Workshop on Education, Training and Skills: Connecting students and employers – the case of electronics

Location: Eureka Secretariat, Rue Neerveld 107, 1200 Brussels, Belgium
Date: 13 October 2015

Executive Summary

A key element of the Electronics Strategy for Europe is to establish an enhanced framework for the development of skills and related policies. Industry has a key role to play in defining the skills required for a competitive electronics industry and in supporting initiatives that improve skills training in education and at the workplace. Young professionals also have a key role to ensure the student perspective is included in the policies being developed. It is critical that Universities and industry collaborate to give students both the essential knowledge and the industry-related skills they need. This Workshop involved a wide range of stakeholders, including young professionals, and focussed on the role of industry in addressing skills requirements and policies. Recommendations were made on how the EU can support the collaborative framework that will be required to deliver effective skills development in Europe.

Summary of key points from the Workshop:

- It is critical that skills development policies are defined to ensure that STEM graduates have the skills industry requires, existing workers are re-trained and conversion courses are available to bring in workers from other sectors.
- While Universities provide high quality fundamental knowledge they also need to train students in industry-relevant skills.
- The nature of the digital market means that non-technical skills such as innovation and communication skills are critical.
- Workplace training and re-training is essential given the rapidly changing technologies, however, the challenge is that this is expensive and the accreditation of Continuous Professional Development is not widely available.
- A more comprehensive structured and collaborative approach to industry internships will help build the collaborative model between education and industry.
- Industry education kits (examples of ARM and TI programmes were presented) are highly effective in keeping the Universities and the education centres in touch with the latest technologies.
- Collaboration is built most effectively at regional and sector level; examples were presented of Erasmus+ programmes to fund Knowledge Alliances for higher education and Sector Skills Alliances for vocational education.
- Industry needs to promote careers in electronics in primary and secondary level schools and explain the skills they value at a very early stage (e.g., team-work, flexibility, creativity).
- Establish conversion courses to adapt people working from other sectors into electronics.
- The inclusion of non-technical skills training in graduate programmes should be mandatory, but this will need comprehensive support and training effective for all students.
- Global Technology Challenges and Competitions are high profile opportunities that involve a wide range of students while solving real world problems.
Welcome and introduction
Dr Oana Radu, European Commission, opened the Workshop and outlined how it stemmed from the implementation of the *Industrial Strategy for Electronics in Europe*\(^1\) and the *Digital Single Market Strategy for Europe*\(^2\). Investments in training, education and initiatives to provide the job up-skilling are present within the documents delivered by the Electronics Leaders Group, the *European Industrial Strategic Roadmap for Micro- and Nano-Electronic Components and Systems*\(^3\) and its *Implementation Plan*\(^4\). The enhanced framework and infrastructure of these plans underline the need for skills development and policy development. Investment in people is a critical activity and the pool of relevant skills would ideally be increased.

This workshop followed on the previous *Education, Training and Skills Workshop* held on 5 May 2014 and addressed how Europe can more effectively connect supply and demand of workforce, and did set out the enabling conditions to bring these closer together. The focus of the workshop is on connecting with young professionals (including masters, PhDs and post docs), documenting and discussing the role of industry and on exploring relatively novel features such as fab-lab experiments. In addition, based on existing material, at the workshop an attempt was made to define a taxonomy on skills for the case of electronics.

The workshop gives an overview of the skills required for micro/nanoelectronics, the results of a small scale study examining the motivation and expectation of young people in the area, and a panel discussion on the role of industry in the development of the skills required in a digital market. Special sessions covered: young people in the digital job world, developing a taxonomy of skills for electronics and fostering skills development.

Key skills requirements for KETs – focus on micro/nano electronics
*Diederik Verzijl, PwC*

The main points from the *PWC study on Skills for the KETs*\(^5\) were presented:

**What kind of skills do employers need from KETs workers?**

There is a high diversity of relevant educational levels required for KETs workers. While most people come with an educational level ranging from vocational training to PhD they still require on-the-job training and continuous re-training. However, there is also a large pool of people with these educational levels that don’t have a background in the STEM subjects, but could still be retrained and given further education.

Six Categories of Skills for KETs were identified and based on these categories over 100 competences were identified:

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\(1\)https://ec.europa.eu/digital-agenda/en/electronics-strategy-europe
\(5\)https://www.pwc.nl/nl/assets/documents/pwc-kets-skills-interim-report-v1.pdf
<table>
<thead>
<tr>
<th>Skills Category</th>
<th>Competences Required</th>
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<tbody>
<tr>
<td>Technical</td>
<td>Practical subjects based on scientific principles (e.g. characterisation, systems integration, mathematical modelling and simulation, top-down fabrication etc.)</td>
</tr>
<tr>
<td>Quality, risk &amp; safety</td>
<td>Quality, risk &amp; safety aspects (e.g. quality management, computer-aided quality assurance, emergency management and response, industrial hygiene, risk assessment etc.)</td>
</tr>
<tr>
<td>Management &amp; entrepreneurship</td>
<td>Management, administration, IP and finance (e.g. strategic analysis, marketing, project management, IP management, deal negotiation skills etc.)</td>
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<tr>
<td>Communication</td>
<td>Interpersonal communication (e.g. verbal communication, written communication, presentation skills, public communication, virtual collaboration etc.)</td>
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<tr>
<td>Innovation</td>
<td>Design and creation of new things (e.g. integration skills, complex problem solving, creativity, systems thinking)</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>Ability to operate with own and other people’s emotions, and to use emotional information to guide thinking and behaviour (e.g. leadership, cooperation, multi-cultural orientation, stress-tolerance, self-control etc.)</td>
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Each category has its own specific requirements:

- Technical skills require a high degree of formal training
- Quality, safety and risk related skills may be learned on-the-job
- Management and entrepreneurship skills training often is very expensive
- Communication skills are becoming even more important as increasing complexity means that most likely a team-based approach is required
- Innovation skills are critical as often technology developed for one application can be reused for new applications
- Emotional Intelligence related skills are important as the nature of the digital market is that people work in teams that may cross many teams, cultures and continents

The high diversity in skill requirements for KETs can never be covered by a single person, or even a company, therefore ‘Smart’ combinations of people with diverse profiles are needed with many of them coming from domains not directly related to KETs (application areas).

In the case of non-technical roles like marketing and sales, KETs companies in general prefer to hire technical people with basic business skills rather than business people with basic technical skills

Each of the 4 KETs pillars (research, technological development, competitive manufacturing and support) require a different complexity of skills.

**What is the actual demand and supply of KETs skills in Europe?**

In 2013, the total KETs employment for technical jobs was 2.2 million. On average there will be an additional demand of 79,000 to 249,000 KETs workers per year up until 2025. Most of these jobs require high skills (62%), followed by medium skills (30%) and low skills (8%). This demand is created
both by the retirement of professionals working in KETs (replacement demand) and by new positions in KETs (expansion demand).

Depending on how the field develops there is a potential gap of approximately 21,000 – 83,000 per year for high skills and approximately 10,000 – 44,000 per year for medium skills. However, one solution is that KETs can draw from a much larger pool of STEM graduates and compete with other industries for talent.

This analysis assumes that KETs will continue to grow in significance relative to the STEM occupational fields but there is also the potential for a surplus of approximately 12,000 – 37,000 per year for high skills and approximately 15,000 – 28,000 per year for medium skills if KETs do not continue to grow in significance in the STEM fields.

**Key Challenges**

- Alignment: Universities need to align skills that employers want;
- Retraining: Age group 45+ in particular need re-training;
- Awareness in general society: little is known about industry especially in micro/nano;
- Poor image: poor name recognition and low wage levels in some countries;
- Limited opportunities to study: Very expensive especially equipment;
- Brain Drain (e.g., to USA and Asia linked to research opportunities with state-of-the-art equipment, budgets, autonomy and support).

**Students' corner: choices and motivation to pursue a career in this field**

*Oana Radu, European Commission*

This presentation focused on the characteristics of the micro-/nanoelectronics Master and doctoral students. The European Commission ran a limited survey with the M.Sc. and Ph.D. students in the area of micro-/nanoelectronics and related fields of education across the EU. The survey was distributed via the Euro-Dots and Europractice channels to about 700 universities that avail of their services in the fields of micro- and nano-electronics and related fields. The European Commission wanted to understand the views of these students with respect to why they choose to pursue an ICT based subject, what interest them most, what are their envisaged career plans, what is their perceived difficulty in remaining/working in the area, mobility, characteristics, etc.

Based on the 352 results received, the typical characteristics of a “KET student” in the micro/nanoelectronics sector are: confident, curious, enjoying doing research, feeling fortunate to be engaged with nanoelectronics, full of interest, persistent, patient, fascinated by the subject, abilities match the challenges of the problems.

The following table summarises the key findings of the survey:

| Initial attraction to study micro/nanoelectronics | • Early exposure to technology  
| | • School experiences with positive mentors  
| | • Strong curiosity and fascination  
| | • Interest and passion  
| | • Desire to create new things |
| Studying is summarized as | • An adventure and a challenge  
• Fun, open, adventure  
• Fascinating  
• Innovative |
|--------------------------|--------------------------------------------------------------------------|
| Appeal of the subject of study | • The ability to change the world  
• The rapid advancement of technology  
• The cross-disciplinary aspect  
• The science  
• The ability to co-create knowledge |
| The top 5 skills students think they need to succeed | • Physics  
• Analytic capabilities  
• Perseverance  
• Motivation  
• Administration Skills |
| Students requested additional skills | • More practical/applied training  
• Access to latest technologies  
• More links to real life  
• More fundamental courses  
• More links with other disciplines  
• Internships |
| Preferred ways to increase mobility | • Exchange programmes (within and outside the EU)  
• Research opportunities  
• Access to networking events |

Panel discussion on the role of industry in sustaining the skills ecosystem.

Chairman: Roger De Keersmaecker, imec

At the March 2014 European Council meeting, the heads of state stressed the importance of skills for European competitiveness. To implement a skills strategy there are two elements required: the decision to provide financing for skills development is extremely important and also the process to build a skilled workforce which takes time and needs a clear strategy with co-ordinated high impact actions. However it is not sufficient to address financing of skills development in isolation, it must be part of the wider initiative to reinvigorate financing in R&D&I activities, pilot lines, stimuli for uptake

“Fostering the Union’s industrial growth requires the right skills. The European Council urges the Commission and the Member States to address shortages in the area of science, technology, engineering and mathematics (STEM skills) as a matter of priority, with increased involvement of industry. Further efforts by the public and private sectors should be directed to promoting mobility, education and vocational training. All available instruments should be used to this end, such as the European Structural and Investment Funds (ESIF), the new generation of Erasmus+, the Grand Coalition for Digital Jobs, the European Alliance for Apprenticeships or the Youth Employment Initiative and the Youth Guarantee. Industry should be more involved in forecasting future skills needs.”

7 Accenture, Unlocking Industrial opportunities – An EU strategy for competitiveness, study prepared for the European Business Summit, 2013
by industry, etc. (as per the Juncker plan). We need to find ways to connect supply (from education) and demand (from industry). An important question is how industry can help on the supply side. The focus of the panel discussion was to look at the role of industry in sustaining the skills eco-system.

**Erasmus + Sector skills alliance for electronics**  
*Felix Rohn, European Commission*

Education and training programmes require not only funding, but also a comprehensive strategy on how to implement them in the most effective way. One approach taken is a ‘Triple Helix approach’ which takes a multidisciplinary approach and includes vocational education and training (VET) providers, higher education, research, companies and European networks in selected sectors in the regions. For example, the Netherlands are applying the Triple Helix approach at a regional level and have connected it to their smart specialisation strategy and focus on top sectors in that region. It involves all stakeholders from schools through to industry and helps with finance and provides a legal framework to allow rapid change in education.

The new Erasmus+ programme aims to support actions in the fields of Education, Training, Youth and Sport for the period 2014-2020. Grants up to €1million fund knowledge alliances between education and training with industry. ‘Knowledge Alliances’ are targeted at higher education and ‘Sector Skills Alliances’ are for VET.

Other initiatives include the European Alliance for Apprenticeships which has a practical aspect where pledges are made by large companies to make a solid commitment and includes social partners, Universities and a mix of providers. The benefits of these apprenticeships were outlined both for the learners and the companies.

A brief summary of the most recent funding through the European Social Fund (ESF) Thematic Objective 10: “Investing in education, training and vocational training for skills and life-long learning” outlined the opportunities for the development of work-based learning systems including dual-learning and apprenticeships.

In summary, the message was to provide support at the earlier education cycle and support training and apprenticeship levels.

**ARM platform for training**  
*Khaled Benkrid, ARM*

Two concerns for the electronics industry are a skills shortage and a skills mismatch. Engineering UK have estimated that there is a shortage of 55,000 skilled workers in engineering in the UK and if this shortage is not addressed the estimated cost to the UK economy is £27billion from 2022. An IEEE global report⁸ indicated that 37% of employers rated the skills of entry level engineers as ‘very weak’ or ‘weak’. Industry is changing at a very fast pace compared to academia and this is exacerbated by a skills mismatch. As the level of automation increases, there is a stronger requirement for workers to move to higher skilled jobs but this is at the same time that public expenditure for education is being

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reduced. This implies that we must use technology to get more educational outputs for less cost and use ICT in education along with other learning modes.

The ARM University Programme (AUP) has developed a ‘lab-in-box’ Education kit that can be integrated to University programmes and has been shipped to 500+ Universities worldwide since 2003. It is available in multiple languages and comprehensive support is provided through continuous upgrading, training of professors, workshops and designing the courses to fit within University term requirements. An important consideration was to keep the cost low and match the cost of a typical text book (i.e., below £50). The low cost can only be achieved by industry donating some of the hardware.

From an industry perspective, the weaknesses in the education/skills provision appear at the key interfaces between education levels. This should be addressed by better collaboration at these interface points (University to support the schools and Industry to support the University). A further aspect that should be addressed is the accreditation of professional development courses.

Aspects of cutting-edge electronics
Nuria Llin, Texas Instruments

The Texas Instruments (TI) University Programme provides TI tools on a worldwide basis. This program has been running in Europe for 20 years with 1500+ Universities and 1,200+ teaching labs participating. An important aspect of the TI programme is that it addresses a wide range of skills and covers not only engineering knowledge but also multidisciplinary skills required for systems integration such as team-work, communication, decision-making and flexibility. A key objective is to ensure a strong dialogue between academia and the company.

Two examples of best practice were given.

- The TI Innovation Challenge (TIIC) Europe which is a high-profile competition to design a product. The Challenge has had significant impacts including triggering “Makers” spaces within universities and generating student start-ups. By taking a ‘systems’ approach it introduces students to the underlying analog electronics which is often considered a difficult subject to teach/learn.
- TI’s ASLK Pro University training kit is designed for undergraduate engineering students to perform analog lab experiments. It addresses the gap in practical education for analog electronics and is being used by hundreds of higher-education centres in Europe.

Discussion points:

- It is unrealistic to think that University students can be skilled to address all industry needs. There is a limited time over 4-5 years to complete the coursework for the specific knowledge required so adding additional skills would mean something else in the curriculum is cut out. In comparison, in the medical field it is well established that medical graduates have structured on-the-job training when graduating.
- It was agreed that there is time pressure within the education system which is under further pressure due to modularisation. However, given that the perception in industry is that graduates skills are weak, the issue must be addressed. While many industries have
structured development programmes with their companies but this is a challenge for smaller companies.

- There are several companies providing education kits and challenges/competitions. The TI is a very complete proposal because it provides more than just the tools but also supports research and creating an interactive community between the users. The Freescale Cup is a global challenge where students build, program and race a model car. It is taken very seriously in some countries. For example, China has over 20,000 participants concentrating on building skills in systems engineering.

- Given that the Universities operate in a different environment than industry it would be detrimental if too much focus on industry kits means they had to teach in a uniform way. The industry participants explained that test kits are designed to be flexible and used as building blocks for University courses. The providers are not prescriptive in how they are used.

- When discussing solutions we must take into account that while Universities provide support to industry there is a large emphasis on research in the Universities.

- It is impossible to become an expert in all areas within a few University years, but it is important to learn to be flexible and to adapt to new technologies as they emerge.

- The involvement of Universities in industry-driven EU projects is very beneficial for the masters and PhD students involved as it exposes them to a range of skills required to work in industry.

- It should be obligatory that EU project outputs/results are used in education/training.

- Industry should ensure that students are able to get as much industry experience as possible; often graduates are not hired due to lack of experience.

An example of best practice is ETH Zurich where the core knowledge is taught in lectures, but the labs are geared to skills training and the students may choose which labs to attend.

- It is important that we also address skills training at other educational levels. In a recent report on ‘The Future of Technology at Work’ it indicated that 47% of the US workforce (and 54% of EU workforce) are at risk of automation therefore we need to urgently address this\(^9\).

- The most successful Universities are those that have built excellent relationships with Industry and where students have real support from industry in terms of structured programmes and internships.

**Introduction to the world café style discussions**

*Willy Van Puymbroek, European Commission*

Skills are always high on the agenda when discussing competitiveness with European industry; however, the recommendations are often rather generic. We are now looking for more concrete recommendations and this Workshop is an opportunity to achieve this with an active effort to bring in young professionals and to specifically focus on the role of industry.

We must also consider how to reach SMEs and not just large industry and in fact the whole of the eco-system to make it receptive to digital technologies. In fact, in order to be competitive requires the entire ecosystem to work together. It is clear that to remain competitive students will be expected to have a deeper knowledge of complex technologies while at the same time learning non-traditional or soft-skills.

\(^9\) http://www.oxfordmartin.ox.ac.uk/downloads/reports/Citi_GPS_Technology_Work.pdf
Any recommendations need to be actionable outlining 'the what, the who and the how'. Scalability of any of the proposed recommendations – to move beyond the example and ensure sustainability - should be considered as well. In H2020, in Work Programme 2016 – 2017, there are already two initiatives under consideration: one in micro- and nanoelectronics regarding a hardware coding week and an initiative re maker labs and one in the domain of photonics.

World Café 1: Young people in the digital job world

_Moderator: Annette Locher, Swiss Foundation for Research in Microtechnology_

During the round table there was an in-depth discussion with the young professionals including:

- concern that PhD students are too specialised and therefore find it difficult to discover sufficiently challenging employment in industry – an exception maybe the aerospace industry which has very demanding requirements in the area. In this context, the value/challenge of more applied research could be better promoted including by emphasising the societal dimension;
- vacancies in industry are not always well posted at a European level and seizing the opportunity then often depends on the 'mentor connection' – which is suboptimal;
- there are good practices related to skills development in some of the Member States that could be shared and usefully copied;
- internships in industry whilst doing a PhD thesis are not sufficiently valued as PhD students pursue an academic career for which publications count;
- the idea of having facilities for very low cost prototyping to get practical 'hands-on' on the full production process, i.e. having a 'holistic' experience. The prototyping should not necessarily be using the newest technologies;
- difficulty in choosing pay (in private sector) versus freedom (research environment);
- rather than teaching soft skills some soft skills should be practiced at school such as team work, presentations;
- a systems/cross-disciplinary approach — integrating hard and software — is required;
- perception that you must choose at a very early stage between academia and industry and that it is difficult to move between both; and
- finally the opportunity was taken to briefly discuss promising research areas to be addressed in H2020.

Recommendations – all recommendations need to be checked against existing instruments.

The EU should do more to encourage Universities to integrate internships in to all courses (already established in some countries but not all). For example, the UK Electronics Skills Foundation (UKESF) is a collaboration between industry, universities and the public sector that addresses the threat of diminishing skills capability and aims to secure a sustainable supply of quality and industry-prepared graduates.\(^\text{10}\)

A programme to fund students to return back to high school and be ambassadors for STEM and electronics could be envisaged.

R&I projects in H2020 could offer (paid) internships to allow students – including PhDs – to work on specific topics in the project without the University necessarily having to become a partner in the consortium.

\(^{10}\) [http://www.ukesf.org/about-the-ukesf](http://www.ukesf.org/about-the-ukesf)
Industry should engage at an earlier educational level, such as secondary school. This could include roadshows. Furthermore, industry should provide more regular feedback regarding vacancies and career opportunities and this at a European level.

Students prefer to hear about career opportunities from technical people (rather than HR for example) and rely on informal careers advice from peers who are not too far ahead of them. This industry/school engagement would benefit more from a larger and structured approach, on a bigger scale, and with a continuous input from industry on new technologies.

Consider an 'industrial ERC' – small projects aimed at industrialising research results by a small team led by a researcher/research team in cooperation with industry.

It was noted that even if training is offered for non-technical skills you still have to learn by doing.

The results of the limited survey with the M.Sc. and Ph.D. students in the area of micro/nanoelectronics and related fields of education across the EU done by the EC is very valuable and it should be considered to do a follow-up at a larger scale.

**World Café 2: A taxonomy of skills for electronics**

*Moderator: John McLean, Science and Technology Facilities Council*

The group focussed on 6 questions:

1. **What are the skills demanded within the area today?**

   Apart from having basic technical skills, a person needs to be flexible and be able to adapt to future technologies. Industry is not so concerned about what a person knows today, but about the ability to develop in the future.

   **Recommendations:**

   - Set up accredited courses for Continuous Professional Development (re-training) at European level in close cooperation between universities and industry.
   - Skills training should start earlier (primary + secondary schools).

2. **Can we treat all the KET sectors together while defining skills or is it more relevant to look into the specific "technologies"?**

   All KETs have to be treated in the same multidisciplinary way. While there is a requirement for specific skills there is also a need for universal skills (e.g., engineers need to know about biology and a biologist need to know about electronics). Also more broad introductory courses are required in order for graduates to have the ability to communicate between disciplines.

   **Recommendations:**

   - Establish conversion courses (Ms – 1 year) to convert people from one area to another (e.g., Physics to electronic engineers).
   - Recommend EU funded projects for Universities and industry to set up courses to link theory to practice: about the applications, how to put theory in practice.
3. **How do we anticipate the development of skills demand for the near future? (specific, individual skills)**

Recommendations:

- Set up Industry/University forums to discuss future skills (once or twice a year). Europe can set up the long term vision from this feedback.
- Once these skills are identified, Universities should select from this according to local needs.
- EU incentives to stimulate collaboration between universities and industry including Industry taking apprentices and internships. EU initiative needed on how to stimulate, change the culture, and make it mandatory.
- Europe should help through widespread promotion on best practice, holding event every year to showcase, have a specific website with examples. This should be done in local language + English, with support (CSA).
- It is important that promotion of the required skills is addressed to younger children.

4. **How are these skills supplied today? What kind of education or training is taking place?**

Recommendations:

- Provide teachers in secondary level with training materials/demos and Universities with access to advanced technologies and train the trainer courses.
- Centres with expensive equipment-infrastructure should have programmes so that their infrastructure can be shared with others (open lab) and support industry (and in particular SMEs) with prototyping facilities.
- Stimulate interaction between university and companies in local region – reinforce the cluster ideas through Workshops.
- Encourage or require clusters to reach out to other levels, vocational training, universities, schools.
- Set up a European Massive Open Online Courses (MOOC) platform to stimulate future learning.

5. **Is challenge of demand of multidisciplinary skills best solved by teams or individuals with a broader set of skills?**

Recommendations:

- Create more opportunities to exchange EC project details, ideas.
- Enhance the Collaborative R&D projects with educational activities.
- Focus more on common learning actions.
- Dissemination is usually a workshop: attach the skills angle, add time (day) to talk to partners and students.
- Stimulate participation of SME’s. National contact points can play bigger role in this and organise local events.

6. **Do we have skills gap and what does it look like?**

There is a skills gap which varies across the regions and can either be a lack of people or a knowledge gap. There is a strong need to encourage students to be fascinated by the technology applications as much as the science itself.
World Café 3: Fostering skills development

Moderator: Francine Papillon, CEA Grenoble Institute for Advanced New Technologies

There was a very broad discussion on ways of fostering skills development and the following ‘ingredients’ were identified:

- Example of best practice in Texas Instruments (TI) where graduates enter 1 year internships in TI, and then rotate around to see different aspects of the company – not just technology departments but also sales, marketing, product development.
- Focus more on the technological needs that industry needs from academia while being careful not to lose the general nature of the university education.
- While formal courses offer a broad body of theoretical knowledge lab-based training could focus on more specific industry-related skills. Lab materials from industry would help with this.
- Students should be given opportunities to work in university spin-off companies to gain nontechnical skills they will remember for a lifetime. The placement could be funded by industry.
- EU funded projects should have a formal deliverable to use their results in an education setting (e.g., new technologies included in a University course).
- Recruiting companies should send technical people as well as HR people to technology faculties in universities.

An overall recommendation is to make it mandatory for students to participate in soft skills training (e.g., through internships, the high school students or grad students participating in EU funded projects focusing on solving real world problems). National and Local Skills Coalitions could organise high profile challenges (inter-country) to tackle a real world problem and make the results visible at EU level. It is important that training and support is provided so that skills of all students are enhanced, not just the top students.

Workshop Conclusion

Willy Van Puymbroeck, European Commission

The Workshop provided very useful discussions and insights into the role of education and industry in skills development for electronics with very strong participation and engagement on the issues discussed.

There will be immediate reporting to the Workshop on Digital Skills and entrepreneurship in the Digital Revolution Era: from EU funding opportunities to job creation being held on 14 October 2015. The report from the Workshop will be widely distributed and the outputs will be discussed at Commission meetings to see how the recommendations can be implemented and can be used as input for the Communication on Digitising Industry in Europe.

Dr Willy Van Puymbroeck closed the Workshop by thanking the Eureka Secretariat for hosting the Workshop, Roger De Keersmaeker for chairing the panel discussion, all the moderators, presenters, rapporteurs and participants and the DG Connect team for organising the Workshop.