Impact Outlook

- ‘euRobotics aims to strengthen competitiveness and collaboration within the industry’
- ‘The use of service robotics in sectors such as agriculture, transport, healthcare, security and utilities is also expected to grow strongly, to become the largest global market for robots’
- ‘Robotics will play a major role as AI combines with the physical world’

Europe leads growing global robotics industry

__Reinhard Lafrenz__, __Secretary General__ of __euRobotics__, shares insights into the robotics industry and the role of __euRobotics__, a non-profit association that facilitates and promotes robotics research and development

What is the background behind the foundation of euRobotics and what is its focus?

euRobotics is a Brussels-based, international non-profit association that works to boost European robotics research, development and innovation and to foster a positive perception of robotics. euRobotics grew out of the European Robotics Technology Platform (EUROP) and the academic network EURON, with the support of the euRobotics Coordination Action funded by the European Commission under FP7. We have over 250 members, comprising research organisations, universities and companies. The latter include manufacturers as well as providers and users of robotics systems and services. euRobotics aims to strengthen competitiveness and collaboration within the industry, to ensure that robotics is widely adopted for professional and private use. euRobotics helped to develop the strategy and roadmap for robotics in the EC’s Horizon 2020 research and innovation programme.

Can you talk a little about the value of the robotics industry both to Europe and the wider world?

In the future, autonomous robotic devices are likely to learn to interact seamlessly with the world around them, with the potential to transform lives and jobs. However, robotics is already allowing European industry, including small firms, to compete internationally. The use of service robotics in sectors such as agriculture, transport, healthcare, security and utilities is also expected to grow strongly, to become the largest global market for robots. According to the latest projections from the International Federation of Robotics (IFR), the worldwide stock of industrial robots will increase from about 1,828,000 units at the end of 2016 to 3,053,000 by 2020, with average annual growth of 14 per cent in 2018–20. The IFR expected a 12 per cent increase in 2017 in sales of service robots for professional use to $5.2 billion, with average annual growth of 20–25 per cent in 2018–20. About 290 of the world’s 700 service robot suppliers are European. Europe’s robotics successes — such as vision systems and motion controllers — will increasingly find their way into non-robotics applications.

What do you believe are the current challenges Europe is facing in regards to robotics technology, and how is euRobotics working to address these?

There is rapid development of robotics and artificial intelligence (AI) technology around the world, especially in Asia and the USA. However, one of Europe’s strengths is the combination of advanced mechatronics, AI technology and understanding of users’ varied needs. A good example is healthcare, where different countries have different health systems. euRobotics is in permanent dialogue with technology providers, end-users and policy makers in many sectors, to reduce the risk that even the best technology developed in Europe is not brought to a level of maturity where it is taken up by the market.

What are the main barriers to uptake of robotics technologies and services for professional and private use? How do you plan to improve this uptake?

The professional and private issues are different. Robotics for professional use has to prove that it is the most economically viable way to improve processes. Wider uptake can also only happen if a potential user is convinced that the technology is manageable. For a small company without robotics experts, a system must be easy enough for an application expert to operate. In private environments, only certain types of robot, such as vacuum cleaners, are widely used. With other types, including care robots, it is necessary to show that the real benefits justify the costs. In many cases, robotics technology is used indirectly, such as in smart home components or driver assistance systems. Raising awareness about the technology is essential. Communication with policy makers to ensure that the legislative and regulatory framework allows for innovation is an important part of our activities.

What are the benefits of having one organisation representing the European robotics community?

Bringing the fragmented community together has already been a success and an important impact has been having research results taken up to create real products and services.

You have a number of key ‘lighthouse initiatives’ that look at the application of robotics in specific industries. Which of these has been particularly successful and why?

With euRobotics support, the EC is focusing on four ‘lighthouse’ application areas: agri-food, healthcare, inspection and maintenance of infrastructure, and agile production. All are likely to be very important for European robotics and society, but to develop differently and at different speeds, because of the wide variety of uses and levels of acceptance of robotics.

Do you have any outreach activities planned within euRobotics for the near future that you would like to highlight?

The most important event is the European Robotics Forum (https://www.eu-robotics.net/robotics_week/) on 13–15 March 2018, with more than 1,000 people from Europe’s robotics community expected to descend on Tampere in Finland. Lectures and discussions will cover all aspects of robotics, including the emerging ethical, legal, societal and economical aspects. Also, the robotics community will hold hundreds of public events in the next European Robotics Week on 16–25 November 2018. In addition, euRobotics supports the European Robotics League (https://www.eu-robotics.net/robotics_league/), which holds robot competitions throughout the year around Europe. The European Commission’s Horizon 2020 programme funds the European Robotics League.

What do you believe will be the big robotics research topics of interest to Europe in the coming few years, and what steps is euRobotics taking to ensure that Europe is well placed to address these?

Robotics will play a major role as AI combines with the physical world. In applied research, many sectors are still good candidates for increased automation and support by robotics to achieve different goals, such as increased productivity or product quality and increased well-being of workers.

Can you talk a little about the formation of SPARC? How did the partnership come about and what are its key goals?

The European robotics association euRobotics was set up in September 2012. It represents the private side in SPARC, a public-private partnership with the EC, under Horizon 2020. SPARC promotes robotics with the aim of increasing Europe’s share of the growing world market for robotics. There is €700 million of Horizon 2020 funding in 2014–20, to be combined with an expected €2.1 billion from business.

What is the impact of SPARC for Europe? Who will benefit from the work being delivered through the partnership?

SPARC aims to help researchers and companies to form alliances and to focus on work that will yield successes that will benefit all concerned. In the final years of Horizon 2020, SPARC is concentrating on four priority areas: agri-food; healthcare; inspection and maintenance of infrastructure; and agile production. SPARC will benefit these areas directly, but robotics innovations large and small will help to improve all areas of European society, including business efficiency, medical care and healthcare, and care of the environment.

How important are the relationships with industry to achieving the aims of SPARC?

SPARC would have no chance of success without its strong links with industry, centred on euRobotics members. The research members benefit from the technical and market knowledge of industrial companies and collaboration on real uses emerging from industry. Much of the collaboration is in SPARC’s more than 30 Topic Groups.

How does SPARC plan to increase the technical transfer and commercial exploitation of robotics within Europe? What tools will be used to deliver this?

SPARC is involved in a number of information and brokerage days, workshops and local events. One major initiative is the EC call for European networks of Digital Innovation Hubs, to stimulate knowledge transfer in local environments, with the regional hubs linked at the European level. This concept, together with ‘cascading funding’, will reach out to companies which would be hesitant to join a classical European project. In many countries, the regional aspect is also important to overcome language and cultural barriers and to respond to regional economies.

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Dr. Reinhard Lafrenz became Secretary General of euRobotics in February 2016, after seven years as senior researcher in the robotics and embedded systems group in the Technical University of Munich. He also taught robotics and artificial intelligence, organised an interdisciplinary “robotics, cognition, intelligence” masters course, managed the EU-funded robotics projects ECHORD and ECHORD++ scientifically and was involved in organising and reviewing many conference and journal contributions. For nine years before that, he researched complex autonomous systems and self-organisation, imaging and sensing at the University of Stuttgart’s Institute of Parallel and Distributed Systems and taught cognitive robotics. He was in the vice-champion team at the 2006 RoboCup competition for autonomous soccer-playing robots.