregulated employment via intermediaries such as Amazon Mechanical Turk (among others).

- **Type B:** The term ‘Playbour’ is the combination of play and labour (Kucklich, 2005). Pay is speculative (or non-paid) and the requester of the work relies on people who willingly volunteer their labour and view the activity as fun or pleasure. Examples include software development, creative arts (clothing and T-shirt design competitions) or solving scientific problems (e.g. InnoCentive.com). Remuneration is generally in the form of prize money for a limited few.

- **Type C:** Here workers use their own assets to gain work at a set price (e.g. Uber driver using their own car). The work can remain largely unregulated with risks to workers as well as consumers.
Type D: The future of work for professional freelancers may fall under Type D. The individual initiates the task by offering professional or technical services via digital platforms (e.g. photographers via iStockphoto). Remuneration can be dependent upon customer (or initiator) satisfaction, and is therefore subject to uncertainty and exploitation.

D. Policy Implications / Recommendations for the Future of Work

11. From the above, this section outlines eight priority areas or recommendations that the WEI consider to be worthy of consideration by the Business, Energy and Industrial Strategy Committee’s inquiry into automation and the future of work.

12. **R1. Putting people first.** If this next phase of potentially disruptive technology is not to exacerbate inequalities and lead to waste of talents and social exclusion, there needs to be a reorientation of policies towards putting human development first in line with the approach developed by the United Nations Development Programme in its Human Development Reports. The WEI produced a Human Development Report for Greater Manchester (Rubery et al. 2017) which outlined what such an approach might look like with respect to policy approaches. This means not only redistributing gains from automation at the heart of any strategy and seizing the opportunities for societal benefits stemming from automation but also developing policies to enable all citizens to participate fully in the fourth industrial revolution society across their whole life course.

13. **R2.Developing participative decision-making.** In line with a more inclusive growth and development strategy, policies should be developed to promote participative decision-making concerning job design systems and the application of new technologies at a workplace level. The overriding principle is that technology is made by humans for the betterment of society as opposed to a predominant concern with profit-maximisation. Research by WEI members has reported on productive and social benefits for organisations when voice is put to the fore of strategy so that there is accountability and transparency around corporate decisions made about technologies (Dundon et al., 2017; Grimshaw et al.
Research by other WEI members also shows how choices to include stakeholders in job design systems is importance for job quality and productive efficiency (Holman, 2013; Parker et al., 2016; Holman et al., 2015). If the UK seeks to compete in a global (post-Brexit) market then inclusion in decision-making is required for equality, productivity and job quality about automation and the future of work.

14. **R3. Gender equality**: Automation and digital technologies may lead to a future of work that augments rather than reduces/removes gender inequalities. Research by WEI members argues that technology can enhance gender inequality if there is an absence of policy intervention (Howcroft and Rubery 2018a,b). Automation and computer algorithms make assumptions about socioeconomic status. Women are disproportionately represented in non-standard forms of employment, which results in discrimination. Other research (Adams and Berg 2017) finds a gender pay gap in platform work regardless of feedback scores, experience, occupational category, working hours and educational attainment. In short, gender inequality can be embedded in the operation of automated and digital technologies allocating work tasks (Barzilay and Ben-David 2017). While platform-based work affects both men and women, women are more likely to be solely dependent on this type of work as they use the flexibility that it offers to enable them to juggle care work and wage work. This means that they face not only low wages but also high shares of unpaid work time spent searching for and bidding for work (according to an ILO survey, this equates to 18 minutes per hour of wage work (ILO 2016)). These patterns will lead to a future of work that remains unequal. Where bias goes in, bias comes out.

15. **R4. Work and leisure time**: A reduced supply of jobs means rethinking the time and earnings balance (Howcroft and Rubery 2018a,b). If productivity gains from automation are realised, then these can be shared through a reduced working week without necessitating reductions in real earnings for most employees. Such a policy consideration may provide new equality opportunities for society (Wajcman 2015). Rather than revert to the norm of
men earning a family wage while women care for family members, more free time for both women and men could create the conditions necessary for a more equal sharing of care. Furthermore a woman’s position in the labour market is inextricably linked to work in the home. With a shorter working week and productivity gains from automation, policy options could allow for more innovative approaches towards domestic and care arrangements. Flexible working arrangements can be implemented to support the needs of workers rather than determined by employers.

16. **R5. Valuing paid care work:** the productivity increases promised by automation should provide the basis for society to rewards fairly those in undervalued jobs, such as care work, that are crucial for our society. Presently, jobs that are profitable for capital, such as working in finance, gain high status while care work remains side-lined (Grimshaw and Rubery 2007; Howcroft and Rubery 2018b; Rubery et al. 2015). Importantly, more care workers will be needed in the future given the demographic changes and trends. Hence, automation and technological advances can be linked to an industrial strategy that shares responsibilities and obligations for a more efficient and equitable society.

17. **R7. Better labour market regulation:** Better regulation and employment citizenship standards are currently on the agenda for transnational policy bodies in response to growing pressure from consumer and lobbying groups and belated recognition of excluded groups such as domestic workers and forms of non-standard employment from systems of employment and social protection (Rubery 2015, Inversi et al., 2017; Rubery et al. 2018). A policy option is to benchmark UK corporate standards as world-leading (rather than race to the bottom). One response can be to better align with recognised global standards for the future of work, such as the International Labour Organization, the OECD and the European Union. In an uncertain post-Brexit trading landscape, clarity of strong and equitable regulation can be a source of competitive advantage.
18. **R6. Licencing intermediary agencies:** The different forms of work resulting from automation (see figure 1 above) mean there is a new role for intermediaries in the labour market. Many of these intermediary agencies are obscured by technology (e.g. the App or website). Policy makers need to review the need to regulate and licence such intermediaries and the automated processes they use to recruit people for work tasks (Dundon and Howcroft, 2018; Howcroft and Rubery 2018a). Structures similar to the Gangmasters Licencing Authority may help protect vulnerable people affected by digital platform work arrangements in the future.

19. **R8. End ‘bogus’ self-employment:** The Government commissioned ‘Taylor Review’ has commented that more work is required to clarify the definition between dependent contractors and those who are genuinely self-employed, particularly those whose jobs are shaped by technology and digital automation. Research shows that the hollowing-out to key aspects of standard employment means that ‘protective gaps’ (Grimshaw et al. 2016; Rubery et al. 2018) are increasing, making for an uncertain work future. Policy options include consideration of clearer contract status definitions for those who are subject to employment across the diversified platforms noted above.

**E. Summary**

20. The impact of technological change is not predetermined. This means that there is considerable uncertainty surrounding predictions of change and job loss. Nevertheless it is important to prepare for major change particularly as most predictions assume that if we maintain current policy and employment and household arrangements- including the gender division of labour- the outcome would augment inequalities. This is not an inevitable outcome of technological change but it is a likely outcome unless a rethinking of current policies and priorities is urgently undertaken.
References

WEI publications


Other references


Prassl, J (2018), Humans as a service: the promise and perils of work in the gig economy, Oxford: Oxford University Press.
