



Industry Forum

Business Excellence Through Inspired People

August 2015

# UK Strategy for Robotics and Autonomous Systems

In 2013 The Policy Exchange published David Willetts' paper on Eight Great Technologies. This emerged in parallel to an exercise by the European Commission to identify Six Key Enabling Technologies (KETs) as part of the Horizon 2020 R&D programme. One of Willetts' eight was Robotics and Autonomous Systems which was not explicitly highlighted by the Commission but wrapped up partially in the more general heading Advanced Manufacturing Equipment. The Commission have set up a KET Observatory to publish regular reports on how the Community is progressing in each area. The latest, published at the beginning of this year, found that advanced manufacturing equipment is the only one of the 6 KETs where Europe has global leadership. In March 2015 the Coalition published an important document about the UK's segment of this European strategic cluster – the Government response to the national strategy proposal, RAS 2020: Robotics and Autonomous Systems which Innovate UK had published in July 2014.

Willetts' original analysis observed that outside automotive the UK utilised robots to a much lesser degree than Japan and Germany but he put the case for supporting RAS partly on the potential future use of autonomous systems in automotive and aerospace, two sectors where the UK is remains globally competitive. The substantial investment that has taken place recently in UK automotive both in the vehicle manufacturers and the supply chain will have strengthened the UK robotics user base with over 70 per cent of recent sales of robots in the UK currently going into the sector.



According to RAS2020 the technology will have some effect on 15 percent of the UK GVA worth over £200bn. In manufacturing there could be an increase in the productivity of over 20 percent and an increase in employment of 7 percent. Within the public sector there are significant potential benefits in security, healthcare and infrastructure management. In agriculture and the food supply chain there is potential for raising yields, increasing shelf-life, reducing waste and energy inefficiency and improving traceability. Energy sectors such as civil nuclear and offshore are also significant application areas for RAS.

The strategy recommends that investment should be managed nationally in terms of five strands – assets, challenges, clusters, skills and coordination and that there needs to be some means of integrating the work of different funding agencies and a new national RAS Leadership Council. Outreach and public dialogue should continue and connect with public concerns. Developing national standards and the promotion of the UK as a destination for inward investment by UKTI are also priorities.

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The Government response took the form of a letter in March 2015 from Minister of Science, Greg Clark, to Professors Rob Buckingham and David Lane. He confirms that the UK's research and innovation capability in RAS has grown over the last few years. Within Framework 7 the UK secured 80m million Euros of research funding from the total robotics research budget of 485m Euros – this budget has risen to 700m Euros in Horizon 2020. Significantly, Clark has agreed to the establishment of a RAS Leadership Council.

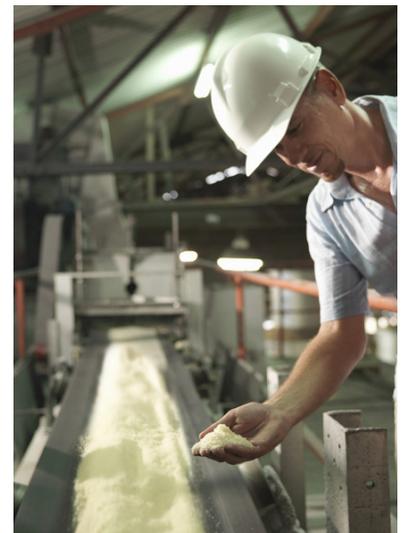


In aerospace Clark points out that the UK now has one of the world's most capable unmanned aircraft systems test and evaluation facilities in the West Wales UAS Environment at Parc, Aberporth. In automotive he refers to the substantial investment under way as part of the Automotive Industrial Strategy with significant public funding. The Government has also invested £20m in four new Centres of Doctoral Training in RAS. He suggests that the UK has major potential to benefit from the growth in global markets in industrial robotics, healthcare robotics, intelligent transport and automated farming.

2015 came from the US and 9 were Asian. Only three were European – 2 from Germany and 1 from Italy. The US industry is likely to benefit greatly from the US's current military technology priorities where there is a strong drive to increase the US's global lead. Plimsoll have just published an analysis of 80 firms in the UK robotics sector. Just under 60 per cent of firms get a performance rating of good or better but at the other extreme, over a quarter of the firms are making a loss and ripe for takeover.

In August 2013 Edelman, the global PR firm, noted that robotics progress may be held back by two image issues. The first is the widespread belief that the technology will create unemployment. The second is the consequence of the widespread controversial overseas use of drones by the US. In June of this year Edelman reported that since then, across the globe, the general level of public trust in technology has started a significant decline.

Also in 2013 the International Federation of Robotics published a study by London based Metra Martech on Robotics and Employment which presented evidence that in practice robotics is creating overall employment increase via the downstream impact of the technology. Manufacturing jobs are also safeguarded by the higher productivity and competitiveness that the technology can bring which helps higher wage rate countries stay in manufacturing. The food industry, the largest manufacturing sector in the UK, is a fruitful application area where the technology is a way of making the workplace safer, meeting more stringent regulations and increasing job quality. In the UK, where the



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business services sector is now as large as manufacturing, capability in robotics implementation and support will help keep this sector on its expansion track.

The UK strategy covers the reputational dimension explicitly in terms of extending public outreach and engagement, continuing to change public perception and improve understanding of public concerns. A good start was made on this with the Sciencewise study of public thinking on RAS which found that the area where the public must strongly disapprove of deploying the technology is care of the elderly, children and the disabled.

One of the most important attitudinal constraints for the technology in the UK, identified by the All Party Parliamentary Manufacturing Group and confirmed by ABB Robotics, is the lack of ambition in some SMEs and the persistence of short term thinking. There is plenty of help and advice available to these firms on how to boost agility and flexibility via automation but there needs to be a wider appreciation that the utility of robotics isn't just limited to the large scale long production runs found in automotive.

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