



Llywodraeth Cymru
Welsh Government

REPORT

The future of work: the impact of innovative technology on the workforce

A report on the key issues impacting the workforce created by the changing nature of work.

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Contents

Key messages

Introduction

A. Literature review

B. Case studies and examples

C. Strategic responses

Recommendations

Appendix 1

Appendix 2

Appendix 3

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Key messages

1. A number of factors are driving the introduction of innovative technologies in the public sector. These are:
 - Covid-19 pandemic and social distancing regulations which have led to services and back office functions being delivered remotely from work places
 - Budget constraints and the drive for productivity
 - The increasing capacity of technology to help deliver services
 - Public expectation that services will be delivered efficiently making use of current technology.
2. In order to support the workforce adapt to the expanding use of new technologies, international experts agree that government and the public sector need to:
 - Increase relevant skills training, including union learning, especially for vulnerable groups of workers
 - Address job design and workforce planning, so that the benefits of innovative technology can be realised by as many workers as possible
 - Develop close partnership working between unions and managers at an organisational and national level.
 - Put protections in place to guard against some of the potential negative impacts of new technology
3. Our analysis of 3 case studies pre-Covid provided evidence of:
 - The potential benefits of innovative technology to improve working life when staff are fully consulted on its introduction and implementation.
 - Staff concerns - about the introduction of innovative technology - especially in relation to job quality and surveillance
4. Furthermore, during the pandemic the Office of the Chief Digital Officer have collated many examples of innovation in service delivery. These demonstrate that public services have quickly introduced new ways of working to support the remote provision of services to the public and to

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improve internal processes.

5. Organisations in Wales have responded in the following ways to the general increase in the use of new technologies:
 - Unions have developed key principles which build on or add to those contained in the Partnership and Managing Change agreement which they propose should be adopted when new technology is introduced
 - The Welsh Government is funding Chief Digital Officers in health and local government and has launched a Centre for Digital Public Services
 - Health and social care leaders are recommending a digital workforce plan in their draft workforce strategy
 - The Deputy Minister for Economy and Transport has issued a statement on embedding remote working
 - Internationally, European social partners have published a framework agreement on digitalisation
6. Taking these matters into consideration and taking into account the views and advice of senior officers from each of the social partners who supported this work, our report recommends that:
 - i. Social partners develop and adopt a set of principles on digitalisation that support the involvement, participation and consultation of staff and trade unions when new digital and data methodologies and new technologies are introduced. The principles will align with the Partnership and Managing Change agreement and include the importance of training and job redesign when managing any change in roles and expectations.
 - ii. The WPC to establish relationships to foster an effective exchange of information between social partners and the partnership of 3 national Chief Digital Officers, with a particular emphasis on public service workforce issues
 - iii. The WPC to engage with the Knowledge Hub within the Centre for Digital Public Services to share knowledge and best practice between social partners and the hub on public service workforce issues complement the information it collects and shares with experiences from a trade union and employer perspective.

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Introduction

7. The future of work was adopted as part of the WPC's programme in July 2019 and committed to produce a report on the key issues impacting the workforce created by the changing nature of work.
8. This report has 3 main sections. Section A is a literature review which collates recent evidence from home and abroad about the introduction of innovative technology and how the workforce can be supported to adapt. 3 reports are of particular importance in this context. The first is 'System Reboot: Transforming Public Services through Better use of Digital' which was presented to the then Leader of the House, Julie James in December 2018 by the then backbench Assembly Member, Lee Waters. The second is the 'Review of Digital Innovation for the Economy and the Future of Work in Wales' which was presented to Ken Skates the Minister for Economy and Transport in September 2019 by Prof Phil Brown. The third is the recent Welsh Government statement on embedding remote working.
9. Section B is a collection of case studies which considers the impact the introduction of new technology was having on workers in Wales pre-Covid. Also included are more recent examples of innovations from the pandemic period. For the case studies, the WPC spoke to staff and trade union officials at 3 public bodies in Wales which have recently introduced innovative tools, to consider how their experiences should inform our approach in future.
10. Section C considers the strategic responses of national bodies. the WPC held a series of conversations with public service leaders and trade unions in Wales to hear about their plans.
11. Finally, the report provides recommendations for the WPC and its members about how it can best influence and support these plans in light of the challenges highlighted in this report.

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A. Literature review

Key drivers for change

12. There are a number of factors driving the adoption of digital innovation by the public sector. Since March 2020, the Covid 19 pandemic and the associated social distancing regulations have driven a raft of changes. But even before this a series of long term trends were in train. These included budget constraints; productivity demands; advances in technology itself and public expectation. It is likely these trends will continue even should social distancing regulations change.

The pandemic, social distancing and remote working

13. The global Covid 19 pandemic has forced organisations worldwide to deliver services remotely. Office staff who do not provide services directly to the public have been required to work from home and link to colleagues remotely. According to a recent article in the New York Times, workers are often found to be just as productive working from home as they are in the office, although in the long run creativity and team working is negatively affected ([What If Working From Home Goes on ... Forever?](#), Clive Thompson, New York Times, June 2020).
14. These changes have led to overnight innovation across every aspect of the public services. Published research and articles on these aspects are more difficult to find however, in Wales the Office of the Chief Digital Officer is collating examples of these changes, in order to learn more about their impact and effectiveness. They have shared some of this data to us for the purposes of this report.
15. Neath Port Talbot council has introduced a series of innovations, using new data technologies in order to better communicate with vulnerable groups and

others. For instance, they have used the Gov.Notify tool to inform around 60,000 households in the county of the Council's Safe and Well service which maps and connects vulnerable residents who have been told to self-isolate but don't have any family or friends or neighbours to help, with volunteers.

Budget constraints and productivity

16. Before Covid 19, commentators already believed that that digital innovation offered a route to improved productivity in the face of continued constraints on public spending and demographic pressures. In a report on adopting new technology, the Wales Audit Office said:

these are challenging times for councils in Wales. In a climate of decreasing public funds they are having to cut staffing costs and increase productivity ... which means that Councils have to look for innovative ways to deliver more for less. (**Use of technology to support improvement and efficiency in local government**, Wales Audit Office, 2012)

17. In health and social care, budgetary constraints are likely to remain in place and technological innovation could play a role in addressing this. According to the King's Fund:

Over the coming years, all research suggests that the NHS's budget will need to rise substantially just to maintain the current level of service... Better productivity growth could reduce the magnitude of funding pressures [and that] it is possible that transformative new treatments, technologies or organisational innovations could increase productivity substantially (**Does the NHS need more money and how could we pay for it?** King's Fund, 2018).

The King's Fund report adds that:

Recent estimates from the Health Foundation and the Institute for Fiscal Studies (IFS) suggest that spending would need to increase by an average of at least 3.3% a year up to 2033–34 just to meet these pressures (or 'maintain the status quo').

Developments in digital innovation

18. There is a great deal of literature which points to automation as a critically important area where recent technological developments have created the potential to support public sector bodies in 'doing less with more'.
19. In 2017, the UK government established a centre of excellence for 'robotic process automation (RPA)' ([Capgemini develops RPA Centre of Excellence for UK Cabinet Office](#), Consultancy.uk, 2017). According to Jon Manzoni, the then chief executive of the UK civil service:

RPA ... is now considered to be sufficiently developed, resilient, scalable and reliable to be used in large organisations. [It] gives us the potential to reduce the need for agency and other temporary staff to handle peak workloads. It also means we could divert staff to other tasks with higher 'value add', like direct contact with customers. ([Robots Lend Government a Helping Hand](#), Civil Service Quarterly, 2018)

20. Whilst Manzoni sees potential for deployment to other jobs, it is important to recognise that some view automation as an opportunity to cut public expenditure through job cuts. As noted by Philip Inman in a report for the Guardian:

automation will be an attractive option for cost-conscious public sector management after a report by Oxford University and Deloitte's found it

could shave £17bn off the public sector wage bill by 2030 (**Study says 850,000 UK public sector jobs could be automated by 2030**, The Guardian, October 2016).

Public expectation

21. For some, technological developments have increased the level of public expectation about the standard of public services they receive. According to Lee Waters' report public services need to adopt digital innovations if they wish to retain public support. "If services do not keep up with citizens' growing expectations," he said "then people will simply migrate to private services" (**System Reboot: Transforming public services through better use of digital**, An expert panel report for the Welsh Government, Lee Waters, AM, 2019).

Socio-economic trends

22. It is important to remember the wider economic context in addressing this question of the impact of new technology. According to the International Labour Office (ILO):

Most publications highlight the impact that the Fourth Industrial Revolution, with its focus on technological developments in robotics, artificial intelligence and genetics, might have for the labour market. However, concurrent to this technological revolution there are a set of broader socio-economic, geopolitical and demographic drivers of change that might have even more significant and longer lasting influences on the world of work (**The Future of Work: A Literature Review**, ILO, 2018).

23. In terms of the future of jobs, the ILO acknowledge the critical role of automation. But they also point to demographic shifts in developed countries which will lead to a reduced labour force and increasing demands for health and care. On the subject of job quality, the review finds that "flexible and temporary work is expected to become more prevalent in the near future."
24. The ILO's review found that social protection and the welfare state "are expected to be challenged in the future." Widening inequality is also taking place, thanks to the rise of 'superstar' firms and the erosion of labour market institutions, such as collective bargaining. In regard to social dialogue, the review finds evidence of challenges for trade unions - and the need for them to adapt to the needs of the growing precarious workforce (ILO).
25. In summary, whilst acknowledging the importance of new technology, it is important to remember that other issues, arguably of greater importance are also having a negative effect on workforces.

Workforce impacts

26. The impact of innovative technology on the Welsh public service workforce is potentially serious and it will be important for social partners to consider their response. Potential impacts which have been identified include job losses, increased inequality, insufficient training and lower job quality.

Employment

27. One of the key findings of Phil Brown's review is that "claims of mass technological unemployment as a result of automation are exaggerated". However, it is acknowledged that the direction of travel "seems clear with technologies becoming increasingly used as a substitute for human labour" (Page 7, Phil Brown's review). The review states:

Digital innovation is transforming work at all levels of the occupational

structure. The pace and scale of this change is likely to accelerate, with the impact being felt across all sectors of the Welsh economy and all occupations, although to varying degrees (Page 24, Phil Brown's review).

28. From the perspective of the public sector workforce therefore, it could be extrapolated that an unpredictable number and types of workers will be faced with changes to their job as the use of innovative technology in the workplace increases. Staff may have to re-train, move to different jobs or in some circumstance, face redundancy as a result. It is possible that the mass up take of technology during the pandemic has hastened this process.

Job quality, including health and well-being

29. As well as its impact on employment levels, new technology is predicted to impact job quality, including staff's health and well-being. A TUC discussion paper highlights the potential benefits of new technology, which could be realized if workers and unions are given a real say in how it is introduced. They state that:

We believe that rather than attempt to hold back the technological tide, the UK should plan how to use it to enhance productivity, jobs, and wages, particularly in the areas which previous waves of industrial change have left behind (p6 [Shaping Our Digital Future: TUC Discussion Paper](#), Sep 2017).

30. For the TUC, the potential benefits of new technology include "its ability to improve the quality of working life" especially in terms of reduced working hours and earlier retirement (p50-51 [Shaping Our Digital Future: TUC Discussion Paper](#), Sep 2017). They make the case that:

We should also consider the extent to which robots and forms of

artificial intelligence can minimise dangerous, boring, unrewarding work, and offer a chance to consider what good, meaningful work looks like (p50 [Shaping Our Digital Future: TUC Discussion Paper](#), Sep 2017).

31. On the other hand, according to a recent report in the Guardian, researchers suggest that:

the coronavirus pandemic is threatening to derail women's careers and take UK society back to a 1950s style of living, experts have warned, as research showed the proportion of mothers responsible for 90 to 100% of childcare increased from 27% to 45% during lockdown ([UK society regressing back to 1950s for many women, warn experts](#), The Guardian, June 2020).

This is of particular importance when considering the health and well-being of workers.

32. Furthermore, there are concerns that the quality of jobs and the health and well-being of workers can be negatively affected when digital innovation is introduced in the public services. Research by the European Federation of Public Service Unions (EPSU) found that negative effects currently experienced by workers fall into 3 categories:

- "Reduced enjoyment: New technology is compromising the thing that workers say they tend to like most about their jobs – human interaction and communication.
- Worse pay and conditions: Some workers also felt that new technology had put pressure on them to work harder and do more for the same, or lower, pay.
- Oppressive monitoring: Some employers are utilising new technology to implement extreme levels of workforce surveillance and control ([The impact of digitalisation on job quality in homecare and public](#)

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employment service sectors, EPSU, 2018).”

33. Domestic unions are equally concerned about the potential negative uses of technology. Looking across the UK, UNISON have attested to:

Numerous examples attest to the way employers can utilise the possibilities opened up by the technology to intensify pressures, including:

- “ ◦ Tracking of workers’ performance ... to dictate intensity of work schedules
- Work practices which intrude deeper into employees’ private lives leaving them feeling unable to ‘switch off’
- Facilitating ‘crowd work platforms’ that give rise to insecure contracts such as zero hours work (p10 **Bargaining over Automation**, UNISON). ”

34. The recent forced emphasis on remote working during the pandemic has also had an impact on the work of trade unions, especially that of lay officials. According to recent research by the TUC, unions have adapted to remote working by using the various available communication tools. However, some branches have found that there has been a drop-off in informal information sharing when people don’t see each other face to face. This means that it’s harder for lay officials to pick up the background to an issue. On a positive note, some branches that were inactive have become more active now that they’re able to do union work in ways they prefer. Facebook Live events have been started up as people felt they needed the connections and communications with each other, and these are good at bringing in those members who may have been less engaged with physical meetings in the past (**Working remotely for trade unions**, TUC, 2020).

Interventions

35. According to the literature, local and international policy analysts are alive to

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the threats of job losses and a scarcity of good jobs. A number of recent papers have suggested steps that should be taken in order to support staff through these changes.

Reform to education and skills provision

36. In response to the challenges faced by the workforce, one of the Brown review's nine key recommendations is that Wales should:

Conduct a range of reforms aimed at building capacity within post-compulsory education so that it is able to deliver the step-change required in preparing for the future of work in an age of lifelong learning (Page 11, Phil Brown's review).

37. The Brown review also states the potential importance of the Regional Skills Partnerships in supporting the transition to a digital future, saying:

Although the Welsh Government has taken steps to review the role of RSPs, their function appears almost exclusively focused on supply-side interventions. This represents a missed opportunity for the RSPs to take an active role in the industrial transformation process, supporting employers to innovate for skill augmentation and better jobs (Page 47, Phil Brown's review).

38. An ILO global commission on the future of work placed a similar emphasis on adult learning and recommended:

a universal entitlement to lifelong learning that enables people to skill, reskill and upskill (**Work for a brighter future: Global Commission on the Future of Work**, ILO).

39. For its part, the TUC have called for protection for workers whose jobs are most at risk of from innovative technology in the following ways:

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- Focus on older workers and set an ambition to increase investment in both workforce and out of work training to the EU average within the next 5 years.
 - Introduce a right to a mid-life career review, and face to face guidance on training.
 - Introduce a new life-long learning account, providing the opportunity for people to learn throughout their working lives (**Shaping Our Digital Future**, TUC, 2017).
40. Phil Brown's review sees an important place for the trade unions in delivering a reformed skills system. One of the review's other recommendations is to:
- Scale the Wales Union Learning Fund (WULF) with a stronger focus on supporting workers at risk of automation from both unionised and non-unionised workplaces (Page 49, Phil Brown's review).
41. The Brown review shares the TUC's concern for those workers most vulnerable in the face of change. Another of its recommendations is that the Welsh Government should:
- Extend Job Support Wales to provide support for individuals who are in work and are in jobs identified at potential high-risk of automation or who have already been retrenched (Page 59, Phil Brown's review).
42. These recommendations reflect current concerns that training is insufficient and inaccessible to those who need it most. For example, in 2017 research for the Welsh Government by SOCITM, the society of public sector IT managers, found:
- a lack of evidence that councils were embedding digital skills into their workforce strategies and thinking ahead of the need for digital skills and capabilities in the future (**Digital Baseline of local authorities in Wales**, Rogers, Halliday and Corbett, Socitm Advisory Ltd, 2017).

43. In this context Lee Waters' 2018 report to the Welsh Government recommended they:

Create a people strategy to assess the skills, capabilities and ambition of our public sector workers, and provide the training and support that they need to deliver in the Digital Age (Lee Waters, AM).

Action on the gender gap

44. In their response to the Brown review, Wales TUC said:

Taking advantage of new opportunities offered by technology will also require a skilled and diverse workforce. But those working in new technologies are overwhelmingly male. We want this gender gap to be addressed through proactive policy, including a role for unions in supporting more women workers to gain further qualifications in these areas.

Job design and workforce planning

45. Job design is the process of establishing employees' roles and responsibilities and the systems and procedures that they should use or follow (**Job Design**, CIPD).
46. In his review on innovative technology and the private sector, Phil Brown places a great deal of emphasis on the need to support job redesign in a way which is sympathetic to workers. For example, his recommendation to scale up the Wales Union Learning Fund (see above) specifies that this should include "on new ways to support job redesign in the deployment of new technology (p49).
47. In a similar vein, Hagel and Wooll, of Deloitte's consultants have argued that:
- [Managers] should seek to minimize the number of routine tasks that

workers must perform, and maximize the potential for fluid problem-solving and addressing opportunities to create value for customers and participants at all levels of the organization (**What is work?**, John Hagel and Maggie Wool, Deloitte Review, 2019).

48. The TUC has drawn together some examples of where unions have used their collective bargaining mechanisms to negotiate important and positive elements of job design when innovative technology has been introduced. At Warburton's bakery an agreement negotiated by BFAWU the food workers union aimed to address career progression and to move towards the wider utilisation of skills, with investment in training, supported by the union learning fund. Two job roles have been created, one fully multi-skilled and one that is skilled but with less expectations, but all team members work on multiple tasks and areas within the bakery with the opportunity to learn new skills (**Great Jobs are Union Jobs**, TUC).

Partnership working

49. Partnership working between managers and unions is an important requirement when introducing new technology, according to Wales TUC, Phil Brown's review and others.
50. In their response to the Brown review the Wales TUC emphasised that innovative technology should not be introduced without consultation with workers through their recognised trade unions.
51. Writing for the World Economic Forum, Renee McGowan places a similar emphasis on partnership working in relation to workforce planning. She points to the positive benefits of practices which:

engage labour organizations and governments to develop new workforce strategies together" in response to disruptive technologies (**Here are 3 alternative visions for the future of work**, Renee

McGowan, World Economic Forum, December 2018).

52. At a UK level, the TUC have recommended that the Whitehall government “establish a commission on the future of work, engaging unions, business and civil society in how technology should be introduced” (‘Shaping our Digital Future’, TUC).
53. One of Phil Brown’s key recommendations echoes this demand saying that:

The Welsh Government should set an ambitious vision for Wales 4.0 [which] should be informed by commencing a national conversation with citizens on the future of work and the economy in Wales aimed at encouraging discussion of the challenges and opportunities presented by digital innovation (p10, Phil Brown’s review).
54. Whilst not explicitly stating that the ‘national conversation’ should involve the social partners, Phil Brown’s review does acknowledge that:

The social partnership model could be a lever to support digital innovation, job redesign and training initiatives, and also act as an early warning system for identifying companies where new technology and processes may lead to job losses or a need for retraining (p47, Phil Brown’s review).
55. Wales TUC have made the case that “consultation at workplace level will also be vital to ensuring that companies introduce new technology in partnership with workers” (p44, ‘Shaping our Digital Future’, TUC).
56. The ‘Partnership and Managing Change’ document is central to current approaches in Wales to introducing new ways of working in the public service in a way which gives a voice to workers through their unions and this could include the introduction of new technology. This document was developed in order to respond to cuts in public expenditure in the wake of the 2008 financial crisis. The ‘Partnership and Managing Change’ framework

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is highly relevant to the introduction of new technology.

57. Partnership and Managing Change includes the following principles:
- i. All Social Partners will use best endeavours to ensure employment continuity.
 - ii. The Social Partners will support the use of the best standards of employment practice, such as systematic workforce planning, to manage deficits and surpluses in a planned way as we shape the future delivery of services
 - iii. Public service organisations embarking on change, which impacts on the workforce, will consult Trade Unions at the earliest appropriate opportunity
 - iv. Any change should be properly planned and delivered through partnership.
58. UNISON's recent branch survey, taken across the UK, found that just 17% of branches had been consulted over the introduction of automation (p6, Bargaining over Automation, UNISON). This suggests that the introduction of innovative technology is not being routinely discussed at a local level in social partnership. The extent to which this is the case in Wales could be a useful area of future research for the WPC.

Findings of literature review in summary

59. From this review of the existing national and international English-language literature, there is a broad consensus amongst those policy experts who have approached the future of work from a social partnership perspective that organisations should consider the following steps in adopting innovative technologies:
- i. Increase relevant skills training, especially for vulnerable groups of workers
 - ii. Address job design and workforce planning, so that that the benefits of innovative technology can be realised by as many workers as possible

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- iii. Develop close partnership working between unions and managers at an organisational and national level.
60. The remainder of this report will consider how organisations are already adapting to new technologies through a series of case studies. It will then consider recent national policy developments. A key question is whether the findings of the literature review are an adequate basis for policy recommendations for the WPC or whether they need adapting and updating to reflect the current situation.

B. Case studies and examples

61. In November 2019 to January 2020 the WPC spoke with a number of practitioners who have recent experience of introducing innovative technology. This included discussions with managers and trade union branch officials in three organisations about their experiences. A news report relating to union concerns about staff surveillance has also been included. Our aim was to discover how workers and managers in Wales are currently adapting to these changes, so that the report's recommendations are grounded in the reality of working in this field.
62. Case studies include Neath Port Talbot (NPT) council trial of robotic process automation (RPA) in their HR department. The Welsh Government roll out of new lap tops to facilitate flexible working. Caerphilly County Borough Council introduction of hand held devices to communicate with domiciliary care workers in the field. The full details can be read in the appendix.

Benefits of new technology

63. Taken together the case studies provide evidence of the potential benefits of innovative technology to improve working life. RPA relieved staff of repetitive tasks related to data entry. New lap tops allowed all civil servants to gain the

benefits of flexible working. Remote computers helped domiciliary care workers by designing safer more manageable routes and working days.

Consulting staff – from case studies summary

64. The case studies provide clear evidence about the substantial benefits which can be gained when staff are fully consulted about the introduction of new technology. This was particularly the case with the Welsh Government's roll out of its new lap tops. According to a senior manager, the most important part of the process was the consultation beforehand with staff about the type of technology they favoured and why. This meant that the new kit was designed around their needs and warmly welcomed when it was delivered. There is strong evidence to support this approach as the Office of the Chief Digital Officer conducted detailed and extensive surveys before and after the project which confirmed staff's strong preference for this approach.

Dis-benefits and importance of voice and unions

65. The case studies also provide evidence of the potential and perceived down sides of new technology. When first told about RPA staff at NPT council were concerned for their jobs. However, due to a policy not to implement compulsory redundancies no jobs were lost and staff were redeployed. Furthermore, staff at NPT benefitted from WULF training. In one local authority, staff are concerned that new devices and cameras could be used by managers for over-bearing surveillance, although managers point to the wider safety benefits to staff of this approach. The local union is closely involved in these situations and is raising concerns on behalf of their members. In the Welsh Government, staff were wary of the project to renew IT having experienced similar projects previously where they were given no voice in the process. Each of these examples demonstrates the importance of a strong voice for staff through their unions in managing the successful

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adoption of new technology.

66. In summary, our case studies provided evidence that new technologies are currently being introduced by the public sector and that their impact on staff is very real. Our case studies show the importance of staff voice and trade union engagement. Our evidence demonstrates that new tools do have the potential to lead to better jobs. However, the WPC has also collated evidence about the staff concerns that arise and the importance that public bodies place on listening and acting on these.

C. Strategic responses

67. This section considers the strategic responses that have been adopted in response to the issues raised in the literature review and case studies above.

Social partners' response (international)

68. In June 2020, a framework agreement between the European social partners was signed regarding digitalisation in the workplace (**How digitalisation must be harnessed to save jobs**, Social Europe, June 2020). The agreement does not apply to countries like Wales which are outside the EU. However, it addresses many of key issues addressed in this report and has been agreed for implementation across the public and private sector.
69. The document describes a partnership process between employers and workers' representatives. Implementation is focussed on 4 areas, namely:
- a. Digital skills and securing employment
 - b. Modalities of connecting and disconnecting
 - c. Artificial intelligence and guaranteeing the human in control principle
 - d. Respect of human dignity and surveillance (**European Social Partners Framework Agreement on Digitalisation**, ETUC, Business Europe,

Trade unions response

70. In Britain, UNISON have published a 'Bargaining Over Automation' guide which provides information to senior public sector trade union officers on how to respond to the introduction of innovative technology. It seeks to respond to many of the issues highlighted in the literature review above, including training, job redesign and staff consultation (Bargaining over Automation, UNISON).
71. Wales TUC proposed that the WPC could promote the adoption of a set of principles broadly similar to those offered by UNISON for the introduction of innovative technology in a way that involved and supported workers, through their trade unions (Meeting between Wales TUC and the WPC's joint secretariat to discuss the draft Future of Work report, 18 November 2019). Principles should stress the importance of consulting trade unions not just at the workplace and through sector based structures but also at the strategic level, when looking at wider policy and implementation that affects the workforce. UNISON's document itself looks particularly at the introduction of automation technologies, which is a type of innovative technology which as noted above will be increasingly prevalent in the years ahead. The principles could be adapted to encompass all kinds of innovative technology.
72. It is important to consider the proposal to adopt principles on the introduction of innovative technology in the context of the WPC's Partnership and Managing Change agreement (**Partnership and Managing Change**, Workforce Partnership Council). This table lists the principles of each document and notes where UNISON's principles on the introduction of new technology either build on the principles of Partnership and Managing Change or offer entirely new elements.

Table 1: Content of WPC’s Partnership and Managing Change agreement compared with UNISON’s Bargaining Over Automation guide

WPC’s ‘Partnership and Managing Change’ principles	UNISON’s ‘Bargaining over Automation’ principles	Are UNISON’s principles entirely new?
Employment continuity	Mitigate possible negative consequences	Builds P&MC principles
Workforce planning	Improve services; account for a trained workforce	Builds P&MC principles
Consultation with unions	Recognise impact on people with protected characteristics	Builds P&MC principles
Plan and deliver in partnership	Consult fully	Same as P&MC principle
	Reduce repetitive tasks; offer training	New
	Risk assess changing pressures on staff	New

73. As noted in the literature review above, addressing job re-design is a critically important factor in responding to new technologies and was a particular feature in the Brown review.
74. On this matter, the UNISON guide states that:

“The general position on changing job roles is to emphasise the

potential of automaton to relieve staff of repetitive tasks, while also pressing the employer to commit to resourcing training where necessary to expand the role in other ways, though of course guarding against attempts to establish more demanding roles without the appropriate payment in line with job evaluation (UNISON, p8).”

75. As noted above in the literature review job redesign can play an important role in mitigating the potential negative impacts of innovative technology on members of the workforce. Wales TUC have also stated that they see an important place for this in future responses to digitalisation. Therefore, this report recommends that this should be part of a new set of principles aligned to Partnership and Managing Change in relation to the introduction of innovative technologies.

Welsh Government and the devolved sector group of employers’ response

76. The Welsh Government and the devolved sector group of employers are adopting a strategic approach to the challenge of innovative technology in a number of areas.

Chief digital officers

77. The Chief Digital Officer (CDO) for the Welsh Government will soon be joined by a CDO for local government and another for health and care. According to the current Welsh Government CDO the three will be expected to form a close working partnership, which in turn could provide an opportunity for a conduit for general information about developments for the social partners on the impact of innovative technology on the workforce (Meeting between the Chief Digital Officer for the Welsh Government and

the WPC's joint secretariat to discuss the Future of Work report, 30 January 2020). Consequently developing such a relationship is one of this report's recommendations.

Centre for Digital Public Services

78. The Office of the Chief Digital Officer (CDO) for the Welsh Government has launched a Centre for Digital Public Services, which will operate at arm's length from the Welsh Government and respond to some of the challenges raised in the System Reboot report.
79. The establishment of the Centre has followed the design principles (discovery, alpha, beta and live) of the UK Government Digital Service (**GDS**, UK government).
80. The decision to proceed to establishing the Centre was based on a thorough discovery phase. An alpha service is now being developed to deliver 3 key things:
 - i. Digital and data leadership and training. The aim will be to create a culture of embracing digital and data skills. Public sector leaders will be able to access a range of training and learning with a view to improving their capacity and capability in digital leadership.
 - ii. Knowledge Hub. This will be an online library of documented standards, examples of strategies and good practice in the field of digital public service.
 - iii. Undertake a small number of discovery projects in public sector bodies to help them solve transformation problems. The approach will be based on a range of best practice methodologies established by GDS projects and consider how they can be emulated. The GDS approach involves a central team working with public sector bodies or departments to improve services. A prime example was the successful change project at the DVLA in Swansea. The Centre will consider how to understand consistent issues which might block change. These are often low level issues, be they cultural or practical issues, which might prevent a central

team from working with a partner organisation. The emphasis will be on creating a digital service around the customer.

81. In our conversation, the Welsh Government's CDO said that the Knowledge Hub would be an ideal place for the WPC to share best practice in this area, in relation to supporting the workforce. Consequently this is one of this report's recommendations.

Embedding remote working

82. On 14 September 2020, Lee Waters, MS the Deputy Minister for Economy and Transport published a written statement on embedding remote working in the public and private sector where he said:

We aim to see around 30% of the workforce working remotely on a regular basis. Our aim is for a hybrid workplace model, where staff can work both in the office and at home, or in a hub location. By doing this, we can contribute to taking action against climate change by reducing congestion and pollution, while increasing productivity and promoting work-life balance benefits for employees and employers. We will be exploring how a network of community-based remote working hubs, within walking or cycling distance of many people's homes could be created in communities across Wales ([Embedding Remote Working](#), Welsh Government).

83. On 8 October, the Deputy Minister wrote to public service leaders asking for their support for this policy. Furthermore the lead officials at the Welsh Government for remote working would like to involve the trade unions in developing the policy and any related guidance (Meeting with Gwyneth Anderson, Remote Working Programme and Lea Beckerleg, Head of Remote Working, Welsh Government, 23 September 2020).

Training

84. As noted above, the Brown review recommended an increased role for the WULF project in supporting workers adapt to technological innovation. Steps have already been taken to realise this. The Welsh Government's Delivery Lead on the Review of Digital Innovation has been recently appointed to the WULF project board and is therefore in a position to work with the Wales TUC to help target resources in this area. For their part the Wales TUC is working with individual unions in order to better understand workplace demands in this area.
85. Trade unions have adapted their approach to delivering learning since the pandemic has forced many staff to work remotely. For example, by moving to digital solutions UNISON Cymru/Wales has been able to:
 - Make available, free of charge, to UNISON members and the wider Social Care workforce in Wales a Covid-19 e-learning course ([press release](#)). Over a thousand learners registered for the course ([course registration form](#))
 - Make available, free of charge, to UNISON members and the wider Social Care workforce in Wales 63 self-guided job specific online courses through our partnership with e Learning for You (e-LFY), a specialist e-learning provider for the Care sector
 - Work with independent "Face to Face" tutors to support them to deliver guided e-learning ('UNISON Cymru Wales Education & Training WULF response to Covid-19 crisis', briefing document, UNISON).

Health and social care

Health and social care workforce strategy: digital workforce plan

86. Health Education and Improvement Wales and Social Care Wales published a draft Health and Social Care Workforce Strategy in December 2020. It recommended 3 specific action points in the field of digital innovation. These were:
- Implement a “Building a Digitally Ready Workforce Programme” focused on enhancing the digital literacy and confidence of the wider health and social care workforce in Wales. This will require the development of a digital capabilities framework and will be undertaken on a partnership basis with staff organisations and professional bodies.
 - Implement a requirement for all digital transformation projects and programmes to include a clear organisational development plan. This will require the development of organisational development plans to deliver the cultural change required when integrating digital, workforce and service developments.
 - Commission consistent digital aspects as part of all under graduate curricula for health and social care professionals. This will align with the previous action so that there is a consistent approach to digital capabilities; with consideration needed in relation to the socio-economic constraints and the physical / learning requirements of all learners.

Digital Confidence, Health and Well-being

87. The Welsh Government has commissioned the Wales Co-operative Centre to deliver the Digital Confidence, Health and Well-being programme (**Digital Communities Wales**). It has been operational since July 2019 and builds on similar previous work. The programme works with health boards in order to

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support their staff in being digitally competent to, in turn, support their patients to go on-line.

88. The purpose of the programme is to encourage people to learn new skills, get online and use new technology. And, by improving their digital skills, people can have improved health and well-being outcomes.
89. The programme encourages bodies to sign a **Digital Inclusion Charter**, whose first principle is for organisations to commit to ensure that all their staff and volunteers have an opportunity to learn basic digital skills, and that they take advantage of this opportunity. Among public bodies, 14 local authorities and one health board have signed (**DCW Charter Signatories** [Accessed 6/2/20]). The health board in question – Swansea Bay – has taken a particularly progressive role in this field. At its board meeting in July 2018 it agreed to explore opportunities to trial Digital Champions in all its units and amongst all its larger staff groups (**Digital Inclusion**, NHS Wales and ABMU). The paper was prepared by Prof Hamish Laing from Swansea University who is an expert in this area.

Digital Health Ecosystem Wales

90. In June 2020, 5 digital health initiatives have been awarded funding as part of a £150,000 call to action for staff to use new and innovative ways to use digital technology in response to coronavirus and beyond (**£150,000 awarded for digital solutions in response to COVID-19**, Welsh Government).

Local government

91. As noted above, at a strategic national level, the Welsh Local Government Association is in the process of recruiting a Chief Digital Officer, in line with the recommendations of the Lee Waters report. The post holder will help support councils to harness digital technology to overhaul how local services

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are delivered (**Funding for digital support welcomed by WLGA**). The WLGA's Service Transformation Network will also be engaged in this work. Cllr Peter Fox is the WLGA spokesperson for Digital and Innovation. The WLGA's HR Directors' Network takes a particular interest in the impact of any changes affecting the workforce. It is likely that all these groups will support the work of the CDO for local government once they are in post.

Recommendations

92. Taking all these matters into consideration, this report recommends that:
- i. Social partners develop and adopt a set of principles on digitalisation that support the involvement, participation and consultation of staff and trade unions when new digital and data methodologies and new technologies are introduced. The principles will align with the Partnership and Managing Change agreement and include the importance of training and job redesign when managing any change in roles and expectations.
 - ii. The WPC to establish relationships to foster an effective exchange of information between social partners and the partnership of 3 national Chief Digital Officers, with a particular emphasis on public service workforce issues
 - iii. The WPC to engage with the Knowledge Hub within the Centre for Digital Public Services to share knowledge and best practice between social partners and the hub on public service workforce issues complement the information it collects and shares with experiences from a trade union and employer perspective

Appendix 1: Lockdown case studies

The Office of the Chief Digital Officer is collating examples of digital innovation

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during the lockdown. As of July 2020 they had received information about the following changes in practice.

Neath Port Talbot Council

Neath Port Talbot Council have rolled out a number of services including:

- Chatbots, in conjunction with Gov.Notify to support the payment of the business relief grants to businesses.
- Machine learning chatbots across the Council website. They have dealt with over 5,000 conversations (to the end of June) with 90% accuracy
- Developing Alexa to provide Covid information from the council newsroom. For example, waste and recycling information; warnings about Covid scams and information on the area's Buy Local scheme.
- Development of a new online form to manage movement of staff resource. This has helped understand how the workforce can support key areas of the organisation.
- Use of Gov.Notify email and SMS service to notify employees registered on the employee portal (including non-office based staff) of redeployment opportunities.
- Use of Gov.Notify to inform over 300 of the council's commercial tenants of rental advice and other support.
- Use of Gov.Notify to inform 60,000 households in the county of the council's Safe and Well service which maps and connects vulnerable residents who have been told to self-isolate but don't have any family or friends or neighbours to help, with volunteers.
- Trialling advanced deep learning artificial intelligence and machine learning models

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NHS Wales Informatics Service

NHS Wales Informatics Service have established a 'new ways of working' group in place who are due to report in September on a way forward with the health team.

NHS Wales Shared Services Partnership

NHS Wales Shared Services Partnership are taking a similar approach and have adopted the motto "work is an activity we do, not a place we go," to foster an understanding of the new approach.

Powys County Council

In order to allow staff to conduct roles and avoid furlough Powys County Council have developed 'click and collect' services that have been rolled out to a number of business areas, such as libraries. These services were funded through Welsh Government's Local Government Digital Transformation Fund.

Monmouthshire County Council

Monmouthshire County Council have deployed a number of Microsoft services in order to support their workforce. This includes utilising Microsoft Forms and SharePoint lists to conduct a skills audit on staff, aiding redeployment opportunities during the response and recovery to Covid-19.

Monmouthshire County Council are also making use of an App that has been developed to allow council staff to book a desk in the office as they return staff to a post-Covid restricted workplace.

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Booking app for recycling centres

A free online booking and appointment app for recycling centres across Wales is helping recycling centres manage attendance, maintain physical distancing and reduce queuing. The App has already been deployed by Vale of Glamorgan Council and provides residents with clear instructions and procedures to follow before arriving and during their visit to a recycling centre. Monmouthshire Council have something similar in place and Cardiff Council have added functionality to their MyPermit App (used by Cardiff residents to apply for permits for skips, parking etc.).

Appendix 2: Pre-lockdown case studies

Neath Port Talbot: Robotic process automation (RPA)

Robotic process automation (RPA) was introduced by the HR team to deal with a number of its high volume processes.

The new systems were co-produced by council staff and a specialist IT contractor. Co-production brought 2 benefits:

- it meant that the systems were designed to meet staff's needs, and
- team members learnt about robotics as the system was set up.

When the introduction of the technology was first discussed, staff were sceptical and worried. "Am I going to lose my job?" was a common question.

However, the council has a no compulsory redundancy policy. Staff were freed up from repetitive tasks and had more time to take up pro-active work. Also, the new technology has provided opportunities, with one member of the team having

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been promoted since its introduction.

Despite their early concerns, staff have been convinced of the benefits of introducing a robot for high volume processes and have even named it 'George'.

Other services in the council are now interested in RPA. HR staff are running presentations on its benefits to staff in other departments. In one workshop, over 20 ideas for its use were suggested.

In a similar vein, the HR team are piloting the introduction of chat bot. This tool can provide automated responses to common queries. Currently it is programmed to answer common questions on annual leave and flexible working. The staff programme the chat bot with common questions and answers. As new questions arrive, new answers are prepared. Whilst it is a lot of work up front, the chat bot has taken some phone calls away from the team, allowing them to concentrate on other work.

The council adoption of RPA is one of its most important strategic changes at this time. The programme is being supported by SOCITM, the public sector IT specialists who are working with the council to deliver a digital leadership course for staff. This is the first of its kind in Wales.

Workers at the council also benefit from WULF funded training on digital basic skills. This underlines the importance placed on the workforce when new technology is being introduced. In the words of one director, "A staff-led approach is key in all circumstances."

Welsh Government: lap top roll out

In 2018-19 the Welsh Government introduced new computer hardware for its staff in response to long standing concerns about the quality of existing equipment.

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The project was run by the Office of the Chief Digital Officer.

Preparation was key to the introduction of the new hardware.

The first step was to organise a series of face-to-face workshops on the staff's needs. The workshops informed the content of a subsequent survey. A high number of people responded to the survey, despite it not being mandatory, which reflected well on the inclusive nature of the consultation.

Taken together this research identified what staff wanted; what the barriers to working effectively were; what staff liked about their current systems.

The consultation gave staff a valuable opportunity to express their frustrations at the performance of their IT equipment at that time.

The manner in which the new technology was rolled out to staff was different to anything that had taken place before at the Welsh Government.

The team ensured that the voice of staff was heard throughout the process to ensure the project wasn't led by the technology. Instead it was led by staff. Previously staff engagement hadn't been part of introducing new technology.

A second survey took place after the project was completed. In this survey it was found that training was a big issue. All respondents felt that this element could have been dealt with differently. However, there were contradictory views on how much training was needed, with some saying too much had been provided and others too little.

Before this project, the Welsh Government has encountered many challenges in introducing new IT equipment. However, the consultation process changed perceptions. According to one member of the team "Listening to staff flipped people's attitudes to the introduction of new kit." She also pointed to the importance of investing time and energy in discussions. "A lot of leg work is needed in advance," she said, "and roll out was just the end bit."

Rather than concentrating on the technical name of the new equipment, the project was branded as 'future ways of working'. This symbolised the importance placed on staff.

The introduction of new kit was closely linked to a 'smart working' project to encourage and manage flexible working. As part of this, each team was asked to establish a 'smart working' charter, which set agreed limits on working outside the office.

Feedback was that the new kit improved work life balance, by allowing all staff to work flexibly.

As with all large organisations, hierarchy within the civil service is an important factor to consider when managing organisational change. The project team decided that they would avoid a 'gradist' approach. There would not be any favouritism towards staff on higher grades during the roll out. On occasion the lead director had to push back if senior civil service demanded their kit early. This approach was a pleasant surprise to junior staff.

Previously, new kit was effectively only for senior staff. For example, smart phones were only for senior staff and 'team' lap tops tended to be allocated or hogged by senior staff. However, part of the aim of this project was to create a level playing field. "Equity was our buzz word", said one team member.

Providing enough staff time for the project team was also an important factor. All their time was dedicated to delivering a successful roll out.

Similarly, offices outside of Cardiff received the kit first, and this was well received too. Although this was for a different reason - Cardiff being the largest office it was important roll out took place in smaller offices first. The anticipation built as new sites received the equipment. Staff across the organisation were interested and positive about the change.

Asked to summarise the factors which contributed most to the success of the project, a team member said that “this project was about the approach to roll out, not the kit itself.”

Caerphilly council – domiciliary care staff hand held devices

Traditionally, domiciliary care staff at the council were provided a daily or weekly paper work sheet with the names of people whose homes they were to visit.

Now, they receive all the information they need direct to a hand held device. This is updated daily and can include important new information about the needs of the person they are helping to care for.

As a result of the technology the routes and travel times between each visit are now more accurate. Previously staff were always expected to follow routes generated by Google Maps. However, in reality these weren't always the quickest or safest routes– and the journey times weren't always accurate either. Now the device records the actual journeys taken and these used to plan improved schedules for each day.

When introduced staff were nervous about the new device, especially with regard to recording break times and the potential for intrusive monitoring, as the devices include a tracking mechanism. However, staff have engaged with the unions on this matter who in turn have sought to resolve the concerns. Management point to the safety perspective as they are able to know where staff are should they encounter problems whilst travelling between clients' homes. This aspect of the technology is being kept under review by the unions who reserve the right to raise the matter again should specific concerns arise.

At the moment the device that is used by home carers does not have the capacity for them to feedback on changes in client's needs, however the Council

are looking into this being an option on the device in the future.

Appendix 3: Further reading

[Automation and the future of work](#) – New Left Review

[Adapting to remote work in the public sector](#) - Apolitical

[Applications of digital technology in COVID-19 pandemic planning and response](#) – The Lancet

[Can Home Working Revolutionise our Rural Economy?](#) – Centre for Welsh Studies

[Data and the Future of Work](#) – Common Wealth

[Homeworking in the UK: Before and During the 2020 Lockdown](#) - WISERD

[The ‘human lag’: how technology sets the pace at work](#) – IPA Involve

[The potential for teleworking in Europe and the risk of a new digital divide](#) – Vox EU

[Right to switch off](#) - Eurofound

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