Robots, digitalisation and jobs

In brief

- Robots are expanding beyond factory spaces for car assembly or product delivery into transportation, healthcare and housework.
- Rapid progress in software algorithms allows the automation of tasks in middle-income jobs that originally required human training, practice and knowledge.
- Online platforms are shifting firm and sectoral boundaries, and opening them up to more competition under much less regulation.
- These changes hold opportunities for domestic industries; however, there are uncertainties in the degree to which this will affect overall employment.
- What do governments need to do to ensure that these changes raise, rather than lower, economic and social well-being?

What is it about?

Automation and robotics are becoming increasingly sophisticated in carrying out both physical and knowledge-intensive tasks. Austria's industries use automation and robotic technologies for production processes to increase efficiency and reduce costs, supporting the global competitiveness of these industries and securing employment and revenues. Evidence suggests that progress in technology areas such as machine learning and artificial intelligence is enabling the creation of robots and algorithms that have many more capabilities than "just" supporting routine physical work, but instead can perform tasks in previously less automated sectors such as road transportation (e.g. autonomous vehicles), administration (e.g. process automation software), in health care work (e.g. care robots), in legal professions (e.g. automated legal advice) and at work in the home (e.g. vacuum cleaner robots). These innovations help people do their work and firms earn profits. The concern, however, is that the rate at which tasks and jobs for humans are being reduced may be higher than the rate at which they are being created. This raises important questions for technology governance and employment: What jobs will there be in future? And who will have the skills to do them?

Could robots even take on creative tasks?

Furthermore, innovative online platforms are changing the distribution of work, both in terms of who does what kinds of work, as well as when we do it. Applications such as *Amazon* 'Mechanical Turk' connect individuals to trade in services such as programming, design, as well as daily chores. Apps such as *Uber* open up sectors such as taxiing to virtually all persons who can drive and have access to a car. *AirBnB* has made it possible for many people to create additional income streams by renting out their accommodation, as *BlaBlaCar* has by sharing the cost of car journeys. These innovations can create new revenue possibilities for individuals and firms and, by increasing competition, bring prices and wages down. The continuous availability and connectedness of technologies such as mobile devices and cloud services, and the potential to obtain information about tasks virtually instantaneously, means that people can carry tasks out when and where they are able to. There are nevertheless many challenges associated with these changes such as abiding to regulations (e.g. taxes) as well as overall income stability, job security, and work standards.

Basic data

Project title:	Future of Labour in the Digital Era
Project team:	Sinozic, T., Nentwich, M., Peissl, W., Aichholzer, G., Čas, J., in co-operation with members of the European Parliamentary Technology Assessment (EPTA) network
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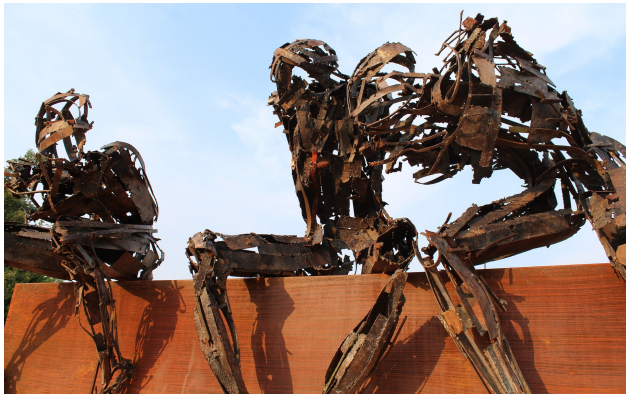
Different working conditions, same needs and values

Technological innovations, in addition to having positive features such as increasing consumer choice, creating jobs and firm profitability, can challenge social institutions that reflect our needs and values and took a very long time to create. For example, robots can help us with physical work and with 'boring' tasks such as scanning goods in warehouses, and selecting information from large volumes of text, increasing productivity as well as the accuracy with which these tasks are carried out. The problem arises when these tasks amount to actual jobs which are no longer being replaced. Austria, compared to many rich countries, has long been able to maintain relatively low levels of inequality after taxation and transfers. Big losses of middle-skill and middle-income jobs which constitute the great chunk of employees in Austria and amount to the biggest tax revenues, even if such losses occur slowly, are highly alarming.



How many jobs will be lost due to automatization? What will be future work requirements?

The need for long term employment is reflected in labour regulations such as hiring and firing laws, minimum wage, and unemployment benefit. Most education systems are built around the notion that what we learn as children and young adults will secure us a job and be useful for our work as we grow older. To directly benefit people and sustain and intensify overall welfare, innovations need to be actively created and shaped in a manner in accordance with these needs. Platform-mediated work allows for more flexible working hours, but it also results in long working hours, and working during our personal time which to maintain our health and social needs has to be kept free of work. Increase in independent forms of work also increase the number of people in precarious working conditions who may not get paid sick leave or financial support for accidents caused while working.

What to do?

Austrian politics need to address these challenges by formulating and implementing policies which will minimise the risks to people's employment and livelihoods by examining policy options such as the reduction of working hours and supports for long-term employment such as re-training, while at the same time ensuring that institutions which are essential for Austrian society such as social security, healthcare, and education, are not eroded.

- Those labour regulations such as time spent working, income stability and paid sick leave, which apply to all Austrian national sectors, should be extended to new workers and new forms of work. In order to ensure that all forms of work are covered, investigations need to be launched into new independent forms of working in order to find out what they are exactly in Austria, how many people are doing them, which existing laws and regulations can be extended to them, and which new laws and regulations need to be formulated.
- The Austrian educational system needs to be reformed to meet the requirements of new forms of work. All employers need to be supported in training and re-training their employees as knowledge requirements change over time, to ensure both productivity and opportunities to work for entire working lives.
- Austria – like all other countries – needs to intensify a broad societal debate about how to manage restructuring of the job market in times of digitalisation, including the financing of the welfare state in times of a shrinking human labour market.

Further reading

Chapter "Austria" in: EPTA [Ed.] (2016) *The Future of Labour in the Digital Era. Ubiquitous Computing, Virtual Platforms, and Real-time Production*. Vienna epub.oeaw.ac.at/ita/ita-projektberichte/EPTA-2016-Digital-Labour.pdf

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