



Robotics and Automation

Investment through initiatives like SPARC, the largest R&I programme in civilian robotics in the world, are beginning to pave the way for us to take the lead in this field and bolster our global industrial leadership. The proliferation of robots is increasing (12% a year between 2011–2016)¹, particularly in Asian markets (Republic of Korea, China and Japan). This region saw a total of 190,492 units sold in 2016 – a rise of 19%. This was the highest sales level ever recorded for the fourth year in a row. Europe also shows encouraging trends with 32% of the world market in this sector² (about 25% of all industrial robots and 50% of all professional service robots are produced in Europe). Robotics investment contributed 10% of GDP per capita growth in OECD countries from 1993 – 2016.³

Europe is in a strong position, contrary to what many people think. Industrial, collaborative, consumer and professional service robots all have the potential to make Europe more efficient, competitive, effective and safe. As commercial sales have steadily increased, improvements in design and updates in policy took robots from their cages and closer to human cooperation. Now, Artificial Intelligence will begin to play a crucial role in updating the power of machines as they learn and make independent decisions, opening vast possibilities in Internet of Things markets. While this will create multiple interdependencies, existing legal frameworks should first apply before experimentation and testing takes place to consider rule adaptation.

Key Messages

- The assessment of existing Regulation will be critical to **determine whether all frameworks in place are suitable to enable responsible robotics use and development**. Any gaps in legislation can be filled in a harmonised manner following attempts to apply existing legislation. Our regulatory frameworks should first foster the innovative, economic and societal benefits of robotics technology and only expand where real market failures occur. Developments in this space should continuously facilitate European competitiveness on the international stage.
- While automation has impacted employment markets for decades its recent advances in development need not lead to mass unemployment but rather create more high quality and sustainable jobs, taking over dangerous, tedious and unpleasant tasks. Indeed, Germany, Sweden and Denmark have quite high density of manufacturing robots with low levels of unemployment. By supporting **collaboration between robots and humans**, production can be made more flexible and individualisation easier to implement. Modern, collaborative robotic solutions will not substitute humans but instead enable them to become more productive, efficient and effective.

¹ World Robotics, International Federation of Robotics, 2017

² Robotics in Europe - Why is Robotics important?, SPARC

³ The impact of automation, Centre for Economics and Business Research, 2017



- Robots are also used where labour shortages exist (eg. healthcare and farming). Improvements through robotics could also re-shore jobs that were shifted outside of Europe. At the same time, there is a lack of digital skills in technology among our workforce as most companies find it ever more difficult to source the talent they need. Europe should **encourage STEM education, lifelong learning, re-skilling and awareness raising campaigns**, particularly in schools and training centres, to ensure that our future workforce has the competence and knowledge to work with and understand robots in a variety of sectors.
- The use of robots will naturally collect and distribute data. It is vital that when autonomously deciding how to act they do so in a manner that will only disclose their required internals to entities working in the same environment towards common objectives. In relation to personal data, **Businesses will continue to prepare and implement the General Data Protection Regulation (GDPR)** and utilise anonymisation, encryption and privacy by design principles to enable that.
- Robots can be equipped with sensors, kill-switches and auditing technologies to allow proper assessment of the environment, a human back-up and an evaluative control. This ability allows for a safe work environment even if robots and humans share the same workspace. As Artificial Intelligence improves, robots will act increasingly autonomous. **We suggest in-depth analysis of existing rules and specific use case examples to determine whether existing frameworks are fit for purpose** before developing new rules that address any liability challenges. Specific gaps needing adapted liability rules could then be dealt with in specific sectors.
- Cyberattacks in Europe are rising and their impact on our societies is becoming increasingly damaging. **It is paramount that our infrastructure is cybersecure from these threats** so that the roll-out of robotics can take place in a secure manner. Otherwise we will increasingly open our societies to attack as robots becoming increasingly interwoven into daily life.
- The ownership and access of data held and produced by robots is critical to their worth. Various actors are involved in their creation, design, use and maintenance. These responsibilities can be shared at different moments. Clear rules are necessary as to who owns the data robots process and when it can be accessed. In the interests of innovation and due to the endless possibilities, **allocation of ownership and access rights is best upheld by contractual agreements** with potential legislation discussed only after thorough analysis recognising individual sector interests instead of taking a one-size fits all approach.
- **Taxation on robots would not incentivise their development and roll-out** in Europe. It is also not the answer to automation ascending the value chain. In fact, the creation of a robot tax would be a job killer. It would also be unfair to quantify the amount of tax to be paid based on how efficient a robot is compared to a human. It would be difficult to separate and tax separate robotic entities from integrated manufacturing chains. National tax thresholds could also be kept to by businesses choosing to “pay” their robots a minimum amount, entirely defeating this objective and not maintaining a level playing field. The securing of high human employment is not dependent on robot taxation but on human education.