The talent lens: Automation in the public sector

If viewing government through a productivity lens allows a distinctive perspective on the implications of Brexit for the public sector, applying a talent lens offers a new angle on the future for people in the public sector.

Recent technological advances have created a new era of automation in which repetitive and predictable tasks are increasingly undertaken by robots, either in the form of software or devices. For the public sector, automation has significant potential for supporting cost reduction, meeting citizen expectation, boosting productivity and freeing up employee time.

To assess the scale of potential of automation for the UK public sector, its occupations can be divided into three types of role:

1. Administrative or operative roles in which activities are mostly repetitive and predictable. They can be desk-based such as administrative jobs or more physical, such as hospital porters.

2. Interactive or frontline roles which mostly require a high degree of personal interaction, such as teachers, social workers and police officers. These roles often have case management layers that could be supported by technology.

3. Cognitive roles that mostly require strategic thinking and complex reasoning, such as finance directors and chief executives.

Data from Oxford academics Carl Frey and Michael Osborne, working with Deloitte, suggests that in the public sector administrative and operative roles are at high probability of automation over the next two decades while other public sector jobs – those in the frontline or requiring substantial levels of complex thinking – are highly resistant to complete automation but could be enhanced by such technologies. Around a quarter of public sector workers are employed in administrative or operative jobs which have a high chance of automation, based on Frey and Osborne's estimates. Automation would not displace employees overnight – its impact is gradual – but it could see 861,000 public sector jobs lost by 2030. That would deliver a saving of £17 billion off the public sector paybill in 2030 compared to 2015.

Automation could also help the sector release surplus real estate. While space might need to be adapted for the technology, it is likely a substantial proportion of office space currently occupied by the administrative or operative public sector could be released for sale. Disposing those surplus assets could reduce revenue expenditure and generate capital receipts.

For administrative roles, a typical example of how automation could replace human labour is where data needs to be manually fed into several systems. That is a current burden in shared service arrangements such as those in local government, where legacy systems may not be interoperable, and Robotic Process Automation (RPA) now provides a software alternative.

For operative roles, a typical example of automation is through autonomous vehicle technology which is increasingly popular in metro train systems such as the driverless Docklands Light Railway.

Figure 4 shows actual and projected employment for local government adiministrative jobs to 2030.

Figure 4. Local government administrative occupations
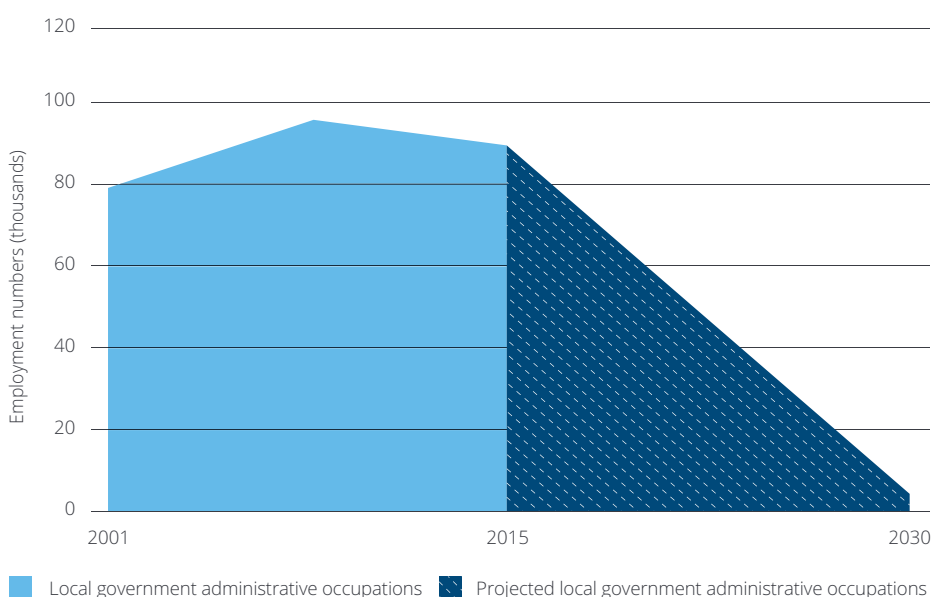
Source: Osborne and Frey, ONS and Deloitte analysis 2016

About half of public sector jobs are interactive and have a relatively low probability of being automated over the next 10-20 years. However, automation offers potential in these occupations for complementing human capacity and minimising administrative elements of the roles.

In hospitals, sensor technology is starting to be used to monitor patients' vital signs, which frees up nurse time for interacting with patients more meaningfully.

"The increased ease of data collection, data accuracy and associated data analytics can help decision-makers form a deeper understanding of performance and future demand."

In other care settings, including people's homes, devices can now be used to alert health professionals to problems such as falls. Again, such technology has the potential to free up professional time and minimise operative tasks.

Figure 5 shows actual and projected employment for these two example occupations.

Approximately one-fifth of public sector workers are in occupations that require complex problem solving, judgement and cognitive reasoning that could not currently be automated. However, as with interactive roles, there are often tasks within the occupation that can be more easily completed or enriched with automation.

For example, senior figures in policing, fire and prisons could utilise technology such as data analytics to inform decision-making but the complex nature of their roles means that automation is likely to complement their roles rather than replace them. The increased ease of data collection, data accuracy and associated data analytics can help decision-makers form a deeper understanding of performance and future demand.

Some roles with complex elements such as healthcare practice managers could see a decline in numbers where better information flows have the potential to increase the quality of resource allocation. **Figure 6** shows actual and projected employment for these examples.

Realising the potential of automation will require data, the skills to exploit it and the software or devices to make it happen. *The State of the State* suggests that the Government should support the public sector in improving its collection and use of data, ensure that data can be shared across the sector with legislation if necessary and fund investment in automation projects. A sector-wide plan could provide a clear view of costs and potential savings over the next two decades.

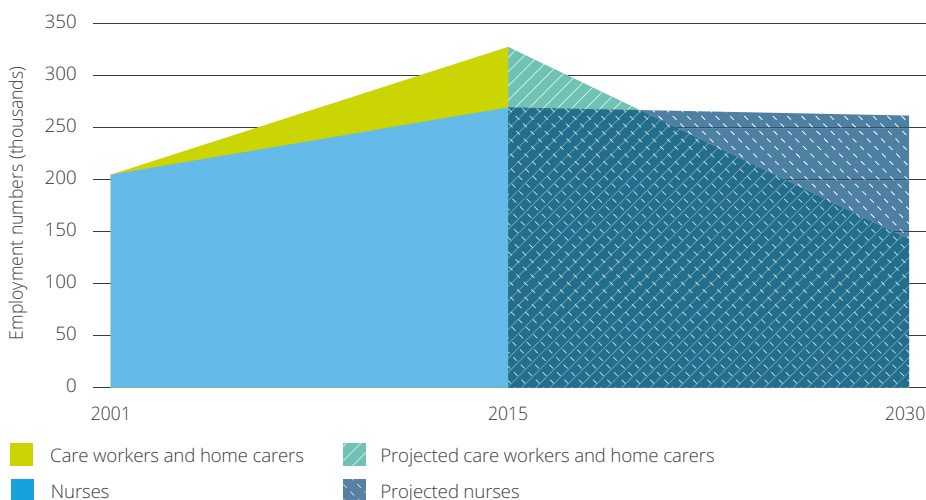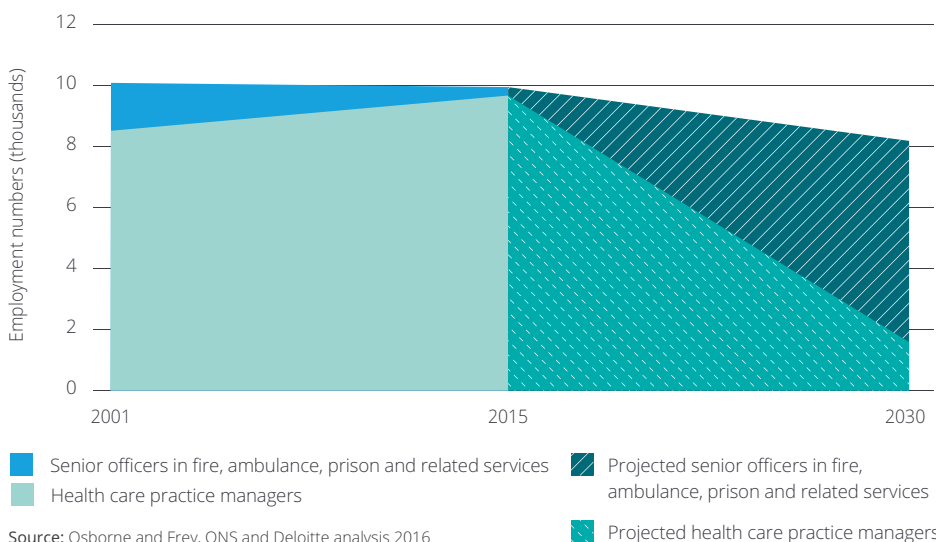**Figure 5. Care workers, home carers and nurses**

Legend:
- Care workers and home carers
- Nurses
- Projected care workers and home carers
- Projected nurses

Figure 6. Senior officers in fire, ambulance, prison and related services and health care practice managers

Legend:
- Senior officers in fire, ambulance, prison and related services
- Health care practice managers
- Projected senior officers in fire, ambulance, prison and related services
- Projected health care practice managers

Source: Osborne and Frey, ONS and Deloitte analysis 2016