

Outcomes of the ERW19 National Coordinators Workshop: Summary Report

Summary of the key findings from a workshop convened by euRobotics in Brussels on 7th June 2019

Report prepared for euRobotics
by Stephen Doswell (Gemini CfB Ltd)

1. Introduction

The Workshop was held at the BluePoint business centre in Brussels and brought participants from across the European robotics sector, representing many EU and some non-EU countries.

Participants:

National Coordinators:

Anastasia Shvechkova - Russia
Andrei Dumitriu - Romania
Artur Coll Becerra - Catalunya, Spain
Baudouin Hubert - Belgium
Gianluca Pedemonte - Italy
Gorica Njegovanovic - Serbia
Krzysztof Walas - Poland
Lia Garcia - Spain
Philippe Roussel - France
Ricardo Munoz - Spain
Uwe Haass - Germany

For euRobotics:

Lavinia Cinca, Marketing & PR Manager
Steve Doswell, workshop moderator

- This year's workshop pursued the following objectives:
- Generate/share ideas that NCs can adopt/adapt for ERW activities in their own countries
- Give NCs something practical and of value to them as NCs
- Continue to build relationships and reinforce the NC network
- Inspire, enthuse, energise all participants.

The gathering of national coordinators from such a variety of European countries also provided an opportunity to showcase national approaches and activities, to share ideas and encourage individual national coordinators in what can sometimes seem like a lonely and isolated role.

2. Workshop process

As is now customary for this annual event, the workshop began with an Introductory round to introduce euRobotics, welcome the National Coordinators and guests, set out the agenda, establish the 'house rules' which all participants were asked to respect, and to give everyone in the room a chance to introduce themselves, this time using photographs they provided to illustrate aspects of their lives beyond their work.

The Workshop followed an established format, blending group discussions with short national showcase presentations. These enabled individual national coordinators to showcase the approaches taken to ERW in their own countries, with a focus on specific events and the outcomes achieved as a result. This year, the event was configured to allow more time in general plenary discussion and less time spent in break-out groups. This was a response to the slightly lower number of participants in this year's Workshop, which allowed for very fruitful plenary discussions.

Another new element this year was the 'Surgery' session, for which delegates had been asked in advance to gather thoughts about individual challenges they faced as ERW national coordinators, which the group could discuss and try to offer solutions together. A further new feature was a short keynote presentation by robotics consultant Uwe Haass to offer a broader perspective on the place of robotics in society.

As always, the Workshop was facilitated by a moderator to help the group work through the Agenda on time and to focus on the Workshop's objectives, stimulating discussion and ensuring all voices were heard (one of the key 'house rules') and all coordinators were able to participate in discussion.

3. Outputs

3.1 'The Surgery': Individual challenges

Delegates were asked to spend a few minutes individually considering the challenges they wished to raise with the group. Individually, delegates then shared these with the group. The emerging themes are listed here:

- Funding (mentioned twice) – how to raise funds to support ERW activities
- Technology watch – how to stay in touch with developments in technology
- ERW – how to make it more unified
- The European dimension - how to 'Europeanise' national ERW activities (mentioned twice)
- City/rural divide – how to broaden the reach of ERW beyond the cities (mentioned three times)
- Changing fashions - robotics may no longer be 'sexy' with a renewed media and public interest in climate change. How to address this
- Public engagement – how to achieve it
- Integration of Russia into the world of European robotics
- Collaboration with education and industry – how to achieve it (no robots).
- Time (the great conundrum!) – how to get the most impact from the limited amount of time available

- Outreach - how to get better outreach and greater company involvement, both showcasing and financial support/sponsorship
- What can be learned from CodeWeek, which is more integrated and extends beyond Europe.

With inevitable limitations on time in the Workshop, the group agreed to focus on just three of these themes. The selection was made partly on the frequency of responses – two of the three selected themes were mentioned more than once – and partly on the freshness of the topic for the Workshop, given that education, sponsorship and outreach had been discussed in several previous workshops. The three selected themes were:

- The city/rural divide
- The European dimension
- Technology watch

After making this selection, the group divided into three sub-groups, each one to discuss one of the chosen themes, before reconvening in plenary session to present key points and to open their findings and conclusions for general discussion.

3.2 The city/rural divide - How can we take the ERW to the rural areas?

In comparison to rural communities, the city is seen as affluent, academic and benefiting from low levels of unemployment. Towns with more than 20,000 inhabitants have secondary education (a high school) and a minimum level of transport and state infrastructure. By contrast, rural communities are characterized as poor, with an ageing population. The challenge was to provide everyone with access and exposure to robotics and the opportunities arising from robotics. The sub-group considered the merits of two approaches: either to bring students from rural communities to urban centres, or to take technological developments from towns to the rural areas. Given the practicalities of both options, the sub-group preferred the second solution, so that the remaining younger population in rural communities stays in the countryside, contributing to its development.

In order to increase the competences in the rural areas and to give more opportunities to young people outside the major urban communities, the idea that emerged during discussion was to create a 'road show' by procuring a truck with equipment and robots and the means to perform experiments (e.g. space robotics). This could then travel around rural regions. The group made some initial estimates of the likely cost, which they calculated at 500,000 euro. Developing the road show concept, the group discussed a suggestion to use existing infrastructure such as established audio-visual centres or other laboratories which could serve as 'landing stations' for the truck locally. The truck could also operate as a 'living lab' and provide a focus on different technologies such as space technologies, for example.

The group also offered an imaginative alternative, namely to put the road show on water by converting a ship to take a robotics showcase along the Danube, thereby potentially reaching communities in several countries along this great European thoroughfare. A further benefit of this cross-border approach would be to enhance the European dimension. There is a precedent for this in Germany: the MS Experimenta (more information in German: <https://www.experimenta.science/die->

[experimenta/ms-experimenta](#)) and apparently another ship that circulates on the river Rhine.

3.3 Highlighting the European dimension when organizing local events

The 'European' sub-group began by considering the expected benefits of adding a European dimension to local events. These would be: better media coverage, more opportunities for the exchange of information, the potential introduction of a positive competitive element, and opportunities to improve the quality (and potentially, the prestige/profile) of events overall.

Having answered the 'Why do it?' question, the group then focused on 'How?' They identified establishing bilateral contacts as a key enabler for Europeanisation with each participating city or community forming a partnership with an event in another city or community. This could be achieved between two schools or cities (based on the French jumelage or twinning model), where a group from one country comes to visit an event from another country or with projects where several entities from more than one European country act as joint partners and present their collaborative work in the same location. A further idea was that common projects could be showcased at several locations.

The existence of the digital transformation network was also noted. This brings together 60 cities run by DG REGIO. The advantage here would be that ERW event organisers could make use of an existing infrastructure rather than creating a wholly new one.

3.4 Technology watch

This sub-group discussed: how to keep up with new developments and trends in technology, how to communicate them and also how to use appropriate new technological innovations to enable people with disabilities to acquire digital skills. The basis for this discussion was an initial insight that the pace of technological change and innovation is so fast and wide-ranging that it is difficult to keep track of developments. There was a need to 'know what's out there' (horizon scanning), to select the most relevant developments and then to determine their strategic value. The group identified the desirability and value of introducing humanoid robots into education. It was noted that Promobot robots have been introduced in Russia. The European Robotics Forum was identified as main showcase source of information to enable the robotics community, commentators and other observers to keep up with the newest technological developments. Popular mass-audience media (such as morning/breakfast TV shows) were highlighted as a valuable channel to communicate the latest developments to the public. The rise of social media influencers was also considered as a new trend to communicate about technologies (Joe Rogan on YouTube was cited as a notable example). Other ideas for making technology education attractive included: the use of robotics by the Canadian circus theatre company Cirque du Soleil, in fashion and through dance (eg RoboDance), which was felt to have a particular but not exclusive appeal for girls.

4 Making Connections and Commitments

As the day concluded, participants were asked: “What connections did you make at today’s workshop and what ideas will you take back home?” Clearly delegates made connections with other National Coordinators but – exactly as the Workshop is designed - connections were also made between ideas and activities and several commitments and resolutions were made. A summary of responses is given below. This year, names of individual coordinators have been included with the commitments and actions they identified as their key commitments from this year’s workshop:

Gorica (NC, Serbia):

- Adopting the model of collaboration between Romania and Bosnia & Herzegovina to be established between Bosnia & Herzegovina and Serbia
- Connecting ERW with Code Week
- Visit the robotics project for recycling in Belgrade

Andrei (NC, Romania):

- Developing bilateral contacts to increase the European dimension
- Getting contact details of the Belgrade recycling robot
- Visit Krzysztof’s lab in Poznan

Anastasia (NC, Russia):

- Encouraging students from universities to give courses in schools across the country
- The art and recycling robot
- Russian robots are in use and sparked the interest of participants
- Connecting events from different countries

Gianluca (NC, Italy):

- Create more connections and advancement during the year
- The truck show which could start or end at ERW central event

Philippe (NC, France):

- Target euRobotics members for sponsorship
- Find out more about the artist with the recycling robot in Belgrade

Ricardo (NC, Spain):

- Start knocking at the right doors for sponsoring (CEO level)
- Engage and collaborate with other countries
- Pursue the connection between robotics and the arts

Lia (NC, Spain):

- Consider how to leverage the position of euRobotics when seeking sponsorship
- Create more bilateral connections
- Establish a mentoring programme to enhance the impact of events
- Truck roadshow

Baudouin (NC, Belgium):

- Truck roadshow (linking with the European idea)

- Linking robotics and arts
- Work with existing networks

Krzystof (NC, Poland):

- Truck roadshow

Uwe (Consultant, Germany):

- Partnerships with schools
- Internships for six months in other countries
- Look for opportunities/linkages with Code Week and strengthen the rationale ('USP') of ERW

Artur (NC, Catalonia):

- Pursue the roadshow truck idea (like a bibliobus to go to rural areas
- Code Week ('a beautiful constraint' – two problems leading to a common solution')

5 Final thoughts

This year's workshop demonstrated once again the common concerns of national coordinators – funding, engagement with educators and the public, setting accurate perceptions about robots and robotics – and highlighted the differences in resourcing available to national coordinators in wealthy and less wealthy countries. As always, the workshop provided examples of a rich variety of ERW activities in countries across Europe. It also served to highlight the positive and powerful impact of the personal entrepreneurial drive of individuals in securing resources and getting things done. Indeed, the resourcefulness of individuals was a strong current in this year's workshop. Through a change to the format used in previous years, delegates were able to generate perhaps a greater number of creative ideas and moments of inspiration this year. As always, the brokerage and coordinating capabilities of euRobotics at the centre of the European robotics sector was recognised and appreciated. We thank all participants for their contributions at this year's workshop and we wish them all well in their preparations for the next ERW.

[End of report]

APPENDICES FOLLOW THIS PAGE...

APPENDICES

Appendix A:

Key points from selected national presentations made during the workshop

Bosnia & Herzegovina (B&H)

ERW 2018: 32 events organized across B&H. Highlight was an educational trip to Augsburg for 40 children and teachers from six cities. One of the most important aspects of the trip was knowledge sharing. Upon their return, the participants were required to organize a presentation for their peers and talk about what they learned. Each student presented to a minimum of 50 other students which made in total more than 1000 students. The initiative and the trip were promoted on all the biggest TV and radio stations in B&H.

Lot of other organizations were inspired by the trip and decided to be part of ERW for the first time. The ERW initiative was also presented in various workshops and talks, including TEDx Ferhadija (based in Sarajevo) and Lean In Zagreb.

Plans for ERW 2019: Establish connections with similar initiatives around the EU and also with the IEEE. Find ways to bring coordinators closer together to exchange knowledge, ideas and plans for the future.

Romania

2017: Activities included Robotics CARAVAN (1 week, 5 cities, over 3000 people). Over 60 events/year across Romania. National Robotics Meeting – a public debate with industry. ERW 2017's Central Event in Bucharest. Robotics Week in Romania 2017: 1st year of coordinated actions, 3rd place in Europe. Dedicated website: www.saptamanaroboticii.ro

2018: National meeting of Robotics Educators. Launch a robotics manual for 7th/8th grade teachers – guide to Roberta Lab . Opening of #RoboHub. Launch of Robotics Map in Romania.

Andrei Dumitriu reported that Romania and Bosnia & Herzegovina will be cooperating during #ERW2019.

Appendix A continues...

Appendix A (Continued):

Russia

Anastasia Shvechkova from Russia participated for the first time at ERW National Coordinators' Workshop. She introduced the Russian robotics market and trends.

Key points: Russia's involvement in ERW2019 spearheaded through Creonomyca, a high-tech technology and engineering cluster in north-west Russia, centred on Saint Petersburg.

The number of industrial robots in Russia has grown from 530 in 2014 to 860 in 2018. The Russian government has set a goal of 35,000 installed robots annually. There is a government support programme for production leaning towards robotization and digitalization.

ERW 2019 in Russia: robotics exhibition 14-24 Nov. Joint championship in robotics for students in cooperation with SUAI University. Industrial robotization forum 20 Nov.

France

Philippe Roussel presented information about France's network of clusters plus some inspiring ideas about robotics education.

The French Federation of Robotics Clusters (FFC Robotique) comprises more than 600 companies, together with research laboratories, schools and independent experts. Six regional and one national cluster.

Participation in robotics-focused fairs in several locations across France, including INNOROBO (Paris), SIDO (Lyon), Robonumérique (Saint Quentin), SIANE (Toulouse) and Robot 4 Manufacturing (La Roche sur Yon), and internationally (IREX in Tokyo, Robex in South Korea). Creation of the Global Robot Cluster (GRC). Partnership with the recycling sector in France.

Goals: Share experiences between French clusters. Find synergies. Encourage creation of robotic clusters in each French region. Mutualize operations at national/international level. Negotiate international partnerships. Labelling R&D projects. Help French robot manufacturers to export.

Projects: Robocup (Bordeaux,2020), with a connected international business event. Make 2020 the year of robotics in France. World Tour Companions. International partnership to give experience to young graduates. Marking 60 years of robotics.

Appendix A continues...

Appendix A (Continued):

European Robotics Week central event 2019

Krzysztof Walas, winner of the euRobotics call for central event hosts, introduced the #ERW2019 Central event to take place in Poznan, Poland, on 14-16 November.

Background: Poznan, located in western Poland, 5th largest city by population (over 500,000), 110,000 students, highly developed industry, and location for international trades fair (the oldest in Poland and one of the largest in Europe).

ERW central event venue: Conference and Lecturing Centre of Poznan University of Technology (technical university, 100th anniversary this year, 20k students, 30 degrees, 1250 teaching and scientific staff), integrated with technical library. Room capacities from 146 to 650, with plenty of exhibition space. Located in central Poznan (15 min walk from the old town).

Central event: Preannouncement (first weekend of ERW). Co-organized by Poznan Supercomputing and Networking Centre, European Space Foundation. 3-day events: official opening, school day, open public day. Underlining Robotics & AI coming together.

(End of Appendix A. See next page for Appendix B)

Appendix B:

‘Robotics and AI to further Humanism and Democracy - a personal perspective’ (highlights of keynote presentation by Uwe Haass):

Uwe offered a short, well-received historical perspective on the progress of robotics, with a clear focus on ethical challenges.

The Renaissance 1300–1600 saw the "rebirth" of classical ideas such as "Humanism". Leonardo da Vinci 1452–1519 is probably the most prominent representative and a prototypical 'Renaissance man'. He was a master of invention, drawing, painting, sculpting, writing and engineering.

Leonardo was a master of mechanics (Leonardo's Lion (1515), a walking robot). During the Renaissance, people must have considered mechanics as awe-inspiring as we do AI and robotics. Crucially, Leonardo never used mechanics to exploit or abuse people in peacetime.

Wind forward to 21st century: Dragon robot artwork "swallowing empty beverage cans" designed and located in Belgrade, Serbia (Artist: Biljana Biba Vicković, Engineers: Svemir Popić, Miloš D Jovanović, and Aleksandar Rodić. See also Appendix C below).

AI and Robotics: Artificial Intelligence as cognitive control of robotics. Cognition behaves similar to the way humans behave, including learning, decision-making and a certain autonomy.

There are many applications for robots and many opportunities for economy and society:

- Logistics, autonomous cars and drones
- Agriculture, Mining Construction
- Manufacturing in many branches of industry
- Health (including Prostheses, Exoskeletons)
- Civil, Rescue, Delivery, Disposal
- Inspection, Cleaning, Decommissioning

Industrialisation is a history of exploitation and social upheavals:

- Industry 1.0 (from 1800): Steam Engine, Textile Industry, Coal
- Industry 2.0 (from 1900): Electricity, Mass Production, Cars
- Industry 3.0 (from 1970): Microelectronics, Office automation
- Industry 4.0 (from 2020): Internet, AI, Robotics.

[Appendix B continues...](#)

Appendix B (Continued):

We should make sure that the human catastrophes of the Industrial Revolution do not recur with Industry 4.0.

How can AI be a force for good? AI is interdisciplinary, like in the Renaissance. With AI, new ethical challenges appear, among them the protection of human self-determination. By 2020, 1.7 million new AI-powered robots will be installed in factories (source: IFR). The AI revolution offers many opportunities for wellbeing and social welfare – we must not make the same mistakes as during Industry 1.0 and 2.0. Robotics for humanism and democracy.

What needs to be done? Checklist for AI projects (selection):

- Robotics for dirty, dangerous, difficult jobs and helping to face societal challenges (ageing population, etc.)
- Can AI help prevent climate change, preserve resources such as energy, biology, atmosphere, environment?
- Can we trust the AI system?
- Are human rights and employees' rights preserved?
- Can the system explain its decision? • Do people understand AI? (compare with mechanics in the Renaissance)
- Who owns the algorithms and patents? → open science

(End of Appendix B. See next page for Appendix C)

Appendix C – Information about the Belgrade recycling robot

Blue-Eyed ('Dragon') Robot by Biljana Vicković: (with the University of Belgrade, Mihajlo Institute, Robotics Laboratory Belgrade, Serbia). This project has introduced an innovative and socially useful robotic artwork into a public space with tin recycling function. It integrates robotics into an artwork with a demonstrable ecological, social and cultural impact. "The essence of this innovative work of art is that it enables the public to interact with it. As such people are direct participants and not merely an audience. In this way contemplation is replaced by action.

What is it? The artist and creator Biljana Vicković describes the Dragon robot as "a robotic work of art that recycles empty beverage cans and is designed to influence citizens' environmental and cultural awareness. The Dragon robot is an artistic creation in bronze, with a striking appearance, with its surreal form, but it also sends a message about some common, everyday activities, such as material recycling. The Dragon robot sends us a message to take care of our environment along with raising our social, cultural and technological awareness and education. By its appearance it makes us think a little bit as we carry out the planned task and rewards us accordingly.



"The Dragon voice message says: 'Hello, do you have some cans for me? I'm hungry' which is followed by a glint from the big blue eyes from all four heads of the Dragon. This humorous neighbour has daily communication with the citizens. After being approached by the user, the Dragon opens his beak, to make room for pushing and loading the can, commenting: "Yum yum, you can drop it down here. Once the can is inserted, the robot gives you a tip: "Here is your ticket, and thank you for taking care of our municipality's environment." Each user of the blue-eyed Dragon robot gets a numeric code on a ticket by inserting cans in the robot. This is an ideal way to think about our environment and about the life education of the coming generation, whose awareness of their own actions will inevitably increase through this 'game'. Therefore, the Dragon robot is inter-disciplinary-oriented and the visitors themselves play an active role."

Video links to the Dragon robot:

Documentary and animated film
[http://oktopus.org/index.php/en/projects/70-legend-of-](http://oktopus.org/index.php/en/projects/70-legend-of-robot-bird)

[robot-bird](http://oktopus.org/index.php/en/projects/70-legend-of-robot-bird)

YouTube <https://www.youtube.com/watch?v=hen8jHWCK08>

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