Institute for the Future of Work

Case for importance

Understanding the impacts of technology adoption on 'good work'

Putting people first

Contents

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A focus on ‘good work’ will improve economic, social and health outcomes together.

Professor Sir Chris Pissarides
Institute for the Future of Work Co-Founder and Co-Chair

Introduction

Deriving benefits from technology adoption, for businesses and workers, is in large part dependent on approaches to design and deployment.[1] There is growing evidence that new technologies could have significant social and material impacts on work, job quality and ultimately wider society.

Technology[2] is often assumed to de facto improve productivity, and remove 'dirty, dull and dangerous' work from our societies.[3] But this is not necessarily the reality. Despite increasing digitalisation, productivity growth has sharply declined across OECD countries over the past decades.[4] It is down to how businesses make decisions about the way they adopt technology that will determine wider impacts.

This report demonstrates that there is a business case for taking a responsible approach to the adoption of technology in the workplace. It also demonstrates that there are moral, social and economic imperatives to prioritising 'good work', which will see returns at the level of individual, firm and society.

This report therefore makes the case for ensuring that the design and deployment of technology in the workplace considers impacts on all principles of 'good work' as set out in the Institute for the Future of Work's Good Work Charter.[5]

The Good Work Charter

The Good Work Charter provides an organising framework to enable aspiration, alignment and action by different actors to shape a future of 'good work'. It sets out ten fundamental principles of 'good work' – work that promotes dignity, autonomy and equality; work that has fair pay and conditions; work where people are properly supported to develop their talents and have a sense of community.

The ten principles incorporate rights, freedoms and obligations relevant to work and the key institutions, ideas and conditions that shape work and experience of work. The Charter helps firms understand impacts on work and work quality, demonstrate compliance with the law in light of these impacts, and improve practice in key areas.

Good Work Charter

1 **Access**
Everyone should have access to 'good work'

2 **Fair pay**
Everyone should be fairly paid

3 **Fair conditions**
Everyone should work on fair conditions set out on fair terms

4 **Equality**
Everyone should be treated equally and without discrimination

5 **Dignity**
Work should promote dignity

6 **Autonomy**
Work should promote autonomy

7 **Wellbeing**
Work should promote physical and mental wellbeing

8 **Support**
Everyone should have access to institutions and people who can represent their interests

9 **Participation**
Everyone should be able to take part in determining and improving working conditions

10 **Learning**
Everyone should have access to lifelong learning and career guidance

Approaches to technology adoption

We identify a spectrum between 'high-road' and 'low-road' approaches to technology adoption.[6]

The 'high-road' approach centres human experience and contribution in the deployment of technology in the workplace, to create and maintain good quality work.[7] This maximises the opportunities and minimises risks in the adoption of technology to produce optimal outcomes for people, firms and society as a whole. In particular, this can mean that technology supports worker wellbeing, alongside greater business productivity.

The 'low-road' approach does not properly consider human impacts or experience, and focuses on expected short-term economic gains.

This report uses the Good Work Charter to organise information about the benefits of a 'high-road' approach to technology adoption, and expose the risks, costs and impacts for businesses of taking a 'low-road' approach.

The Charter aims to encourage dynamic, values-based practice and policy-orientation as businesses introduce new technologies,[8] and acts as a 'checklist' of the impacts of the introduction of new technology on work and job quality.[9]

Context

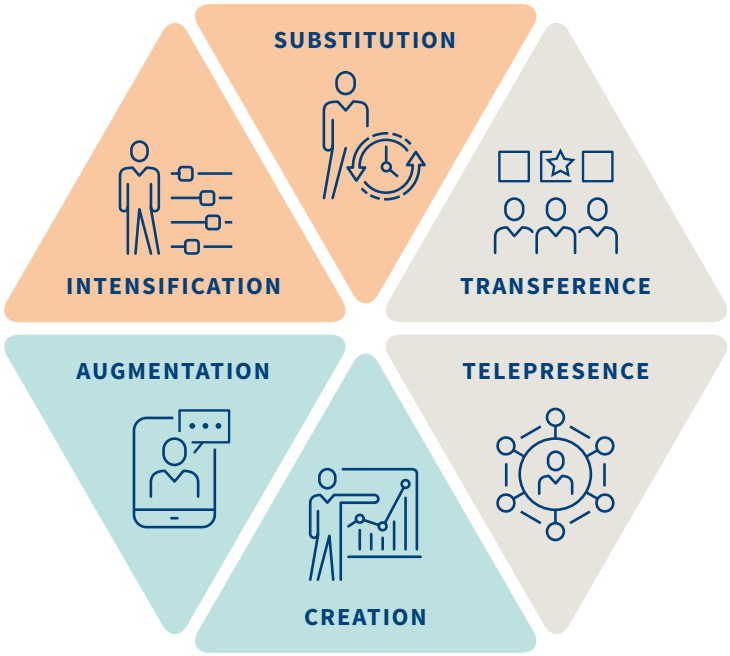
Context

The impact of technology on work

The world of work is going through one of the greatest technological transformations since industrialisation, variously called the 'rise of the robots,' 'the second machine age' or the 'fourth industrial revolution'.[10] There is a growing consensus that this technological change is driving and/or exacerbating some economic trends,[11] and presents a specific set of risks.[12]

Conventionally, technology adoption at work is understood as the use of technology to replace human labour, and so displace workers. However, our research suggests that the impacts of technology adoption are more varied, and fall into six categories (see figure 1).

Figure 1: The impacts of automation



The impacts of automation on work:

1. Substitution – technology performs new tasks previously undertaken by workers. Example: A stock-monitoring system directly displaces the work of stock-room managers.

2. Transference – technology transfers tasks from the worker to others. Example: Workers use the HR information system self-service function to book annual leave instead of HR doing it for them.

3. Telepresence – technology reduces the need for physical proximity, enabling workers to perform tasks from any location. Example: Managers use monitoring software to check how much time people spend on non-work-related websites during working hours.

4. Creation – technology creates new tasks and even new jobs for people. Example: Engaging with stakeholders on social media on behalf of organisations has created demand for social media managers.

5. Augmentation – augmenting workers' capabilities. Example: Using a business intelligence tool augments a worker's ability to gain insights and run reports.

6. Intensification – doing more tasks in the allocated time. Example: A call centre worker uses online chat to talk to several customers at the same time.

These transformations alter ecosystems of accountability,[13] and responsibility for job quality, which businesses must consider.

A single technological system can have all or many of these impacts simultaneously, for different parts of the workforce. A technology introduced to substitute for one role (for instance, a manager with a platform which schedules work and measures and monitors performance) can lead to changed outcomes for another (e.g. intensification). Technology adoption should therefore be understood and examined in the broad context of its implementation.

The evidence

The evidence

This section goes through the ten principles set out in the Good Work Charter, and presents evidence for the business benefits of a 'high-road' approach, and the possible harms and impacts of a 'low-road' approach.

A 'high-road' approach

This centres people in the process of technological adoption and recognises their contribution to productivity. A 'high-road' approach values 'good work' practices which support worker wellbeing, and are shown to improve worker productivity.[14]

A 'low-road' approach

This can generate poor quality work, which is strongly correlated with low worker productivity as well as wider individual and society-level harms. As worker wellbeing is secured by 'good work', and in turn contributes to business productivity, this creates a virtuous cycle.

A 'high-road' approach is increasingly critical as our contemporary approach to technology deployment is failing to secure productivity returns[15] potentially because they are failing to give appropriate regard to the human contribution in value creation.[16]

Access

Everyone should have access to 'good work'

Taking the 'high road'

Benefits

Access to work builds resilience against health and economic shocks and underpins the other principles of 'good work'.[17] The rights to work and access to decent work, freely given, have also been conceived as a fundamental right,[18] given they are preconditions of other fundamental rights, and a life with dignity.[19] Technology can support wider access to work – allowing workers to engage in opportunities at a distance, while also allowing employers to tap into a bigger talent pool. This helps to reduce information asymmetries in what work is available, and to support recruitment for roles which require rare skillsets. It also helps to connect workers to dynamic growth hubs, and widen access to work for communities with poorer access to the labour market.

The substitution of work can have impacts on access to work. It has obvious business benefits if employees are supported to continue in work with the introduction of new technologies through helping to build loyalty and engagement. In contrast, the data suggests that after layoffs the majority of companies suffer declines in profitability, and this decline may persist for years.[20] When workers who are retained see their long-time peers being dismissed, or not given the opportunity to retrain or reskill, it is likely that they feel demoralised and become less engaged with the company.

Taking the 'low road'

Risks

There are economic, social and political consequences of changed access to work. Increasingly as telepresence allows labour to be recruited from a distance, there are risks of contractual distancing, which could alter landscapes of opportunity and drive down wages.[21]

Poor access to 'good work' can also impact the wider family,[22] lowering the educational attainment and wellbeing of children,[23] which can also have impacts at a community level.[24] Transition to unemployment is associated with increased risk of limiting illness in the following year, and involuntary income loss has varied negative health impacts.[25] First episodes of unemployment have less impact than subsequent ones[26] with risk of stroke and myocardial infarction doubled for those who are unemployed for a second time in a decade following unemployment,[27] as supported by studies which control for pre-existing health status.[28] Involuntary worklessness is linked to financial exclusion and poverty, cardiovascular mortality, suicide risk, higher rates of smoking and alcohol excess and a lack of control and autonomy that exacerbates poor mental and physical health.[29] Unemployment is associated with significant increases in the risk of hypertension and type-2 diabetes mellitus, among others.[30]

Research suggests that downsizing a workforce by 1% leads to a 31% increase in voluntary turnover the next year.[31] Further research[32] suggests that after a layoff, survivors experience significantly lower job satisfaction (41%), lower organisational commitment (36%) and a decline in job performance (20%).[33]

A recent study suggested those who are fearful of losing their job within the next 12 months can actually deliver increased productivity. However, given the known negative impacts of insecurity on worker wellbeing,[34] productivity at the expense of wellbeing is unlikely to be sustained at firm-level,[35] or for individuals.

1

Fair pay

Everyone should be fairly paid

Taking the 'high road'

Benefits

There is strong evidence that pay and benefits positively correlate with productivity.[36] Absolute pay, i.e. the take-home earnings, and relative pay, i.e. a worker's pay relative to a referent other, both impact productivity and health.

The effect of pay on productivity and job satisfaction is perhaps mostly reflected through relative pay, when workers compare their pay with others within the same company (internal equity) or with outsiders (external equity). Comparisons with others can lead to perceptions of injustice, which can have negative consequences on job performance.[37]

Various studies argue that a good wage is quintessential for worker wellbeing, and productivity.[38–43] Socio-economic status, which can be taken as a proxy for pay, is also a significant predictor of healthy life expectancy.[44]

When businesses adopt new technologies in order to drive profits and productivity, the human contribution to subsequent value generation should be properly recognised in the form of fair pay. Companies who share the returns of development via profit sharing, have seen productivity increases of between 3.5 and 5%, with larger effects found for smaller organisations.[45]

Profit sharing is also positively associated with innovation.[46] Approaches which combine employee empowerment and economic participation tend to have stronger positive impacts on performance, simultaneously reducing employee turnover, increasing employee intent to stay and increasing return on equity.[47,48] However, the evidence on incentivisation is mixed.[49] Economic participation is shown to have positive benefits for employee wealth and wellbeing.[50,51] Evidence also suggests that profit sharing and equity compensation increase employee satisfaction over and above the effects of higher pay.[52]

Taking the 'low road'

Risks

Research has found that some firms may use insights from predictive analytics in the hiring process, and through management, to reduce remuneration of workers.[53] Further, technology which displaces labour is suggested to be a contributing factor in 'polarisation' whereby jobs in the middle of the pay range are devalued, or lost from the labour market,[54,55] driving former middle-salary workers to also compete for those positions.[56] Economists have also identified a tendency towards 'capital-biased technological change' – whereby the returns of technology adoption see lower and lower shares returned to labour.[57]

Determining fairness of pay as estimated through processes of technology adoption is challenging, as discussed in the Learning section below. Business models harnessing AI can also make the human contribution to value creation 'strategically invisible'[58] undermining negotiations around fair pay. Many 'superstar' platform businesses, to which many businesses now look for inspiration,[59] rely on low-wage work, and are underpinned by models of employment which are legally contested,[60] and or directly exploitative.[61]

2

Fair conditions

Everyone should work on fair conditions set out on fair terms

Taking the 'high road'

Benefits

Understanding the terms and conditions of work performance, and clear guidance and management around how to do well is core to achieving a sense of effort-reward balance within work.[62] Research suggests that where workers feel a sense of effort-reward fairness, they deliver more innovative work, and have greater work ability.[63,64] This also has positive impacts on wellbeing.[65]

Worker ability to control the scheduling of work – a condition of work which is steadily decreasing in parts of the UK labour market, enabled by technology adoption and predictive scheduling[66] – is linked to a reduction in sickness absence, in turn improving performance.[67] Those working in favourable employment conditions are also four times less likely to develop limiting illness.[68] Clear opportunities to progress at work are key to fair conditions.

Taking the 'low road'

Risks

The use of algorithmic systems to tightly define and predict demand for work, in order to match it with supply of labour is increasingly common across sectors, and associated with a transformation of contract type.[69] Such contract changes can be used to reduce direct spend on labour, but also avoid the legal demands on employers to provide a safe working environment.[70,71]

Technology has been associated with a polarisation of hours in work, with an increased tendency towards some overworking and others underworking.[72] This exacerbates income inequality and changes the experience of work. It also determines who can participate in different jobs. A core condition of 'good work' is work-life balance, which can involve over-employment – or its inverse – underemployment.[73] Technological change is driving inequalities in access to hours of work. One thesis identified that declines in hours per worker were far higher in routine, manual jobs.[74] The study found that as 'high-skilled' workers increase their fraction of employment and work, 'medium-skilled' workers saw a decline in the share of employment, and a decline in hours per worker. 'Low-skilled' workers saw a substantial decrease in hours per worker. In turn, inequality in hours of work is entrenching polarisation of the labour market. This increasingly necessitates multiple jobs for some workers, which is associated with sleep disturbance and an increase in accidents inside and outside of work.[75,76] Increased insecurity of work has been associated with increased risk of coronary artery disease and depression,[77,78] and presents similar threats to health as unemployment.[79]

3

Equality

Everyone should be treated equally and without discrimination

Taking the 'high road'

Benefits

Technology has the ability to improve equality within society, both at the individual level, by enabling individuals to participate in work where they would not otherwise be able to, and at the societal level by changing what work needs to be done, and creating moments to discuss how human work is valued.

Different people face different barriers when accessing work, demonstrating the need for flexibility at a firm and systems level to help individuals fulfil their potential. As much as two fifths of productivity growth since 1960 is the result of reducing barriers to work for women and Black, Asian and minority ethnic men.[80] Promoting equality at work has also been linked to diversifying, and quadrupling the total number of inventors.[81]

While not often designed to serve these objectives, technology can be deployed to increase diversity of the workforce, and to support dignity in work and equality in the workplace.[82] Technology can improve productivity and performance, both in terms of including those with a disability[83] (at present only around half of all disabled people are in work)[84] and age inclusiveness.[85]

The evidence on remote working (telepresence) and equalities is mixed. There is evidence to suggest telepresence can help enable caregivers to participate in work but this does not necessarily support 'good work',[86] and can create new challenges to inclusion.[87] Further in the long run there may be negative impacts on engagement.[88] Various studies suggest a decline in mental health which has knock-on effects for productivity.[89]

Auditing of algorithmic systems used in hiring and recruitment, or workforce management, can highlight issues of systemic discrimination and social inequality which may otherwise go undetected.

Taking the 'low road'

Risks

The introduction of technology in the workplace can exacerbate existing economic inequalities, if risks are not well managed.[90] As professions are gendered, racialised and age biased, forms of technology adoption which substitute human labour can have different impacts on different parts of the workforce.[91]

The impact on displaced workers will also depend on whether they have the opportunity and support to transition to other jobs. Workers in high-risk occupations have on average 26% fewer desirable transitions compared to workers in lower-risk occupations.[92]

Transference of performance review to consumers – for instance, call centre workers being evaluated on the length of time people hold the call – can drive and exacerbate discrimination without adequate mechanisms for redress.[93] Research has found that in the adoption of data-driven technologies for HR functions, across hiring recruitment and workforce management, can incur significant equality harms. While there was a time when data-driven systems were considered to be more fair than people, this 'myth' has now largely been dispelled.[94] This owes to recognition that data encodes the inequalities of history. Even when accurately predicting human behaviour, (e.g. the likelihood of women clicking to apply for senior leadership roles) making decisions on this basis (not showing women adverts for senior leadership roles) can cement the inequalities of history.

Bias is not the only challenge. There is also a lack of transparency about how hiring decisions are reached in AI reviewed applicants or workers.[95,96] While statistical auditing tools can reveal important equality discrepancies, they are not an adequate solution to this challenge, and cannot guarantee compliance with UK law.[97] It is recommended that combined technical, and participatory auditing is used by organisations to help navigate this.[98]

4

Dignity

Work should promote dignity

Taking the 'high road'

Benefits

Promoting the dignity of workers has been found to support more expansive leadership than conventional human-resource management approaches.[99] All human beings are inherently worthy of respect and protection of their psychological, moral and physical integrity.[100] Work to promote dignity as technology is introduced could be perceived as that which promotes wellbeing and equality.[101]

However, more expansive conceptions also consider the role of self-worth and sense of self, rights to develop one's personality and form relationships with others.[102] Our self-respect depends critically on how others treat us, particularly those we see on a regular basis. Work is the space in which most people spend most of their time and therefore relationships at work strongly contribute to self-concept.

Research has found that the introduction of technology can lead people to feel less valued, by both their employer and by society as a whole.[103] Working to build organisational cultures which promote the dignity of workers involves abiding to all other 'good work' principles, in particular autonomy and participation.

Taking the 'low road'

Risks

There are risks of the intensification of both desk based,[104] and frontline work under algorithmic management.[105] This can drive workers to engage in activities which diminish their dignity.[106]

Data-driven systems substituting human work of recognition can also dehumanise workers through failing to appropriately recognise their humanity.[107] By reducing opportunities for dialogue between workers, and surveilling communications between workers, data-driven systems can also curtail freedom of expression.[108] Beyond undermining the 'good work' principle of 'support', this can also be seen to undermine 'free development of personality'.[109] Notably, the CAHAI guidance highlights risk of instrumentalisation in which an individual is treated as exchangeable, and the risk of psychological 'chilling' effects on behaviour. The guidance highlights that humans' sense of dignity and life quality should be enhanced by technology, rather than diminished.[110]

5

Autonomy

Work should promote autonomy

Taking the 'high road'

Benefits

Jobs that have high autonomy and task feedback tend to be most strongly related to pay satisfaction, which positively correlates with productivity.[111] However, when pay satisfaction, voice and autonomy are disaggregated for their impact on satisfaction with work, voice and autonomy play a much larger role than wage in explaining satisfaction with work. Autonomy can also drive efficiency, and the motivation of workers within firms.[112] Employee-owned businesses in the UK, especially small- and medium-sized businesses, are proportionately more profitable than their non-employee owned counterparts.[113] This trend is associated with the fact employee-owned firms tend to grant more autonomy in decision making to their employees. Employee-owned businesses also grow faster in terms of employment and are more resilient over business cycles.[114] This resilience effect is reinforced by greater stability of the workforce and organisational ability to adapt to change.[115]

Taking the 'low road'

Risks

Poorly designed, the introduction of technology in the workplace can delimit skill use and autonomy, reducing discretion over what tasks constitute work, and in turn, workers' ability to define value within a firm.[116]

Use of technology to reduce autonomy can also intensify work, and drive unhealthy environments of self-discipline if wider conditions to protect and promote worker wellbeing are not in place.[117] Evidence suggests that autonomy can decline for both high- and low-skill workers through routinisation, reducing professional discretion.[118]

Questions have also been raised around 'manipulation' by AI.[119] Employers should consider the proportionality of technological deployments designed to increase productivity, relative to the autonomy of workers. Developing wristbands to guide workers' hands,[120] or tracking their eye movements to evaluate tiredness,[121] significantly diminishes the agency of the worker and introduce significant ethical questions. There is increasing evidence that technology is designed and deployed to intensify work, referred to as 'effort-biased' technological change,[122] is associated with a reduction in autonomy. Such a reduction in autonomy can impact the effort-reward balance of work,[123] which is closely linked to wellbeing.

This is something businesses must be cognisant of, as evidence suggests that narratives of technological progress can lead employers to forget and overlook the lived experience of surveillance technology.[124] Further, the use of what has been described as 'hyper-nudge'[125] techniques within software applications, which give an illusion of choice within a constrained decision making environment, present ethical challenges.

6

Wellbeing

Work should promote physical and mental wellbeing

Taking the 'high road'

Benefits

Worker wellbeing is an outcome of taking a 'high-road' approach in line with all 'good work' principles, as demonstrated throughout this report.

It is a legal responsibility for firms to protect physical and mental health. Several have argued that promoting wellbeing and human flourishing at work is the fundamental purpose of an economy.[126] Worker wellbeing is underpinned by, and an outcome of access, terms and conditions, and fair pay.[127] Health, and in particular mental health, is also determined, by the social aspects of work – opportunities for learning, autonomy[128] and dignity shape job satisfaction, a precondition for the wellbeing and general life satisfaction of individuals.[129] People who feel well in themselves have been found to make more effort and show better performance.[130] Ultimately workers with higher levels of wellbeing are more productive over the long term.[131]

Approaches to work, and its redesign through technology adoption, which promote capabilities[132] demonstrate great rewards. Increasingly employers are also supporting the workforce to use technology to monitor their own wellbeing. The extent to which this delivers benefits depends on implementation.[133]

Taking the 'low road'

Risks

An aspiration for technology introduction has been the removal of 'dull, dirty and dangerous' work from the labour market, allowing the development of an economy which better supports human flourishing. However, research suggests some deployments can increase worker vulnerability to harm from work that damages wellbeing.[134] Data analytics have been, and are increasingly used to filter workers with poor mental health from the workforce,[135] entrenching inequalities.

Further, the link between digital technologies and intensification of work[136] has significant impacts on health. Excessive monitoring has psycho-social consequences including increased resistance, reduced job satisfaction, increased stress, decreased organisational commitment and increased turnover propensity.[137] While remote working was broadly conceived to promote wellbeing, there is evidence to suggest it introduced novel forms of 'techno-stress'.[138] Reviews suggest digital communication is taxing on workers.[139]

Job demands and pressures, degree of autonomy and flexibility, quality of interactions with supervisors and coworkers, frequency of shift work, and length of the workday all determine worker wellbeing,[140] therefore when adopting new technologies in the workplace, it is important to consider the impacts across all of these dimensions.

7

Support

Everyone should have access to institutions and people who can represent their interests

Taking the 'high road'

Benefits

The principle of support incorporates rights to freedom of association and bargaining, which are linked to wider responsibilities to practice inclusivity. These point to the need to develop and maintain a supportive workplace culture. Many of the benefits associated with the introduction of technology are dependent on supportive working environments. Previous work suggests a correlation between supportive working environments and productivity.[141] High-involvement approaches to management are supportive of the implementation of advanced technologies.[142] Organisations obtain higher levels of productivity from investments in advanced information technologies when combined with more sophisticated management practices.[143]

Some work suggests productivity returns from training are contingent on the simultaneous implementation of supportive management practices, such as employee participation, team-based work, and some element of reward contingent on organisational performance.[144] Evidence also indicates that there is more effective transfer of training where there is a more supportive work environment.[145]

The most important source of workplace satisfaction, which drives productivity, is a worker's relationship with their manager.[146] As the development of organisations, aided by technology, sees workers increasingly fragmented,[147] unions can play a helpful role in mediation, enabling meaningful consultation and addressing information asymmetries.

Processes which engage workers in discussion about technological change, such as technology forums, have been advocated as a tool to mediate between workers and employers through disruption, modelling social partnership.[148] Deployed well, technology can support workers and their representatives to better understand work and conditions.[149]

Taking the 'low road'

Risks

As a core source of relationships, access to work and supportive relationships within this environment can reduce loneliness, a known mortality risk.[150] At a more systemic level, work is part of the social infrastructure which connects people, contributing to social cohesion.[151] The adoption of technology which reduces support and connection within a firm can hamper these benefits. Through the intensification of work, algorithmic systems have been found to delimit the extent to which workers are able to engage in dialogue with colleagues,[152] which can be a core aspect of a positive working environment.

Data-driven systems can also be used to promote anti-union activities.[153] As well as constraining the opportunity for workers to have access to institutions that can represent their interests and uphold their wellbeing, anti-union activity may pose significant reputational risks to businesses. This is well exemplified by some business practices of union-blocking.[154]

8

Participation

Everyone should be able to take part in determining and improving working conditions

Taking the 'high road'

Benefits

The UK Government promotes participation as a route to innovation in new civic technology.[155] The introduction of technology presents a unique challenge and opportunity for work redesign. It should therefore be taken as a key moment for workforce involvement in decision making to ensure work redesign benefits both workers and businesses. Empirical evidence has demonstrated that various forms of employee involvement can promote organisational performance,[156] and as shown by a comprehensive meta-analysis, productivity.[157] One study cites a 14% higher productivity rate where voice and representation is high.[158]

The use of participative techniques, including involvement in decisions related to technology adoption, work organisation, and work design can help to reinforce investments supporting productivity returns from technology adoption.[159] Employee participation in decision making can also improve worker wellbeing by leading to more challenging and intrinsically rewarding work.[160]

Participation can also drive higher levels of satisfaction with pay, autonomy and supportive environments, relative to workers in non-employee owned firms.[161]

Taking the 'low road'

Risks

It is increasingly common for algorithmic systems to be presented as neutral, and for such systems to be used to make important decisions about work. However, such systems cannot be neutral[162] and if deployed poorly, can be used to foreclose debate about how work is managed, and about the inevitable trade-offs which arise in algorithmic decision making.[163]

This is particularly critical as algorithmic systems can reduce opportunities for workers to have a voice, and create barriers to access to management.[164] Workers who are managed by platforms find it increasingly difficult to be represented in processes of decision making.[165] While the internet can support decentralisation of power, new research on the values encoded in machine-learning research and development suggests that the centralising of control is core to much design.[166]

A growing body of work supports preemptive impact assessment, involving workers, before the introduction of any algorithmic system in practice. Because it is not possible for such systems to be neutral, it is essential that human dialogue accompanies the use of algorithmic systems in decision making about work. This could also take the form of regular, participatory auditing.[167]

9

Learning

Everyone should have access to lifelong learning and career guidance

Taking the 'high road'

Benefits

Companies that re-train their workers for new roles within or outside the company have tended to benefit financially.[168] Retraining employees who have proven track records and potential can be about one-and-a-half to three times cheaper than hiring new talent.[169] A study by the Centre for Economic Performance reports that a one percentage point increase in training investment in an industry is associated with a 0.6% increase in value added per worker, and a 0.3% increase in wages.[170] Another finds a 0.7% increase in value added per employee.[171] Given that the impact of training on productivity is actually twice that observed on wages, and that most research operationalises productivity in terms of wages, this means that prior work has significantly under-estimated the positive productivity effects of training.[172]

There is also evidence that employee satisfaction with training is a significant predictor of overall job satisfaction, and therefore can be expected to be associated with job engagement, organisational commitment and reduced employee turnover, each of which is also supportive of productivity.[173,174] One analysis found an increase in revenue of 32% after a firm chose to upskill and retain, rather than make redundant 100,000 workers.[175] Education also determines life expectancy.[176–178]

Taking the 'low road'

Risks

Pay differentials within firms are commonly understood to equate to different 'objective' levels of skill. As a result, the principles of 'fair pay' and 'learning' are often considered concurrently in processes of technological adoption, as skills requirements for roles change with the adoption of new technology.

The challenge in re-valuing work, and estimating changes in skills level following the introduction of new technology, is that what workers end up doing after technologies are introduced cannot always be foreseen.[179] In some cases, it can reduce opportunities for learning, expression of human skill, and capability.[180] While technology can store information and make it available for less-skilled workers to deliver the same outputs, increasing productivity, such processes – by taking information held in people (human capital), and codifying it (incorporating within capital) – can devalue labour. This in turn de-skills work for those who remain employed, working against the principle of learning.

Understanding these processes, and their implications for workers is critical to securing 'good work' through technological transition. Research shows that investment in people as technology is introduced can maximise use of the technology, and experience of work for staff. At present, workers with the least formal qualifications also receive the least investment in skills development by businesses.[181] This can work against the long-term interests of the business, who may lose staff with strong organisational experience and knowledge, and can entrench inequality.

10

Conclusion

Conclusion

History teaches us that the question of who technology benefits depends on why and how it is adopted and designed. It also teaches us that the impacts of technological transformations are unevenly spread.

Failure to ensure that 'good work' principles are embedded into the process of adopting technology has negative consequences for worker wellbeing, with negative knock on effects for families,[182] children,[183] and communities.[184] It also negatively impacts business, as poor quality work is linked to low productivity. Focusing on 'good work' through technology adoption ensures better lives for individuals, better and more sustainable outcomes for firms, and improved wider social outcomes.

Work is at the centre of people's lives. It is the thread that connects people's everyday experience with their community, the economy and the state, public policy and private ventures. The costs of taking a 'low-road' approach are borne by workers, employers and society.[185]

This report indicates the benefits that society, public and private actors may be able to reap – including business productivity gains, democratic values and normative appropriateness – by following the 'high road' of socially responsible technology adoption at work.

To deliver the true potential of technology, principles of 'good work' must be made central to its design and deployment in workplaces.

Endnotes

Endnotes

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