**A CALL FOR PAPERS FOR A SPECIAL ISSUE TO COMMERORATE THE BICENTENARY OF MARX'S BIRTH FOR A SPECIAL ISSUE OF THE JOURNAL OF CLASSICAL SOCIOLOGY**

**The world of work and the crisis of capitalism:**

**Marx and the Fourth Industrial Revolution**

**Abstract**

Marx’s work on machines showed an initial clarity on where he believed technology sits in the means of production. The machine, its *differentia specifica*, while it consumes other forms of raw material just as the labourer consumes food, does not appear as the means of labour in the same way as that of the individual worker. How this fits in with contemporary debate around the Fourth Industrial Revolution and its re-shaping of the world of work is the focus in this paper. Our examination of this is in the broader context of the crisis of capitalism, the tendency towards objectified labour and the view that automation, the ‘Uberization’ of the economy, is likely to sharpen the contradictions between capital and labour. Whether we are entering a time of post capitalism, or a post-work period, warnings of job loss associated with the convergence of robotization, big data digitization, bio-tech and Artificial Intelligence indicate that the tension and complexity of decreased labour inputs and a value system defined by labour could become more acute. Here we draw on the work of Marx to help stimulate ideas for investigating and analysing what the Fourth Industrial Revolution means for labour and how the neutrality of the technologies remains to be socially shaped.

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1. Introduction

The contemporary discourse on the Fourth Industrial Revolution invokes both idealist and dystopian rhetoric. The advancement of new technologies and innovation raise questions about the capability of capitalism to simultaneously sustain social reproduction and individual consumption. Simply put, the potential exists for much more to be produced without labour while at the same time, there is less opportunity for individual consumption as labour is displaced by automation. This appears to be an inherent contradiction in capitalism as the capacity to make increases and the capacity to purchase falls. Our starting point in this paper reside with key themes on automation framed by Marx and his thoughts relating to the concept of machinery. We see this specifically in the section of *Grundrisse* known as ‘The Fragment on Machines’ (Marx 1973), and in specific chapters within *Capital: Volume I* (Marx 1867). Our aim is to move away from solely considering the positive or negative consequences about the Fourth Industrial Revolution and begin to explore the questions about how it will affect the balance between capital and labour.

We do consider the nature of the current ‘crisis of capitalism’ and the negative consequences it has entailed for labour. One recent example is given by the Resolution Foundation who show that the UK is in the grip of the worst fall in living standards since records began 60 years ago (Kennedy and Penney, 2017); another by the Institute for Fiscal Studies who warn that workers in the UK are also in the grip of the worst decade for wage growth in the post-war era (Tetlow and O’Connor, 2016). Data such as these show the general shift that has taken place in wealth holding from labour to capital over the past three decades or more (Atkinson, 2015) and have prompted new ideas about the financialization of the global economy (Hudson, 2010). These are accompanied by so-called ‘flexibility’ reforms in labour markets and have led to real constraints imposed through legislation upon organised labour (Streek, 2016). The Fourth Industrial Revolution can shift even more power from labour towards capital and increase the levels of precariousness beyond those already experienced.

This wave of automation will embody knowledge-driven Artificial Intelligence (AI) with an intense convergence of robotization, big data digitization and bio-tech (Brynjolfsson and McAfee 2014). Just as Marx reflected on the reduction of human input in the production process, we can see the worker pushed out of the production process with information-laden machines taking their place at the centre. Yet the technologies of the Fourth Industrial Revolution will not simply be an extension of the worker and we should not assume it to be an aid to the new artisan, the informational or knowledge worker. In fact, the contradiction of more production and less consumption will call into question whether capitalism can create new jobs faster than the old ones it destroys. If this proves to be the case, it will give a new relevance to Marx’s predictions of ‘objectified labour’ – that is machinery – appropriating ‘living labour’ – the workers (Marx 1973, p.704).

In the next section of this article we look at the association between technology, the worker and capital. The Fourth Industrial Revolution has the hallmarks of technological determinism,[[1]](#endnote-1) an assumption of a distinctive authority over the worker, albeit in this instance in an era of technologically-driven systemic crisis fuelled by parasitic and usury capital. Technology is complicit in the current crisis because of the concomitant need by capital to reduce labour time to a minimum. We examine how Marx’s concept of machinery and its implications for the capital-labour relationship relate to the gig economy and so-called ‘Uberization’. The penultimate section introduces the ideas of left idealism where we ask whether there is a utopian model to be pursued. Our argument is that we need to apply Marxist theory to consider contemporary matters of the Fourth Industrial Revolution and search for new conceptual insight into the intelligent and self-sufficient machinery we are promised and whether this represents more velocity in the self-destruction of the (capitalist) system.

2. Technology, the worker and capital

What we have witnessed over the last three decades is the how wealth is achieved through global financialization. There has been an eruption of academic interest in the global finance system not least because of the crisis of 2008, producing arguments about the tendency towards productive capital being replaced by parasitic capital (Hudson, 2010; Haiven, 2014). Fictitious or usury, the renewed interest in economic rent has captured the global imagination and left economists to decry the so-called productivity crisis. The 2008 crisis was predicated on “trading in equities and debt [that] overtook employment-generating and profit-sharing industries in the old core of the capitalist world-system” (Wallerstein, 2013, p.137). Here, the technological interconnection of financial systems between and within leading nation states was central. We witness daily the effects from money creating more money, self-valorizing value and capital in fetishized form, a product of a ‘mere thing’ (Marx, 1981).

Financialization has had the effect of knitting together home mortgages with corporate and ultimately, government debt. Global financial markets have become sacred, a contemporary totem where economic value is analysed devoid of any specific social relations (Jessop, 2015). The global financial system has developed much further than any nineteenth century writer could have imagined and while our attention here is on how Marx considers the impact of machinery on the process of production and its effect on the worker, it would be negligent not to acknowledge the concomitant role of ‘money manager capitalism’ (Minsky in Hudson, 2010, p.422). This is not to juxtapose the importance of industrial or financial capital although it is to recognize that the very technologies that make up the Fourth Industrial Revolution have potential to impact the relations between capital and labour beyond the workplace. While the seductive appeal of technology has its own determinism (MacKenzie, 1984) it is important to realise that the crisis of capitalism rests within the contradictions it contains.

Technology is not a by-product of capitalism working as a ‘thing’, or simply a resource allocated through market efficiency. Innovation and new technologies are required by capital in its search for reduced costs and ever increasing control over labour. By placing social relations central to understanding the Fourth Industrial Revolution we can reduce ideas of technological determinism and neutrality and emphasise Marx’s perspective on the tendency of capitalism to “*on the one side create disposable time, on the other to convert it into surplus labour*” (1973, p.708). Traditionally this surplus labour would become articulated through notions of ‘productivity’ and ideas about enhanced competitiveness. Yet this notion of labour redeployment and how the potential for surplus value is increased ignores questions of redistribution and importantly for us, underplays the concept of objectified labour.

New technologies are crucial in this as they serve the interests of capital (Braverman, 1974). Agreement on the boundaries of the ‘Fragment’ differ although as a precursor Marx quotes Lauderdale as saying “*It is one of the most distinguishing traits of the human species to replace labour in this way with a capital transformed with machines*” (Marx, 1973, p.688). The development of capitalism over the century and a half or so since the Grundrisse was written has amplified the message – each phase of Industrial Revolution has seen mechanisation replace human labour power or even in recent decades, some human reasoning and mental capacities. The result of this has not been the end of labour or a drastic reduction in the labour force, but many industries have certainly seen the worker “*step to the side of the production process instead of being its chief actor*” as Marx (1973, p.705) predicted. It shows how the crises of capitalism are not the result of problems intrinsic to technology itself.

Instead, we must situate the technology at the centre of the contradiction between capital and labour. As the Fourth Industrial Revolution shapes the multiplier effect from greater levels of efficient production, proficient in the sense of reducing labour inputs, each unit of saved labour becomes cumulative on the amount of wealth able to be produced (Braverman, 1974; Marx, 1973). If machinery was to be introduced in a truly collectivist society in which wealth was distributed fairly between citizens, it would have benefits both in reducing the amount of work that is necessary for production, whilst simultaneously increasing the wealth of both society and each individual member. When introduced under capitalist social relations, technology is deployed to increase the profit margin of the capitalist, which often comes at the expense of the worker. The lesson from automation in the sphere of private ownership of the means of production is to provide capital with more and more resources and power over production.

In the production process the worker first becomes related to the object that is produced. The more the worker seeks to earn to purchase many of the objects produced, the more powerful is the aggregate world of objects. As technologies increase the potential for more and more objects to be produced, it distances further the worker from the product. As we see, the technology gains increasing importance within the production process, while objectified labour becomes embodied within the machinery and stands contrasted to living labour. This results in technology as master over the worker. The worker’s activity argued Marx “*…is determined and regulated on all sides by the movement of the machinery and not the opposite*” (1973, pp.694). The effort needed in the production process – the motive power – is reconfigured and the relationship between the worker and machine is reversed; labour now effectively acts as the tool that the technology uses to enable it to complete its task.

The worker, originally with control over the motive power in making things is now faced with subordination and alienation through a lack of knowledge and control over the production process. While we must question the rhetoric of the Fourth Industrial Revolution, we should note that the technologies capable of reasoning and judgement are being introduced into fields in which only a few short years ago were thought to be a long way off (Brynjolfsson and McAfee, 2014). Now those occupations with greater levels of reasoning, pattern recognition and judgement, which until recently have been less susceptible to automation, increasingly display the features of objectified labour. These characteristics shown earlier by Braverman (1974) are sought to overcome the ‘control over the line’ that workers contest (Benyon, 1973), to shape the contest between capital and labour over the control of technologies of automation and the technical arrangements of Taylorism in favour of capital.[[2]](#endnote-2) Through the increased deployment of technologies, motive power has moved to non-human forms and greater levels of power over surplus value are achieved for capital at the expense of labour.

Yet the trajectory from Marx to the Fourth Industrial Revolution becomes clear and the point at which labour can resist the possible shape of the new technology-forged capitalism, so-called ‘Capitalism 4.0’, will depend on its ability to organise and push back capital. In the UK, organised labour in trade unions decreased by over 50% from 13m to 6.5m, between 1980 and 2012. Over the same period union membership decreased by around 20% in Japan and 18% in the US.[[3]](#endnote-3) The drive in the UK has been led by the imposition of legislation that has made union membership increasingly difficult to maintain along with industrial restructuring experienced in other countries such as Japan and the US. The point here is to consider the idealism of deploying technology in the interests of the worker, to reduce working hours, the strain and drudgery of work whilst simultaneously increasing average wealth, raising living standards and helping to protect the environment for future generations.

Marx was much more affirmative when he outlined that for disposable time to grow for all, that the “*mass of workers must themselves appropriate their surplus labour*” (1973, p.708). Technology deployed by capital compresses the time labour is needed in the original process. The aim is to reduce labour to a minimum, sharpening the contradiction that labour itself acts “*as sole measure and sole source of wealth*” (Marx, 1973, p.706). While the pursuit of profit is primary, the destruction of the ability to consume is a constant threat produced simultaneously. There is no space for social responsibility in this equation, meaning technology and automation may well destroy jobs at a much quicker rate than capital can create new employment. If this does indeed happen, it will bring the contradiction that Marx outlined - that has been kept in check by the ability of job creation to outstrip job destruction – to the fore. This, as we noted above, will accentuate the conditions for the rate of return on financial capital over and above those of industrial capital.

Marx expected social revolution to begin in the industrialised, developed capitalist economies, although the rampant inequality and poverty that exists in under-developed and emergent markets have too produced conditions for social change (Harvey, 2008). We see technological developments being used to ‘offshore’ manufacturing industries of the ‘developed’ nations and has provided a major source of employment in many emerging markets, causing huge population shifts (Brueckner and Lall, 2015). As the cost of machinery particularly ‘smart machinery’ continues to decrease, there is likely to be serious consequences for these workers either through mass layoffs, a driving down of already pitiful wages or elements of both – particularly as social safety nets are very limited or non-existent.[[4]](#endnote-4) A consequence then, is for progressive movements to consider the internationalist aspect of the Fourth Industrial Revolution and what possibilities for coordinated labour struggles and reforms emerge around the production process.

3. A Marxist perspective on the emergent Fourth Industrial Revolution

The use of technology has in a general and historical sense, supported the tendency for capital to gain more control over the production process. During the period of Fordism the capital-labour-state relationship ceded some degree of authority from capital to labour in return for guarantees over social reproduction and economic growth (Bakshi et al, 1993). The contemporary experience is much different and we have seen in recent years, greater levels of subservience of labour to capital. For example, while struggles took place in factory settings over the introduction of technologies, or robots, able to undertake repetitive tasks, now the technologies have the potential to interact on front-line customer service in settings such as retail. While who ‘controls the line’ was an emotive point of resistance during Fordism (Beynon, 1973), now new ideas about ‘platform capitalism’ (Srnicek, 2017) show how control over the capital-labour dynamic has sharpened. Nowhere is this more apparent than in the ‘gig economy’.

The gig economy is characterised by temporary employment and short-term purchase of a workers’ labour power. Often organizations seek to keep independent from workers through forms of so-called self-employment. It is here where advances in technology brought forward through the development of software platforms, have become allied with deregulated labour market structures and declining trade union rights. They have combined to shift power over work away from labour and further into the hands of capital. One prominent example of this is in the taxi industry, where relatively small firms have traditionally dominated local markets. The presence of licensing and competition between firms in most areas has limited the amount to which firms can control the working patterns of their drivers. Yet in a sector such as the taxi industry we see just how difficult it is to organise and provoke a syndicalist defiance that might be expected in the factories.

Traditional taxi firms generally employ workers with a certain degree of autonomy in choosing when to work and which jobs to take, although reliant on the taxi firm for their employment. They must also conform to the standards and practices of the organisation. In contrast, Uber seeks to control the behaviour and working patterns of their drivers to a much larger degree. Uber drivers are penalised for choosing not to take jobs and they can face removal from the platform if their ‘star ranking’ falls below a certain level (Rosenblat and Stark, 2016). Uber exercises a much greater degree of control over drivers than traditional taxi companies and argued that their drivers are completely self-employed and subsequently have no employee rights. This position was successfully challenged by workers in the UK, and the courts ruled that drivers cannot simply be seen as self-employed and do have some employment protection, although Uber continues to fight against this ruling. (Davies, 2017). This dispute shows how Uber are representative of a new form of capital and labour conflict, with the way technologies are deployed playing a central role.

Uber are seeking to exploit the technology in ways that facilitate human labour becoming a ‘mere appendage’ to machinery (Marx, 1867). Labour is objectified in the day-to-day detail as the knowledge previously held by workers (i.e. of the geographic areas covered in any town or city) becomes embedded in capital, in the form of GPS technology. While it is a technology not only used by new platform firms such as Uber but also by most traditional firms too, it is the change in social dynamics in the capital-labour relationship that prove most decisive. The fluidity of what is skilled labour becomes an academic debate between so-called progressives and Luddites for or against the technology; a utopian or dystopian perspective in play. While for Marx it is the embodiment of human subservience to the technology it manifests in the real economy through downward pressure on income levels and job security.

Uber and other large technology companies such as the increasingly powerful Amazon have distorted the dynamics of the production process. The ambition of Uber and competitors such as Google and Tesla with ideas of fleets of driverless cars across the globe are held up as example of creative destruction eulogised by those such as Clayton M. Christensen (Bower and Christensen, 1995). The aim we are told, is through the introduction of GPS technology and algorithms to control the car, to reduce the driver to a mere ‘cog’ in the machine rather than the source of knowledge and then ultimately, to remove human labour from the work process altogether. At this stage we can only speculate the extent to which this will represent how, to paraphrase Marx (1973) the division of labour will transform the operation of the worker into more mechanical low skilled functions until such a point is reached where automation replaces the human.

How the balance between capital and labour is disturbed in those parts of the economy held up as an epitome of Capitalism 4.0, in advanced manufacturing for example requires further examination. Here, particularly in advanced industrial nations we still find a relatively strong presence of labour unions. Yet early indications suggest that in sectors such as these the Fourth Industrial Revolution is likely to reinforce current inequalities, on a spatial scale or within industry sectors and occupations according to Fothergill, Gore and Wells (2017) as well as control over production and in the means of redistribution (*cf*. World Economic Forum, 2016; ILO, undated). The reformist alternative to this is, as Mazzacato (2011) argues, to use a mission-oriented focus to the deployment of Fourth Industrial Revolution technologies, one that would realise new means of equitable distribution.

Mazzacato’s approach, as that of Wallerstein et al (2013) and Streek (2016), is about how capitalism can be modified to prevent the vagaries of technological implementation. Their concerns are not only with production but with overall demand and therefore, consumption. Underpinning their anxiety is a neo-Keynesian perspective that stresses the importance of effective demand to the smooth operation of the capitalist system. This is how Yanis Varoufakis the former Greece finance minister sums it up:

*“Think about all of the gadgets that it creates, the technologies. Just very briefly imagine for a moment that this technological innovation, artificial intelligence, robots, moves in a manner in which it is moving, but even faster. Very soon, you’re going to have robots producing everything. Now, the robots do not want to consume that which they produce. And the rest of humanity is not going to have the money to buy it. So, capitalism is going to have a massive crisis, simply because it will have a humongous capacity to produce stuff, and no capacity to consume it, which is already what we are observing.”*

(Democracy Now, May 14th, 2018, no page number)

The matter of ‘disposable time’, which Marx (1973, p.706) refers to as the “*true wealth of a nation*” raises a point about what workers would do if new technologies worked in the interests of labour. If, as theory would indicate, increases in productivity related to technological improvements would allow working time to be reduced and disposable time to increase, the utopian model of idealists could be pursued. Introduced under capitalist conditions however, technology can have the opposite effect; employees with mobile phones can be expected to be ‘on call’ 24/7 showing how technologies are deployed with specific interests in mind. In spite of a rhetorical inference that zero hours are somehow empowering, the evidence suggests the number of zero hours contracts rose significantly from 252,000 in 2014 to 901,000 in 2017 (Petkova, 2018). These conditions of work would have been impossible just a couple of decades ago, yet they coincide with a more deregulated labour market and constraints on the ability of labour to organise. If we are to understand the social relations at play in the world of work then we must surely realise that zero hours work arrangements support the flexibility of the production process rather than flexibility in the interests of the worker.

What we find is an inherent contradiction in the system that arises when technologies are deployed to produce more although simultaneously, will use fewer workers. While the technologies of the Fourth Industrial Revolution play a pivotal role in disrupting the cycle of capitalism, a greater proportion of unemployed or under-employed labour, will impact on aggregate demand. As Marx foresaw:

“*our apologists with their cut and dried law of supply and demand, prove on the contrary that machinery throws workmen on the streets, not only in the branch of production in which it’s introduced, but also in those branches in which it isn’t introduced*”.

(Marx, 1867, Loc 7796)

Initially, the consequences may be to enhance levels of productivity. This will increase the (relative or mass?) surplus value that the capitalist can extract from the production process and cause a further shift in wealth away from labour to capital. However, it may well lead to less propensity for consumption. Thus, it will ultimately be self-defeating for productive capital, while raising greater need for personal debt and therefore ultimately leading to greater levels of usury as financial capital remains dominant.

We see in terms of production and consumption, through value creation and distribution, that it is the social relations on which society is based that proves to be critical. Both Braverman (1974) and Marx (1973) held that the consequences of the increasing application of machinery are not intrinsic to machinery itself, but rather the way in which it is employed by the capitalist system. Our scenario above would suggest that the deployment of technologies under the present conditions of capitalism would seek to serve financial capital as consumption falters due to ever-increasing modes of objectified labour. What is significant is that Fourth Industrial Revolution technologies will remain in private capitalist ownership despite the fact that much of the R&D necessary for their development is funded by the public sector (Mazzacato, 2011). To change the direction from technologies deployed in the interests of capital and to the interests of workers will require radical thought and action and not least, new concepts of the Fourth Industrial Revolution.

4. Left idealism and class emancipation in the new age of the machine

We expect a highly disruptive effect from the Fourth Industrial Revolution and recognise how this is already impacting on the relationship between capital and labour. The trends that can be examined and predicted show that a further shift in wealth, knowledge and power away from labour to capital is a real possibility and likely to be a major consequence of the Fourth Industrial Revolution. We have used the ‘Uberization’ thesis to make this point and note that other sectors will operate under similar principles. We posit a view that differs from more optimistic assertions including those of a more idealist perspective on the left, who believe that the implications of the technological advances of the Fourth Industrial Revolution will provide the opportunity for a progression to a more collectivist and socially just society (Mason 2015). What we have argued is that in the current world of work and crisis of capitalism a Marxist analysis of the impending Fourth Industrial Revolution needs to raise questions about how, in the ‘new’ age of the machine the contradiction between capital and labour will be reconfigured.

Mason displays a somewhat ‘techno-utopian’ perspective that neglects the resistance to change against the current owners of capital and political power. His belief that the emergence of ‘non-capitalist’ forms of production will lead us into a post-capitalist epoch – without major political and social upheaval – does not give adequate consideration to the force with which the owners of capital would resist such a transition. Fuchs (2016) argues that Mason’s analysis is based on a one-dimensional, functional reading of Marx and suggests a fundamental misreading of the Fragment by the version of autonomist Marxism to which he says Mason relates. This points particularly to the breakdown of the law of value, the availability and accessibility to all digitised knowledge and how this acts to breakdown organizational hierarchies. Fuchs’ belief is that Mason has wrongly interpreted Marx in believing that his statement that “*labour time ceases and must cease to be the measure of wealth*” (2016, p.235) could occur under capitalist social relations, when in reality Marx was describing a time in which capitalist social relations would have been replaced.

This is also a departure point between Mason and us. We question how the law of value could break down and labour time cease to be the measure of wealth, without capitalist social relations and the capitalist system first being dismantled and replaced. Mason is effectively arguing that the breakdown of the law of value and the cessation of labour time as the measure of wealth can precede – and indeed instigate – the decline and replacement of the capitalist system. Mason has a legitimate argument although the examples that he uses to describe this need to be further scrutinised in greater detail, a task beyond this article. We are seeing companies that represent the ‘sharing economy’, such as Air BnB, using rooms or homes to extract rents from customers rather than for ‘sharing’ in a non-monetary sense. This is less of a break from traditional accommodation provision than Mason suggests and while initially this may be the practice of a petite bourgeoisie, there are already signs of concentrated financial capital becoming involved.

Connections of this kind are indeed something new in the form that they take. They connect purchasers to what are quite often very small scale operators, although they are still very much operating under capitalist social relations and exchange. The extent to which this can represent the emergence of ‘non-capitalist’ forms of production emerging alongside capitalism, something that will naturally lead to the withering away of capitalism as it is replaced by these new social forms of production is purely speculative however. There have always been forms of economic activity that have existed alongside capitalism throughout its history and one of the most striking features of capitalist stubbornness has been its ability to absorb such forms of activity into the amended capitalist structures where necessary. Domestic labour and more recently the absorption of women into the active labour force means many of the tasks previously assigned to women are now carried out by wage labourers. This assimilation into a capitalist economy of once unpaid social reproduction functions (e.g. childminders, cooks, cleaners) means such tasks are now viewed as being economically productive because workers receive a wage, despite carrying out the same forms of labour. (Oerz, 2011).

Graeber (2016) writes about the phenomenon of what he terms ‘bullshit jobs’; jobs that extract value or claim a share of existing value, rather than create value. Graeber argues that the emergence of such jobs can be used to disguise the true scale of technological unemployment. One important message from Graeber’s work is to assess the extent to which the neoliberal model has been based on such jobs, particularly when we are informed this type of work would be exercised from the efficient resource allocation of a market-driven economy. One response to large scale technological unemployment as a result of the Fourth Industrial Revolution would be to simply create more of these types of jobs and bring tasks that are currently outside of the capitalist system and considered to be unproductive, into the system of wage labour. The instant connectivity of the internet has already enabled many personalised new types of service jobs to emerge, such as dog walkers and personal shoppers. Technological unemployment may push an increasing number of people towards such means as a way to earn a living, particularly to meet the increasing service needs of the ‘technological class’ (Hawksworth, Berriman and Goel, 2018, p.22).

Such a shift would not be an indication of a move towards a post-capitalist system. If this was to bear out, despite workers being ‘freed’ from hierarchies and the structure of the workplace, they would still be reliant on the need to sell their labour in order to survive, in much the way of self-employed people. For Marx, emancipation for the proletariat was reliant on the abolition of the link between the need to sell one’s labour and the ability to sustain life. Even with some potential new forms of production emerging, there is no change on the horizon that would signal an end to the need for the vast majority of the population to sell their labour power in order to survive. Should the sharing economy actually replace some aspects of capitalist exchange, the basic need to sell one’s labour in order to feed, house and clothe oneself will still be necessary. As such we must question claims by those such as Mason of a transition to anything like a post-capitalist system in which the law of value has broken down and been replaced by more benign social relations.

5. Conclusion: work, capitalism, Marx and the Fourth Industrial Revolution

Our attempts here have been to question the sustainability of capitalism and suggest there is a systemic crisis at play. This crisis is threaded through the emergence of the Fourth Industrial Revolution and is seen most markedly in the pursuit of profit and the contradiction of automated production, fewer workers and the prospect of a deflated consumption. As we have stated, the possibility exists that the capacity to make will be enhanced by new technologies and that this will at some point, be accompanied by a falling capacity to purchase. Marx and his work in *Grundrisse* and *Capital* helps provide a critical perspective to the debate and moves us away from the rhetoric of idealist or dystopian views on impact from implementing Fourth Industrial Revolution technologies. We are experiencing a convergence of big data digitalization, robotics, bio-tech, information and communications and AI and we must consider the reduction of human input through concepts such as objectified labour, living labour and disposable time. Marx provides us with the means to do this.

We must avoid tendencies towards technological determinism and technological neutrality and place at the centre of our analysis those social relations that will shape how the deployment of technologies will take place. By separating the contemporary crisis of capitalism from the impending doom – or liberation – of Fourth Industrial Revolution technologies, we can stay vigilant and place at the heart of any analysis, people before capital. We should for example, examine and question the assertion that the incentive for the Fourth Industrial Revolution is a more efficient form of capitalism. There are examples from the gig economy that run counter to this, while imagining a sharing economy that coincides with a surfeit of bullshit jobs may well be ironic although anecdotally evident. The incentive to gain maximum market share and profits is clearly the main motivation for capital. Marx shows how the main vehicle for achieving this is by capital appropriating the knowledge and control of the production process away from workers and for the control of capital. This is not an intrinsic state that arises from the deployment of technologies. The neutrality of the technology is shaped, contaminated and damaged by the social relations in which it is deployed.

This brings us to how social research in general can contribute to this debate. Through the development of new concepts that can enable and empower communities and organised labour, being active in shaping Fourth Industrial Revolution technologies rather than being reactive and defensive in their implementation, the academy can play an important role in this process. For example, one political economy theorist who we have not made use of here, but who could be, is Karl Polanyi (1944). His work shows that the whole economy may be (re)socialised in this era of new technologies. Polanyi’s approach is far from exhaustive as Jessop (2015) notes, although he may provide a bridge from Marxism to left idealism. Polanyi may also offer us the opportunity to examine ways in which labour can push back against the interests of capital in the deployment of new technologies.

Our argument has suggested that social researchers should apply Marxist theory to consider contemporary matters of the Fourth Industrial Revolution. We need to accompany the work not only of engineers and technologists, but of historians, anthropologists, management researchers and economists to build a political economy approach that provides new conceptual insight into the intelligent and self-sufficient technologies being deployed. We must ask whether the pace of advanced capitalism is gathering momentum? In response, we should encourage the work of trade unions and help identify how they can respond to rapidly shifting patterns of employment and fragmentation of the labour force, to ask how they can organise workers effectively, to assert power that their agitation may still hold over production (of both goods and services), and at least provide a voice for organised labour. Perhaps here we end on a reformist instead of a revolutionary note, a matter of practice at this point rather than theory when we posit that above all, we could examine the role of new technologies in achieving social aims first and economic objectives second.

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1. See for example the language used in the UK Government’s 2018 Green Paper *Industrial Strategy Building a Britain fit for the future*. [↑](#endnote-ref-1)
2. It is interesting that Soviet Union production also deployed Taylorism suggesting that the ‘science’ it was based on was considered neutral. [↑](#endnote-ref-2)
3. Based on figures provided by the International Labour Organisation, see [www.laborsta.ilo.org/applv8/data/TUM/UNIONS2014.xlsx](http://www.laborsta.ilo.org/applv8/data/TUM/UNIONS2014.xlsx) Accessed April 28th 2018. [↑](#endnote-ref-3)
4. One report suggested that 77% of jobs are susceptible to automation in China. See *Technology at Work v2.0 The Future Is Not What It Used to Be*, produced by the financial organisation Citi and the University of Oxford Martin School. [↑](#endnote-ref-4)