Outcomes of the ERW18 National Coordinators Workshop: Summary Report

Summary of the key findings from a workshop
convened by euRobotics in Gent on 13th September 2018

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

1. Introduction

The Workshop brought participants to Gent from across the European robotics sector, representing many - though not all - countries within the EU.

Participants:

National Coordinators:
Jyrki Latokartano - Finland
Artur Coll Becerra – Catalunya, Spain
Lia Garcia - Spain
Sandra Meloni - Italy
Kathrine Viskum - Denmark
Hubert Baudouin - Belgium
Keshav Chintamani - Belgium
George Georgiou - Cyprus
Ana Maria Stancu - Romania
Ladislav Vargovcik - Slovakia
Maja Hadžiselimović – Bosnia Herzegovina (skype)
Marianne Andersen - Denmark
Paulo Menezes - Portugal
Tamas Daniel Nagy – Hungary

For euRobotics:
Lavinia Cinca, Marketing & PR Manager
Steve Doswell, workshop moderator

This year's workshop pursued the following objectives:

- Strengthen the community of national coordinators
- Review achievement of short- and long-term goals for ERW
- Key messages - citizens, politicians, media and industry
- Targeting policy makers and forming strategic alliances
- Training future local hosts for the central event
- Efficient coordination of efforts across the whole ERW.

As has become customary for this annual workshop, the gathering of national coordinators from so many European countries also provided an opportunity to showcase national approaches and activities, to share ideas and encourage individual national coordinators.

2. Workshop process

After introductory comments and a welcome to all participants, 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.

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 and all coordinators were able to participate in discussion.

3. Outcomes

3.1 Workshop discussions

This section outlines key points from the delegates' collaborative discussions, in the form of the ideas, proposals, questions and challenges put forward by delegates within three broad themes – Outreach, Sponsorship and Education. As always, communication was a constant thread running through each themed discussion and as such it was not discussed as a separate theme this time.

As a 'warm-up' before discussion around the these three themes, participants were asked to correlate and reflect on the responses to two questions from the Eurobarometer 2017 survey of attitudes towards the impact of digitisation:

Have you ever used or do you currently use a robot at home or at work?

Generally speaking, do you have a very positive, fairly positive, fairly negative or very negative view of robots or artificial intelligence?

There was no surprise at a clear and positive correlation in the findings between levels of familiarity with robots and positive perceptions about them. In short, the more exposure to robots that survey respondents said they had had, the more positive their perceptions were towards them. In discussion, the group highlighted the importance of being able to touch, feel, see and enjoy the presence of robots in order to remove the 'fear factor' and improve the image of robots. An inhibiting factor was that robots were not prevalent or visible in society at large and so prevailing perceptions about robots were largely shaped by media presentation which too often resorted to negative stereotypes. Ways were needed to increase people's exposure to robots in positive settings. An example from Italy was discussed, in which the government had given money to schools to buy robots, an initiative which would undoubtedly enable school students and teachers alike to gain a physical familiarity with robots.

There was a need to remove public perceptions of robots from the realm of exotic fantasy and to relocate them in the real world. It was necessary to create an understanding that fundamentally a robot is 'just' an interactive device or a sophisticated gadget that is simply at the next level of technology. We are familiar and perfectly comfortable with forms of technology now (notably including smart devices) that would have been a futuristic fantasy to previous generations. A

commonplace and well-established technology such as the railways once provoked awe and even fear when first introduced during the early 19th century. In this context, robots are part of the next phase of developing technology.

Positive examples of the beneficial impact of robots in society were needed to substitute and counter the frequent negative media framing of the robotics narrative. The simplistic narrative that robots destroy jobs needed to be challenged and shifted with demonstrable evidence that robots also create jobs. For example, the existence and use of care robots (exoskeletons were also mentioned) could be highlighted in order to shift the focus from 'science fiction' to fact-based reality and to alter sentiments from fear to reassurance and progressively to acceptance. Overlaying all of this was a recognition that journalists frequently sought dramatic stories to trigger an emotional response and that simple 'good news' stories on their own were unlikely to attract media attention.

3.2 Outreach

There was a lot of discussion about making communication more efficient and collaborative. For example:

> "Instead of curating a million videos, create a YouTube or Facebook Lite page"
> "Use a common hashtag - #erw2018 – and a common table of hashtags for local activities"

It was noted that a common checklist already exists through euRobotics – the National Coordinators handbook, which is available via Google docs.

Under the Outreach theme there was considerable focus on boosting impact through collaboration with related schemes, platforms such as Coderdojo, with links to education, and other activities.

> "Get companies into ERW via a Hackathon, linked to research projects or a factory lab with engineers, students and HR companies eg Randstad (talent)"

> "Look for support via company social impact funds"

The link with education was also made several times:

> "Book theatres for kids to interact with robots"

Skills training was another recurrent theme, with a recognition that a focus on primary and secondary education was essential but insufficient on its own. There might also be a 'wow factor' to be achieved through skills training.

3.3 Sponsorship

Delegates recognised that there was clearly a link between Sponsorship and Outreach.

In addition to the benefits for ERW, it was also important to show the social impact for companies in return for the sponsorship they provided.

Key aspects of a viable sponsorship approach included targeting relevant companies, such as media companies (especially broadcasters) with proposals for

robotics competitions on TV, online streaming and videos, or simply to promote ERW.

Companies targeted for sponsorship did not have to be related to robotics. Some could simply be approached to provide sponsorship-in-kind (such as refreshments, printing or simple promotional give-away items in return for branding opportunities (logos). However, robotics companies could be approached to stage an event on their own premises as part of ERW, for example, an open day.

There was some discussion about the amount of time required to get sponsorship. Opinions varied. Some delegates felt that it would not require much time, while others disagreed, based on their own experience. More broadly, in order to avoid 'starting again' in the quest for sponsorship every year, there was a suggestion to create "a national coalition for funding robotics".

The date of ERW was also considered from the perspective of potential sponsorship. The November date might be seen as either difficult as most of companies' sponsorship budget would already have been spent by that stage or because it might be a little too soon after the start of the academic year for schools to prepare (although early planning could address both concerns) or helpful as companies often had some budget left that would need to be used before the end of the year (the 'use it or lose it' impulse).

It was agreed that there was a certain flexibility about the 'week' of ERW and that this was useful. The ERW 'umbrella' could be extended to the dates of Code Week, for example. Essentially, the ERW timetable was principally a spur to building some momentum. This led to some discussion about the number of disparate technology-themed weeks and how beneficial it would be if there were greater coordination between them. In passing, since the workshop was taking place in Gent, it was noted that, despite its name, Gent's 'International Robotics Week' was relatively 'local' in character.

In discussion about competitions, it was suggested that tech and gadget companies could be approached to sponsor a competition and offer prizes for winners – drones and devices were mentioned, and so were university scholarships. As part of this approach, companies would naturally expect to see the social impact that could be achieved through their involvement and this would need to be projected during the approach or demonstrated after the event.

A further suggestion was made that ERW events could recruit and employ volunteers. This would engage the individuals, possibly secondary or higher education students, as well as enabling events to take place in an economically viable way. Another idea – to involve children with disabilities – would have the added benefit of promoting inclusivity.

3.4 Education

As always, given its importance to the robotics sector and the academic profile of many workshop participants, education was discussed in considerable detail.

Notable points discussed were that:

- Competitions were important as a way of bringing students into robotics

- Educators themselves often needed to be educated about robotics. Workshops were therefore needed to teach educators (an example was given from Coimbra, Portugal) and to help to spread the word among local teachers. As an added encouragement for teachers to invest time in understanding robotics, they could receive CPD (continuing professional development) credits for taking part in robotics workshops of this kind, so this should be built into educators' CPD programmes.

- In order to introduce the public to robotics, events should take place where possible in environments that were familiar and accessible, such as shopping malls: "Don't expect ordinary people to come to the universities." Schools and universities could stage events or hold competitions in malls and potentially other places where people congregate. In Gent itself, space had been found in the city library to give visitors an opportunity to interact with robots.

- It should not be assumed that students know much or indeed anything at all about the evolution of robotics or the current robotics market. Marianne's presentation which traced the origins of robotics from the demands of heavy industry and the development of markets was well-received as an engaging way to explain the context in which robotics had grown. It was recommended that student visits to the premises of robotics companies would be insightful for the students and could inspire them to explore future possibilities for studying and pursuing a career in robotics. Visits to university robotics labs could serve the same purpose if these took place early enough in a school student's education.

- The theme of inclusion was explored at several points during the workshop. It was recognised that communities that were disadvantaged socially and economically would be inherently disadvantaged in terms of access to information and education about robotics. Dedicated provision would need to be made for such communities. There was also a need to factor-in opportunities for children with disabilities, including blind children, to engage with robotics and, in particular, programming.

- Discussion about education also focused on the need to develop skills in robotics. It was suggested that hands-on skills-based courses in schools would be attractive to companies as these courses would be seen to address the skills gap within the workforce.

3.5 Linking the themes

During the second breakout discussion, the workshop explored the links between Outreach, Sponsorship and Education. It was recognised that a rounded approach was practical and beneficial. Again, Marianne spoke passionately about releasing robotics from its largely academic bubble and bringing it to the attention of wider society. Reaching out to a potential sponsor could lead to education opportunities, financial or in-kind support and the recruitment of potential 'ambassadors' to advocate for robotics. In the words of one national coordinator: "'This is an ecosystem', everything has an impact on another one."

4 National perspectives (selected themes)

First introduced at the 2016 ERW national coordinators' workshop, the national showcases were a key feature of this year's workshop. They have become very popular as a way of sharing ideas, inspiration – and lessons – from a wide range of national experiences during the previous ERW. The following section is intended as a snapshot rather than as a comprehensive summary

Artur Coll (Catalonia) offered several experiences and insights including:

- Linking coding and robotics, including Scratch day – a conference about educational coding and robotics (held since 2009) – and the growing number of primary school pupils learning Scratch (coding) in Catalonia
- Developing an app to help people remember things
- An elective topic for 16 year olds working in teams to create a project related to Arduino or IoT. This had involved 3,500 pupils so far.
- Involving more teachers (especially primary), education policy makers (if teachers have to code, they will learn) and private companies (working on projects together)
- Working together with other EU initiatives (eg Codeweek)
- The role of play and creativity in building and coding and the need to prepare educators for this and to 'push' them in this direction.

Paulo Menezes (Portugal) mentioned workshops for teachers covering how to build a robot and how to build Arduino (involving parents and children together)

Sandra Meloni (Italy) highlighted a three-day competition due to be held in Rome in October for secondary school students, involving three kinds of 'humanoids' and an 'app-aton'. Sandra also provided one of the most resonant observations of this year's workshop. She recognised that robotics were complex, there was a need to plan, build (manual) and compute (involving maths). There was a need to programme robots and for that you need to interact with others: "No one person can build a robot."

Lia Garcia (Spain) underscored the need to engage the education sector: "We have to work with teachers. We need to get robotics onto the school curriculum, onto the teaching college curriculum and to get to teachers who teach teachers."

Ana Maria Stancu (Romania) discussed introducing algorithms and robotics in 7^{th}/8^{th} grade and raised the question, who is going to teach this? Her response was to use a special platform, working with Minecraft for Education, using cheap robots and persuading local authorities to buy these.

Maja Hadžiselimović (Bosnia Herzegovina - BiH) had been successful in scaling up from 0 to 50 events. Joining the workshop via Skype, she gave a sense of the reality of the challenge in BiH, where schools were poor in resources, teachers were often not willing or able to learn a technology-based subject, where one in five children do not attend secondary school in BiH and where only 37% take tertiary level education (compared to 88% in nearby Slovenia). Maja borrowed 20 Arduinos, worked with an association for parents with children with special needs and held events with various robots (Arduino mBot, Lego EV3 sets). Taking a clearly entrepreneurial approach, Maja secured financial and in-kind assistance from a variety of sources, including a food factory, a development agency, EduLab, Serbian education agency, the education board of the international professional engineering body IEEE and a range of other support networks, plus media support

including TV coverage. As Maja summarised succinctly: “We had a lot of people willing to do stuff for the children.”

Jyrki Latokartano (Finland) gave another example of ‘the art of the possible’ by outlining a successful project to get robotics onto TV. The result was Robot Mestarit, an 8-programme TV show that aired on Finnish television. He also mentioned two uses of robots in food preparation – one for grinding crickets to make powder for protein, the other being a one-week project to build a kebab-slicing robot. Another highlight was Jyrki’s summary of a conversation that demonstrated the perils of being unprepared for children’s technical questions:

> 11 year old: “Does this robot have direct drive motors?” Engineer: “Well, it has electrical circuits.” 11 year old: “Duh!”

As a concluding comment, one common element in all the most successful national experiences seems to be finding an emotional connection and the support of an enthusiastic promoter.

5 Making Connections

As the day concluded, participants were asked: “What connections did you make at today’s workshop?” Clearly connections were made with other National Coordinators but connections were also made between ideas and activities and in some cases these crystallised into commitments and resolutions. A summary of responses is given below. Names have been removed but individuals will almost certainly recognise their own words and this summary will hopefully serve as a useful reminder of the actions that individual national coordinators resolved to take:

“My goal for this year to link schools and universities – there are many talented students participating in international competitions.”

“It’s inspiring to hear what’s going on in other countries. We will share with you the ideas and topics we’re covering in Spain. Two things are in my mind in particular – ideas to get money from companies and ways to get people from poor areas to come to events. I want to share more things with this group.”

“I made some contacts and I’ve given everyone here an invitation to Elsingor (for a conference on robotics and AI).”

“I can use euRobotics a lot more than I have before.”

“I will look at competitions for children.”

“I’ll take lots of things away, plus the possibility of sending children to Italy for competitions.”

“A collaborative humanoid experiment with Sandra in Italy. We could do video-streaming in the Homelab.”

“To find funding to get children to more ERW events. A pan-European approach via Erasmus.”

“The discussion we’ve had about tools. I feel there’s scope for collaboration, some common sponsorship campaign, and an exchange of material.”

"It's always pleasant to hear that other people have similar problems. We will also try to copy Coderdojo."

"I will write to Keshav about robotics in Gent and I will offer to keep in touch with you guys working with Arduino. I'll use this group more. The Norwegian cooperation fund is looking for a partner – we can submit a proposal together. Things I'll remember: 1.5m euro invested in a TV series about robotics! That robotics are missing for people with disabilities. This will lead to a proposal at EU level.

"Maybe we can all collaborate and create something, maybe via Horizon 2020."

6 Final thoughts

This year's workshop demonstrated the common concerns of national coordinators – funding, engagement with educators and the public, setting accurate perceptions about robots and robotics – and accentuated 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. Moreover, and perhaps to a greater extent than in previous years, the 2018 workshop was itself a powerful collaborative forum. Genuine connections were made, insights were generated and collectively, participants gave a clear sense of coming together as a functioning network and perhaps in some cases even as a team, with the brokerage and coordinating capabilities of euRobotics at the centre. Institutions get their strength through a unifying sense of purpose, effective structures, frequency of contact and opportunities for renewal. On the evidence in Gent this year, ERW continues to gain strength as an institution. 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.

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