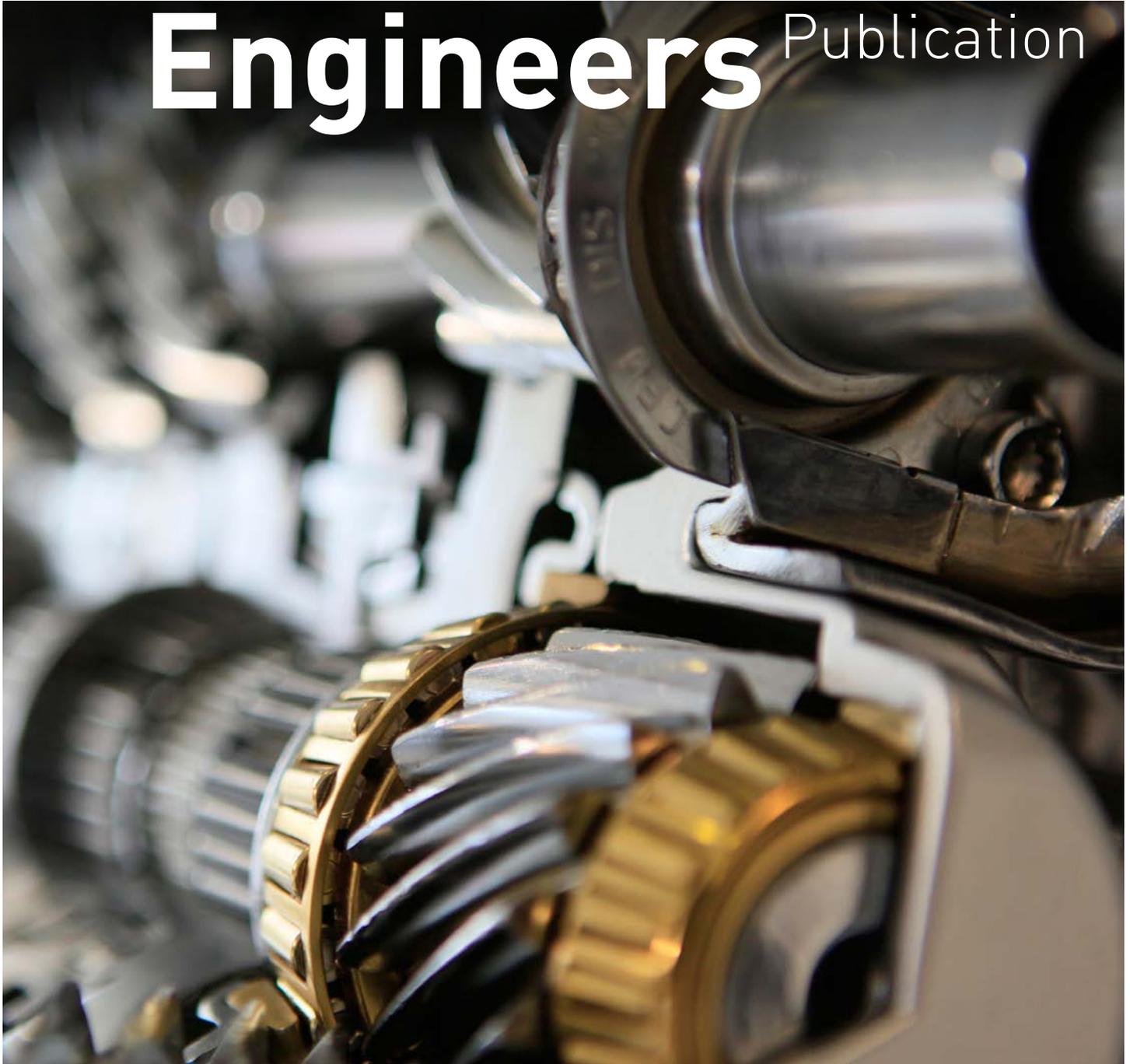


# Engineers Publication



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# FEANI NATIONAL MEMBERS



 **AT** ÖIAV - Österreichischer Ingenieur-und Architekten-Verein

 **AZ** CES - Caspian Engineers Society

 **BE** CIBIC - Comité des Ingénieurs Belges / Belgisch Ingenieurscomité

 **BG** FNTS - Federation of Scientific Technical Unions in Bulgaria

 **CH** SIA - Swiss Society of Engineers and Architects STV/UTS - Swiss Engineering STV

 **CY** CPEA - Cyprus Professional Engineers Association

 **CZ** CSVTS - Czech Association of Scientific and Technical Societies  
CKAIT - Czech Chamber of Chartered Engineers and Technicians

 **DE** DVT - Deutscher Verband Technisch-Wissenschaftlicher Vereine

 **DK** IDA - Ingeniørforeningen I Danmark

 **EE** EAE - Estonian Association of Engineers

 **ES** IIE - Instituto de la Ingeniería de España  
INITE - Instituto de Ingenieros Técnicos de España

 **FI** UIL - The Union of Professional Engineers in Finland  
TEK - The Finnish Association of Graduate Engineers

 **FR** CNISF - Conseil National des Ingénieurs et des Scientifiques de France

 **UK** EC - The Engineering Council

 **GR** TCG - Technical Chamber of Greece

 **HR** HIS - Croatian Engineers Association

 **HU** Budapest University of Technology and Economics

 **IE** Engineers Ireland

 **IS** VFI - Association of Chartered Engineers in Iceland  
TFI - The Icelandic Society of Engineers

 **IT** CNI - Consiglio Nazionale Ingegneri

 **KZ** KasZEE - Kazakhstan Society of Engineering Education

 **LU** A.L.I. - Association Luxembourgeoise des Ingénieurs

 **MK** IMI - Engineering Institution of Macedonia

 **MT** COE - Chamber of Engineers

 **NL** KIVI NIRIA - Koninklijk Instituut Van Ingenieurs

 **NO** NITO - The Norwegian Society of Engineers and Technologists  
TEKNA - The Norwegian Society of Chartered Scientific and Academic Professionals

 **PL** NOT - Polish Federation of Engineering Associations

 **PT** Ordem Dos Engenheiros

 **RO** AGIR - The General Association of Engineers in Romania

 **RU** RUSEA - Russian Union of Scientific and Engineering Associations

 **SE** SVERIGES INGENJÖRER - The Swedish Association of Graduate Engineers

 **RS** SITS - Union of Engineers and Technicians of Serbia

 **SI** ZDIT - Association of Societies of Engineers and Technicians

 **SK** ZSVTS - Association of Slovak Scientific and Technological Societies

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# Statement of the FEANI President



Prof. Dr. José VIEIRA,  
President of FEANI

Dear FEANI-members,

First of all I would like to thank all of you who have supported my candidature for the FEANI Presidency last October at the General Assembly in Gdansk (PL). I am particularly honored to have been elected by all FEANI-members: this provides my mandate with strong legitimacy and unbiased support. Both are very important to me and paramount to successfully accomplish this task to which I will dedicate my time and efforts to the best of my abilities in the three years to come.

Building further on the foundation laid by my predecessor regarding the implementation of the FEANI Strategic Plan 2013-2017, I have in co-operation with the Secretary General, considered the appropriateness of assigning specific “responsibilities” to the respective Executive Board Members. This seemed required because an Organization’s representation in Brussels is a bit like an embassy: it carries the Organization’s messages to the institutions and informs the stakeholders of the European situation in Brussels on a variety of issues and topics which are of specific interest to our 35 members. In his activity reports the Secretary General informs us on a regular basis about how his activities are organized and what his day-to-day work consists of. His activities and our Organization’s corporate strategy are very much interlinked and the strategy is also influenced by the information gathered and provided by him and other key players in the FEANI Working Groups. In order to increase our support to him, Executive Board members must get more involved in the FEANI business and assist in reaching the strategic goals in a more participative way.

It is rewarding to note that the Executive Board members have voluntarily agreed to this increased teambuilding in a structural way, as opposed to supporting isolated tasks in themselves. Their involvement is important for us to build alliances around particular issues where common interests are at stake and need to be worked on. It will at the same time increase our focus on the core objectives, while avoiding too much diversification. In doing so, the organization of the FEANI-structure increases with

“It is rewarding to note that the Executive Board members have voluntarily agreed to increased teambuilding in a structural way, as opposed to supporting isolated tasks in themselves.”

“I trust that the impact will reflect on the everyday work of our members and that we will discuss best-practices with each other.”

the integration of the FEANI Task Forces - which were ad hoc coalitions within our network – and which will now be formalized into FEANI Committees or Working Groups.

These bodies have been defined as the “Business Development Group”, the “National Members Forum” and the “Finance Committee”. They are chaired by one Executive Board member, each time backed-up by two other Executive Board members. These platforms will facilitate the corporate debate and activate our members to reach out to the Executive Board as decision makers. They will also help to determine our public affairs activities and to have them efficiently coordinated between the Central Secretariat in Brussels and our members throughout Europe. Building a useful professional network in Brussels is complicated and time consuming. I encourage our members to engage in this and to use this chance to get a sense of what networking sessions at the FEANI CS in Brussels are like. Attendance as well as content and purpose of these meetings can vary in level and form, from general strategic discussions to technical ones and held physically or virtually via video- or telephone-conference.

I trust that the impact of these changes will reflect on the everyday work of our members and that we will discuss best-practices with each other. Also, the set-up of these working groups will facilitate the decision making processes at our General Assembly and should remedy confusion and misunderstandings. The further development of our products (Index, EUR ING and Eng Card), Mutual Recognition Agreements as part of Free Trade Agreements (TTIP, etc.), common training frameworks, accreditation and quality assurance of engineering programs and institutions, the European investment plan, the Bologna process, etc. are all in full development and high on our agenda. In addition, we must also further explore what are the drivers of our corporate reputation and what we want to achieve further with our strategy. We must evaluate what are the tools and the resources we need to have, in order to put our strategy in place, who are the people we should be talking to, how and when we should approach them and what the messages are which we should communicate.

I am confident that our FEANI-members will - through their valuable inputs - offer us practical advice on how to go about developing successful action plans. The results of the Working Groups will be channeled back into the strategic decision-making at the Executive Board and contribute to the continuous improvement of our Organization. In doing so, we will focus just as much on our processes than on our content and desired outcomes. In this respect the Ordem dos Engenheiros will be pleased to host the FEANI Annual Business Meetings in Lisbon later this year. We will have our FEANI General Assembly Meeting

of 9 October 2015 preceded by a FEANI Conference on 8 October focusing on *"The Lisbon Strategy : 15 Years later"*. It will be followed by the "European Young Engineering Forum" on Saturday, 10 October. I look forward to welcoming all of you in Lisbon and I trust that in the years to come, I can rely on your kind cooperation and full involvement to make our common work a success. I thank you already in advance for that.

Yours sincerely,  
Prof. Dr. J. VIEIRA

## Statement of the FEANI Secretary General

The start of a new calendar year is always a good moment to look back on what has been done in the past with regard to achieving our corporate objectives, but also to look ahead of what still needs to be implemented, what can be improved and where progress is still required. The guideline for making that judgement is certainly our FEANI Strategic Plan 2013-2017 which was elaborated with the participation of many FEANI Members in the National Members Forum and which was approved by our General Assembly in October 2013 after the Executive Board had made its amendments. Whereas we do not cease to improve our co-operating methods – as described on the previous pages by our President – it can be noted that already significant progress has been made in achieving most of our eight key objectives and which were defined as follows :

- *To be recognized as the major European Engineers' Federation* was considered as our major objective in accomplishing our mission. In that respect reference can be made to the European Engineers' Day which we organized in November 2014 and to which the key-note speech was delivered by Mr Herman Van Rompuy, the then President of the EU Council, acknowledging FEANI in this position.
- *To establish a stronger Organizational Structure*: there is the National Members Forum (NMF) which continues to attract the participation of more and more FEANI-countries and

which was organized three times in 2014. Also four (4) virtual Task Forces were established in 2014 which are intended to be transformed in 2015 into three formal FEANI Working Groups or Committees.

- *To establish a fairer Membership Fee Structure*: was an intention to ensure that smaller countries pay a higher membership fee of being at least the equivalent of 50% of a FEANI-share. A Finance Committee – chaired by the Treasurer – has been set up as a new formal FEANI body and carefully monitors all financial operations. We also introduced the status of "Suspended Member" into our Statutes to allow members with financial difficulties to stay within the network without being immediately expelled and also a FEANI Network Survey was conducted around standardized questions, allowing us a better understanding of the financial, operational and strategic status of our National Members.
- *To extend and widen the FEANI-network*: with Kazakhstan and Azerbaijan who have been approved as Affiliated Members and with Ukraine as Provisional Member, we have also progressed in that respect. The proposal to define the borders of the FEANI network as equivalent to the European Higher Education Area (EHEA) will be proposed for approval at the forthcoming General Assembly. This would allow us to also attract and trigger the interest of countries like Turkey,

Albania, Lithuania and Latvia. First contacts with the engineering federations of these countries have meanwhile been made.

- *To obtain synergies with other Stakeholder Organizations:* the organization of the European Engineers' Day last November, in cooperation with the European Council of Engineering Chambers (ECEC), the European Council of Civil Engineers (ECCE), the European Network for the Accreditation of the Engineering Education (ENAE), the European Federation of Engineering Consultancy Associations (EFCA), the European Liaison Committee of University Engineers (CLAIU) and the Council of European Geodetic Surveyors (CLGE), has shown that FEANI is very well interconnected and capable of developing synergies. At the same time we have – as founding member of the World Federation of Engineering Organizations (WFEO) – continued to be involved in their Executive Council- and Strategic Task Force Meetings. Not withholding these close links with other, similar Organizations, we should not forget to mention are contact with the European Commission and in particular with DG TRADE regarding Mutual Recognition Agreements in the light of Free Trade Agreements (TTIP), DG MARKT with regard to the Liberal Professions and the Professional Qualifications Directive and with DG EAC on the Bologna Process and the Business -University Forum.

- *To develop on a continued basis a series of Corporate Publications:* we published a FEANI Annual Report for the first time in 2012, covering our activities of 2011. In 2014 a new Annual Report was issued, covering the period 2012-2013. We renewed the FEANI website which continues to show an increase of the frequency of visits as reported elsewhere in this magazine. Also our internal Handbooks for the European Monitoring Committee (EMC), the National Monitoring Committees and the Engineering Card were up-dated and re-issued. This issue of the FEANI News is the latest example of such corporate publication.
- *To recruit additional Human Resources :* whereas no structural changes have been made yet, the Central Secretariat was pleased to have had two internships in 2014 for 3 months each. Both Mr Tadej Stepisnik from Slovenia and Ms Anca Fulger from Rumania came to us through our connection with the Board of European Students of Technology (BEST).
- *To increase our turnover with 30-40%:* this turns out to be a major challenge with some National Members suffering in specific regions of Europe, but we are confident that also this can be achieved in the following years by widening and increasing our membership, by attracting sponsorship for the organization of major events such as conferences and events, by an improved visibility and better promotion of our FEANI products, and possibly also by improved synergies with ENAE.



Guided by the recommendations of our shareholders and the Executive Board, we have not been dawdling, but continued to be committed to creating value for our national members. Our work is not about doing extraordinary things, but about doing simple things in an extraordinary way.

“Our work is not about doing extraordinary things, but about doing simple things in an extraordinary way.”

Mr Dirk BOCHAR,  
Secretary General of FEANI

# FEANI General Assembly 2014



The outgoing Board members of FEANI with the new President.

At its General Assembly (GA) in Gdansk of 10 October 2014, FEANI unanimously elected Prof. Dr. José Manuel VIEIRA from Portugal as new President. This is his first mandate for three years as President after having been FEANI Executive Board member since 2011. Prof. Dr. J. VIEIRA succeeds Dr. Rafael ALLER from Spain.

In his application speech, Prof. VIEIRA emphasized his support of the FEANI Strategic Plan 2013-2017. He highlighted the FEANI mission of promoting the mobility, the education and the professional development of engineers in order to enhance the visibility of the value of engineers to society. He stressed in particular the importance of addressing issues related to young engineers. Considering that Europe is facing a vocational problem in attracting young people for engineering studies, he warned that this situation can significantly impact European supremacy on innovation and industrial competitiveness. Education and employment of young engineers being a European issue, FEANI and its National Members will plan and implement initiatives advocating the engineering profession, ideally with support of the industry and the European Institutions. As further cornerstone of his mandate, Prof. Dr. J. VIEIRA emphasized the communication with and between the FEANI Member associations, for instance at the recently established "National Member Forum". He furthermore advocated initiatives to reach utmost visibility for FEANI, for instance through regular conferences being organized in isolation or in connection with other stakeholders.

Prof. J. VIEIRA was born in Braga/Portugal. He is married and has three children. He is a Full Professor in the Department of Civil Engineering at the University of Minho and Head of Hydraulics Division. He is also Vice President of the Portuguese Association of Engineers (Ordem dos Engenheiros). Prof. Dr. J. VIEIRA has more than 35 years experience from practically all aspects of engineering activities either in the private or in the public sector: be it projects and consultancy, teaching, management or R&D.

FEANI thanks the outgoing Board members, Messrs. Roberto BRANDI (Italy), Jon PRICHARD (UK), and Hans-Heinz ZIMMER (Germany), the outgoing Internal Auditor Hannes TREIER (Switzerland) and in particular the outgoing President Rafael ALLER (Spain) for their commitments and achievements over their years of mandate. Mr. Jan Willem PROPER was awarded the Honorary Title "Fellow of FEANI" for his long-term involvement in FEANI.

From the 32 National Members, 26 Members were present in at the FEANI GA in Gdansk. They were greeted, together with the invited guests from other organizations - WFEO, CLAIU,



ENAAE, BEST as well as the Affiliated Member KasZEE (Kazakhstan) - by the President of the hosting Polish National Member FSNT-NOT, Ms. Ewa MANKIEWICZ-CUDNY.

Besides the election of officers, the GA approved the 2013 annual financial accounts, closing with a surplus of nearly EUR 12.000,- as well as the proposed budget for the following year. The Union of Scientific and Engineering Associations of Ukraine (USEAU) was admitted as "Provisional Member" of FEANI. The Hungarian National Member was admitted as "Suspended Member". This status is a new provision in the Statutes which was also approved at the GA meeting. It will allow National Members in temporary financial difficulties to remain within the FEANI family.

The GA also noted the various activities of the Executive Board, the European Monitoring Committee (EMC), the National Members Forum (NMF) as well as four Task Forces (TFs) that had been set up in 2014.

For the FEANI General Assembly in 2015, FEANI has gladly accepted the invitation from the Portuguese National Member. It will take place on 9 October in Lisbon in combination with a series of other FEANI business meetings, including a first European Young Engineers Forum on 9/10 October.

## Our website

In our FEANI News, Issue N°9 of June 2011 we referred on page 5 to the relaunch of the FEANI's homepage: [www.feani.org](http://www.feani.org).

For the entire month May 2011, our homepage registered **5.611 visits** (181/day) with an average visiting time of 4 minutes and 8 seconds.

In October 2014 our homepage registered **8.021 visits** (259/day) with an average visiting time of 3 minutes and 22 seconds.

Most visitors still come from the UK, Spain, Germany, Poland and Portugal.

October 2014

**8.021 visits**

May 2011

**5.611 visits**



# In Memoriam: Mr José Medem Sanjuan 1927-2015

It is with great sorrow that FEANI has learned about the passing away of its Honorary President, Professor Dr. José MEDEM SANJUAN on 27 January 2015. Professor MEDEM died at the age of 87. He had a distinguished career in academia as Professor in Civil Engineering as well as in industry with his own consulting company.

**P**ast President of the European Council of Civil Engineers ECCE, Past President of the World Federation of Engineering organizations WFEO and Founding President of the World Council of Civil Engineers, are positions he held in addition to his involvement in FEANI. Professor MEDEM was internationally active and a strong supporter of FEANI from the beginning. He obtained the EUR ING title in 1991.



to give a “friendly loan” to FEANI, in addition to accepting a substantial fee increase in 1995 and 1996. Furthermore, in 1995, the GA voted for a new scheme of fees and share attribution which is today still the basis for the existing FEANI membership fee scheme.

The Strategic Plan under Professor MEDEM's presidency highlighted actions related to the promotion of the EUR ING title and to a more affirmed presence of FEANI in the field of matters related to the profession. During his term as FEANI President, the basis for a first CPD Policy

After having been Vice President for two years, Professor MEDEM became President of FEANI in 1992 for four years.

The General Assembly in 1996 then awarded him the title of Honorary President. During his presidency, FEANI opened up to the eastern European countries and the number of FEANI members increased from 21 in 1992 to 27 in 1996. Czech Republic, Estonia, Poland, Romania, the Slovak Republic and Slovenia were all admitted in this period. In a time when FEANI experienced financial difficulties, in particular due to an important decrease of the number of EUR ING applications on which the budget mainly relied at the time (more than 3.000 titles awarded in 1991, decreasing to 1.700 in 1994, despite a major upward trend in Spain), a reorganization of human and financial resources became necessary. Several National Members agreed

was laid which was approved by the GA in 1997. Cooperation with the European Institutions, industry as well as with other international organizations, such as WFEO, SEFI and ECCE, became a centrepiece of the activities. Intensified contacts with the EU Commission led in 1994 to an important statement of the Commission regarding the value of the EUR ING title/ Register.\*

Professor MEDEM was also instrumental in setting the ground for moving FEANI's headquarters from Paris to Brussels in 1997. Our sincere condolences go to his widow Frida, his children and grandchildren.

\* The European Commission, in a statement to the European Parliament, recognized the FEANI Register and the EUR ING title as valuable tools for the recognition of national diplomas among member states.

“The FEANI scheme is an excellent example of self-regulation by a profession at European level and it provides a model for other professional groups in the technical and scientific sector, such as chemists and physicists. The FEANI register recognizes and builds upon the diversity of forms of engineering education which exist in the Community and can adapt to any changes which may be decided upon at national level. The procedures for dealing with applications for registration also provide a good respective expertise. Registration on the FEANI register indicates that, whatever the duration or content of his or her initial training, the engineer has reached a certain level of professional competence, certified by his or her peers both at national and European level. Bearing in mind that Member States are required by the caselaw of the Court to take post-diploma professional experience into consideration, when reaching their decision on recognition, the Commission considers that an engineer who has obtained the title of Eur ING should not normally be required to undertake an adaptation period or sit an aptitude test, as provided for in Article 4 of Directive 89/48/EEC.” Directive 89/48/EEC was replaced by Directive 2005/36/EC and recently by Directive 2013/55, the Directive on Recognition of Professional Qualifications.

# European Engineers' Day



The major European Engineers Federations (ECEC, FEANI and ECCE with the support of ENAEE, EFCA, CLGE and CLAIU\*) gathered in Brussels for the “European Engineers’ Day” on 20 November 2014.

The major subject of the event – which was attended by 150 participants from industry, academia and professional organisations – focused on “Mobile Engineers build an Innovative Europe”: the challenges of the engineering profession to meet the expectations of society and how EU policies can help the engineering profession to meet these expectations.

The one-day conference also addressed topical issues, including recognition of engineers’ professional qualifications, more EU-wide mobility within the profession and engineering skills shortages in many European countries.

A joint Resolution was adopted, inviting the EU Institutions to acknowledge that:

- Engineering solutions are always designed with economic, safety and functionality considerations in mind. Many of today’s societal challenges such as sustainability of the environment, aging infrastructures, deployment of innovative renewable sources of energy and economic growth are of

an international nature. Therefore, internationalization and cross-border recognition of engineering qualifications are important and vital to forge a better future for society. International mobility is now a normal part of an engineer’s career: the global engineering profession has developed tools to facilitate this and will continue to work across borders to promote excellence in engineering education and practice for the benefit of society.

- By the very nature of their professional and ethical commitment, professional engineers ensure that the public is protected from harm. To do so, professional engineers must possess the relevant underpinning knowledge and maintain their technical and managerial competence so that they can deliver value to their clients in their chosen field of endeavor. The rhythm of new developments in science and technology implies for engineers, the need for updated life-long-learning in order to acquire new technologic knowledge and skills, and to maintain high professional standards. The importance of quality assessment of their initial and continuing education needs to be recognized.

\* - ECEC: European Council of Engineering Chambers ([www.ecec.net](http://www.ecec.net))  
 - FEANI: European Federation of National Engineering Associations ([www.feani.org](http://www.feani.org))  
 - ECCE: European Council of Civil Engineers ([www.ecceengineers.eu](http://www.ecceengineers.eu))  
 - EFCA: European Federation of Engineering Consultancy Associations ([www.efcanet.org](http://www.efcanet.org))  
 - ENAEE: European Network for the Accreditation of the Engineering Education ([www.enaee.eu](http://www.enaee.eu))  
 - CLGE: Council of European Geodetic Surveyors ([www.clge.eu](http://www.clge.eu))  
 - CLAIU: Comité de Liaison des Associations d’Ingénieurs Universitaires ([www.claiu.org](http://www.claiu.org))



- Engineers, through a combination of intellect, skill and ingenuity deliver the appropriate and sustainable solutions to some of the world's grandest challenges. Society today is surrounded by engineering products and inventions that allow both current and future generations to prosper and flourish. Professional regulation, in its varying forms [whether voluntary or statutory], is the mechanism by which the public can be independently assured of an individual engineer's professional competence and personal commitment to be bound by professional codes of practice.
- The evolution of engineering has always been associated with "investment, innovation and internationalization". Public and private investments are necessary for developing infrastructures and buildings. Innovation associated to new materials and technologies is paramount to the success of the construction companies. Due to the high complexity of engineering services and their technologies, it can be difficult for procuring authorities to compare the content of offers, which can lead to decisions based on the lowest price only. This may run contrary to the interests and intentions of the consumer/client and may lead to a lack of quality in the project, unfulfilled expectations in design and exaggerated unforeseen costs. Therefore, a quality based contract award for engineering services is essential (most economically advantageous tender).
- Micro-, small- and medium sized enterprises, which employ the majority of European engineers, including civil engineers, are at the core of the European economy. The success of the European economy will depend upon our ability to unlock the potential of the SME-sector and our endeavors to support engineering entrepreneurship in our countries. Only high-quality engineering services can guarantee that the costs of a project do not explode due to weak design. This is in the interest of each consumer/client and in the case of public procurement in the public interest.



From left to right : Mr Crtmir REMEC (ECEC), Prof. Dr José VIEIRA (FEANI) and Mr Włodzimirz Szymczak (ECCE)



# Priorities for the EMC in 2015

For EMC the most important task in 2015 is changing the procedure for updating the FEANI INDEX.



Lars Funk

This is so important because the Index is on the one hand the most popular product of FEANI, on the other hand we all know that the INDEX is not up to date, which means that engineering programs in many countries are not listed in the INDEX although they fulfill the FEANI criteria for engineering courses. To hold the INDEX up to date is not an easy task, considering the number of new Bachelor and Master programs every year. In the past EMC checked every single course before it was added to the INDEX. Obviously this is not a suitable procedure to handle thousands of courses in Europe.

The procedure is now changed in the way that the National Monitoring Committees are responsible to hold the INDEX up to date for their respective country. It is their task to check whether the engineering courses in their country fulfil the (Input-oriented) FEANI- INDEX criteria and/or the (Outcome-oriented) EUR-ACE criteria. EMC is no longer checking single courses, but monitoring the work of the NMCs and ensuring that FEANI quality criteria are observed. Next to a regular reporting by NMCs, audits will be done every five years to enable EMC to

get a deep look into the work of each NMC. After a successful audit the NMC gets permission to update the INDEX for five years. EMC feels confident that this procedure will help to come to an updated INDEX in short time. Nevertheless, a much closer communication between NMCs and EMC seems to be necessary to run the system. For that EMC defines “ambassadors” in the way that every EMC member acts as contact person for two or three NMCs.

The second priority in 2015 is the development of the Engineering card. In fact it is necessary to increase the number of issued cards in Europe sufficiently. For that it is important to get support from industry as well as to look for cooperation agreements with universities. FEANI and its members should use this opportunity profiling itself towards these important stakeholders. Additionally it is important to develop the Engineering card system to hold a forward-looking system in place – much more innovative than the professional card as described in the directive. Due to that it was discussed during the Engineering card workshop in Gdansk to develop more possibilities to document and validate the CPD-activities of engineering card holders. This will be a focus in 2015.

Corresponding to the mandate given by the FEANI Board, EMC will look into the differences between the EUR ING title and the engineering card concept and investigate possibilities to bring the concepts together. This implies the investigation of possibilities to establish a common training platform for engineers as described in Article 49a of the new directive on the recognition of professional qualifications.

Concerning the EUR-ING title the testing of the new electronic application form was successful in three pilot countries. During this year the application shall be implemented in all FEANI countries. It will help EMC as well as NMCs and the FEANI secretariat to handle the applications more efficiently.

EMC will finish the revision of the “FEANI CPD code and policy” soon, and will run a CPD questionnaire for employers and EUR-INGs in spring 2015. The results of this questionnaire will help to define more FEANI activities in the field of CPD.

These tasks mean on the one hand a lot of work to be done by each EMC member. On the other hand it is a big opportunity for all EMC members to work on forward-looking issues in the engineering sector and to use this work also for networking reasons and for getting a deeper look into different national systems. EMC consists of 5 people each from the north, the central and southern group. As there is a vacancy in the central group as well as in the south group, applications are very welcomed.

## France

# François Lureau is the new President of “Ingénieurs et Scientifiques de France” (IESF)

On 13 June, the Board of Directors of Ingénieurs et Scientifiques de France appointed Mr François Lureau as President of the French federation. After a career in aeronautics and armament, François Lureau was, from 2004 to 2008, number two of the Ministry of Defense, responsible for industrial policy and research, for the conduct of armament programs and support for exports.

**B**orn in 1944, François Lureau graduated from the Ecole polytechnique (1963), from the Ecole nationale supérieure de l'aéronautique. He completed his training with a master degree in economics and a PhD from Stanford University, California. He joined in 1968 the General delegation for armaments as an engineer; he was the first Director of the Franco-German helicopter program Tigre from 1975 to 1981. From 1983 to 1996, he held successively positions of Director General in the units of the Philips Group, and later Thomson-CSF, now Thales. In 2000, he became Director General of the aeronautics pole, then the defense pole, at Thales. From 2001 to 2004, he was President of the equipment service of the 'Groupement des Industries Françaises Aéronautiques et Spatiales' (GIFAS) and its European equivalent.

Today, he is President of EuroFLConsult consulting firm he founded in 2008. In associative terms, he was President of the “Confédération Amicale des Ingénieurs de l'Armement” from 1994 to 2000 and Director of the association of former students of the Ecole polytechnique, from 1995 to 2002, and from 2008 to 2013.

François Lureau is Commander of the Legion of Honor. Beyond serving nearly 200 associations and more than one million people with Bac +5, his work will focus on a few major projects:

- The training, via the program “Fabrique des vocations scientifiques et techniques” which, with the support of the “Académie des Technologies”, is recognized by Matignon as an Investment for the Future. This program should help young people to choose their path.
- Partnerships with businesses.
- The opening to the Europe of engineers and scientists.
- The “Spring” project to create a Business Structure of Engineers and Scientists.

- The promotion of the profession of engineers and scientists in colleges and high schools.
- The “National Day of the Engineer” who, since 2013, has brought together over 5,000 engineers at conferences and round tables throughout France.



This ambitious program aims to broaden and amplify the initiatives taken by his predecessor Julien Roitman.

### Ingénieurs et Scientifiques de France (IESF)

IESF is the representative body of the profession for engineers and science graduates. Recognized as a public service since 1860, IESF brings together 200 associations, a community of more than one million engineers and scientists, relating to their diplomas and their functions. This federation aims to gather them by supporting their associations, to enhance and organize their profession, to represent the profession to public authorities, businesses and the general public, and finally to promote in France and abroad the French sector of scientific studies.



#### FURTHER INFORMATION

[www.iesf.fr](http://www.iesf.fr)

#### Contact presse IESF:

Valentine BRUNEL/Jean-Patrick BLIN  
01 53 30 74 01 – [presse@iesf.fr](mailto:presse@iesf.fr)

# Ireland

# Engineers Ireland

# Member Guide

## A-Z: A guide to Your Membership Benefits 2015

### Welcome

“Engineers Ireland is your professional family. We’re with you at every step of your career, supporting your professional development and bringing you news on emerging trends and opportunities. As your professional body, thank you for your continued support. This guide is a quick reminder of the many benefits you can avail of as part of your membership package. Engineers Ireland is home to every engineer in Ireland – connecting like-minded individuals, facilitating knowledge-sharing, encouraging best practice and business networking – and Irish engineers around the world.

We hope to see you in 2015 at one of our many events, for example, our annual ball on the 23rd of January or our Annual Conference on the 14th-15th May in Killarney. Wishing you every success and happiness in 2015.”

**Regina Moran**, Chartered Engineer President

**John Power**, Chartered Engineer Director General

### Advice on career development

One-to-one guidance through our career consultancy service is just one of the many supports we offer. You can register with our jobs desk to find out what opportunities are available in our weekly newsletter or be proactive and upload your CV so employers can see if your skill set matches their needs. Our career development framework using our professional title criteria ensures your competence advances with each stage of your career path.

### Building Regulations certificates and other contract documents

In response to the Building Control (Amendment) Regulations 2014, a suite of ancillary certificates for engineers covering design and inspection have been developed and are available for download on the Engineers Ireland website. A range of other contracts, agreements and specifications, primarily for use in construction works including structural, civil, mechanical and electrical engineering can be purchased in our online shop.

### Continuing Professional Development

CPD and lifelong learning is critical for any successful engineer. Engineers Ireland has developed a range of CPD programmes that fits with the needs of engineers throughout their career. Our Future Professionals Series offers structured advancement to graduates resulting in either a Certificate or Diploma in Professional Engineering. We also offer in-company training programmes and e-learning along with a range of seminars and courses, which run at our headquarters in Dublin and in some regional branch locations.

### Discounts on a range of products and services

In partnership with groupschemes.com, your membership entitles you to a range of discounts on a host of products and services including travel, technology, sports goods and financial services. To find out more about the range of valuable offers available, visit [groupschemes.engineersireland.ie](http://groupschemes.engineersireland.ie) and sign up for a weekly digest of exclusive discounts on leading brands and services. You can also avail of a member rate on all our CPD offerings.

### EngineersJournal.ie

Our online news portal for all things engineering related offers short news pieces and long-form articles on developments in Irish engineering and globally. With six dedicated channels covering issues in biomedical, chemical, civil, electrical, mechanical and engineering in technology, the editorial team in Engineers Ireland provides timely and topical daily news features. EngineersJournal.ie offers members of the engineering profession an opportunity to write articles about their own original research, projects or innovations. Contact [editor@engineersjournal.ie](mailto:editor@engineersjournal.ie) for more details.

### Free networking and CPD events

Engineers Ireland through its regional branches, engineering divisions and societies offers its members a range of lectures, site visits and other opportunities for networking that are free to all members. You can avail of these at no extra cost to you except your own time commitment. Information about free events is listed in the weekly Events Brief newsletter or it can be found on our website at [engineersireland.ie/events](http://engineersireland.ie/events).

## Groups of like-minded individuals

If you've a penchant for engineering 'as Gaeilge' or a passion for soil and rock mechanics, then it's likely you'll find a bunch of engineers who share your interests. Unlike other institutions, we cater for all disciplines of engineering and are home to all. As well as allowing you to discuss matters closest to your area of expertise, you get exposure to other branches of engineering. If you haven't done so already, you just need to register your interest group preferences in your online member profile.

## Honours and awards

The Engineers Ireland Excellence Awards ceremony held annually in November is the culmination of our year-long awards programme. We strive to highlight the very best of engineering in Ireland and the achievements of Irish engineers abroad. The award categories for individuals and organisations aim to reflect the spectrum of engineering disciplines from students, young graduates and senior members of the profession. And the short-listed entrants provide a wealth of material that can be used throughout the year to showcase engineering in the media.

## Inspiring potential engineers

Our STEPS schools outreach programme, funded by Science Foundation Ireland and the Department of Education and Skills, works hard with our community of engineers to visit local schools and career events to talk to students about what it's like to be an engineer. As a participating engineer, you gain CPD credits and enhance your communication skills, as well as the enjoyment of engaging with the next generation of potential engineers.

## Join our volunteer network

As a member you can volunteer for a myriad of roles within the organisation: be part of your regional branch committee; become a professional review interviewer or accreditation accessor; or influence the strategic direction of the organisation by being part of the decision making at Council and Executive Board level. Not only is volunteering rewarding, it is a valuable asset on the CV of any professional engineer.

## Knowing me, knowing you

Your qualifications and career history allow us to advise you on your professional development. Our staff are aware of a range of opportunities that will enhance your career and they can point you in the direction of relevant CPD seminars and training courses, network groups and contacts that can help further your career.

## Library services for our members

We have a range of online and archive library services including EBSCO for the curious engineer. As well as our technical and business database, we have an archive of recorded lectures and a dedicated Engineers TV channel with a wealth of video



pieces. The historical documents from years past are housed in the Irish Architectural Archive, which contains maps, charts and transactions from the Irish engineering institutes of years past since 1835.

## Mentoring for the future

Your experience could prove invaluable to another engineer who is working towards their professional title of Chartered Engineer, Associate Engineer or Engineering Technician through the experiential learning route. Alternatively, you may wish to avail of our training programmes to develop a mentoring culture within your own organisation.

## National Framework for CPD

Our CPD Accredited Employer Standard has been developed specifically for engineering employers and outlines how the continuing professional development of staff can contribute significantly to achieving an organisation's business objectives. For individual engineers employed by organisations who adopt

### Engineering divisions and societies

- Academic
- Agriculture & Food Engineering
- An Roth
- Biomedical
- Chemical & Process Engineering
- Civil
- Computing
- Electrical & Electronic
- Energy-Environment
- Fire & Safety
- Geotechnical
- Heritage
- Local Government
- Mechanical & Manufacturing
- MEETA
- Project Management
- Roads & Transportation
- Structures & Construction
- Water & Environmental Engineering
- Young Engineers



the standard, their competence is kept relevant and up to date to help their employer realise a specific goal. Backed by the Department of Education and Skills, it is currently adopted by over 150 of Ireland's leading engineering employers. If you're responsible for CPD within your employing organisation and would like to know more about the scheme and how it could benefit you, then contact our CPD team.

### **On-demand learning – anytime, anywhere**

We've made it even easier for members to experience excellence in CPD. Our e-learning courses make it easy for members to complete CPD courses at their own pace, from anywhere with internet access – ideal for those who find it difficult to travel or for those that are currently working outside of Ireland. A certificate of completion means our e-learning courses can be easily recorded as verifiable CPD. Courses range from Enterprise and Entrepreneurship to Thinking Strategically. A full library of titles can be viewed on our website – [engineersireland.ie](http://engineersireland.ie)

### **Professional titles**

Achieving your registered professional title of Fellow, Chartered Engineer, Associate Engineer or Engineering Technician is an important milestone for any engineer or technician in their career. A registered professional title from Engineers Ireland provides peer-reviewed and internationally recognised formal recognition of your professional competence. It is an accolade associated with the very best of the engineering profession. A professional title is becoming more sought after by employers and allows an engineer access to further career opportunities.

### **Quality and standards**

As the professional body for engineers in Ireland, we are charged with maintaining standards – from accrediting engineering programmes in Irish universities to upholding a high level of professional conduct through our Code of Ethics. We are committed to ensuring Irish engineers are on a par with their peers worldwide through continued monitoring of quality and standards among our reciprocal agreement partners. We continue to advocate for a national register of competent engineers to maintain standards.

### **Reduced rate**

Our subscription rates are benchmarked against other engineering institutions and reflect value for money at all stages of an engineer's career, offering flexible payment options and a sliding scale rate for graduate engineers. We've listened to our members and are pleased that we haven't increased most of our membership fees since 2008 while still providing you with a great range of benefits and services.

### **Social and networking**

Our events – both national and regional – allow you to link up with like-minded engineers to share knowledge in an informal and relaxed environment. Our regional branches, engineering divisions and societies hold a series of events throughout the year, ranging from technical lectures by expert engineers to golf outings, black tie dinners and summer BBQs. Our national events programme includes an annual conference, an awards

night for the profession and Engineers Week, a national week of engineering-led experiences, which happens from the 8th-15th of February 2015.

### Ties, pins and conditions of contract

Our online shop features a range of goods and publications to satisfy the needs of the busy professional engineer. A stylish pure-silk tie in steel blue with an Engineers Ireland motif is exclusively available to our members and the Chartered Engineer lapel pin denotes your membership of a group with unique expertise. These and publications ranging from agreements on appointing consulting engineers for report and advisory work to the proceedings of a seminar on road embankments on soft ground are available to purchase.

### Use of your post nominals and professional title

As a member, you are entitled to use your post nominals (e.g., MIEI or Tech IEI) and professional title (Chartered Engineer, etc.) on business communications and online professional profiles. It provides public recognition of your proven experience as an engineer including your commitment to CPD as well as immediate recognition from fellow professionals and potential clients or employers.

### Voice of the engineering profession

With over 23,000 members, we are here to represent you on issues that are key to you as a professional. Advocating on behalf of the engineering profession, we successfully ensured the Chartered Engineer professional title was included in legislation relevant to the new and updated Building Control Regulations as well as establishing registers of engineers with specific experience in historic landfills and pyrite resolution. We will continue to represent the engineering profession to national Government.

### Worldwide recognition

We support our members who are working or studying abroad through a number of international agreements with other engineer membership organisations across the world. These arrangements ensure that your Irish qualifications and / or professional title are recognised in other countries facilitating the flexibility and mobility for international career opportunities desired by many of today's professional engineers. We also have a regional branch representing members in the GB region.

### Xtra special customer service

Unlike other professional engineering institutes, we are based in Ireland. Our small team in Clyde Road, Dublin is here to answer any queries you may have about your membership. Their expertise is based on years of knowledge gained about how to further your career, maximise your potential and what level of membership is best for you. Our dedicated membership, CPD

and professional subscription teams can be reached by phone or email. A list of contacts is printed on the back page of this guide for your quick reference throughout the year.

### Your professional body where you are

As well as our dedicated websites – [engineersireland.ie](http://engineersireland.ie) and [EngineersJournal.ie](http://EngineersJournal.ie) full of information and news for professional engineers – Engineers Ireland has a presence on the main social networks of Facebook, LinkedIn and Twitter. We use these channels to inform our followers of happenings and news relevant to the larger engineering community.

### Zeolite softening

Just one of the many terms you can search for in our extensive EBSCO technical and business database available as part of your subscription to Engineers Ireland. You can create a profile, manage, share and collaborate on research using folders and a host of useful tools. Mobile apps are also available, providing anywhere, anytime access to full-text journals, magazines, books, monographs, reports, ebooks, business book summaries and more.



#### FURTHER INFORMATION

[engineersireland.ie/groups](http://engineersireland.ie/groups)  
(news, events and contact details)

#### Quick guide to key contacts

##### If you want... here's how... contact:

- to renew: [www.engineersireland.ie/renew](http://www.engineersireland.ie/renew)  
[subscriptions@engineersireland.ie](mailto:subscriptions@engineersireland.ie) – 01 665 1320
- to apply for a professional title:  
[www.engineersireland.ie/membership/registered-title](http://www.engineersireland.ie/membership/registered-title)  
– [membership@engineersireland.ie](mailto:membership@engineersireland.ie) – 01 665 1334
- training: [www.engineersireland.ie/cpd](http://www.engineersireland.ie/cpd) –  
[cpdtraining@engineersireland.ie](mailto:cpdtraining@engineersireland.ie) – 01 665 1305
- groups: [www.engineersireland.ie/groups](http://www.engineersireland.ie/groups) –  
[sectorsupport@engineersireland.ie](mailto:sectorsupport@engineersireland.ie) – 01 665 1315
- to join: [www.engineersireland.ie/membership](http://www.engineersireland.ie/membership) –  
[membership@engineersireland.ie](mailto:membership@engineersireland.ie) – 01 665 1334
- to volunteer: [www.engineersireland.ie/membership/volunteer](http://www.engineersireland.ie/membership/volunteer) –  
[steps@engineersireland.ie](mailto:steps@engineersireland.ie) – 01 665 1340
- employment services: [www.engineersireland.ie/services](http://www.engineersireland.ie/services) –  
[employmentservices@engineersireland.ie](mailto:employmentservices@engineersireland.ie)  
– 01 665 1344
- employer accreditation: [www.engineersireland.ie/cpd](http://www.engineersireland.ie/cpd)  
– [cpdemployers@engineersireland.ie](mailto:cpdemployers@engineersireland.ie) – 01 665 1305

## Kazakhstan

# Third Asian Universities Forum: “Eurasian Diversity and Role of Universities for Sustainable Development”

Al-Farabi Kazakh National University, key partner of Kazakhstan Society of Engineering Education held the III<sup>rd</sup> Asian Universities Forum “Eurasian Diversity and Role of Universities for Sustainable Development” within the framework of the VII<sup>th</sup> Astana Economic Forum on 21-22 May, 2014 in Astana and Almaty, Kazakhstan.

The main idea of the Forum was to bring together Eurasian key players not only from academic communities but also international organizations concerned about issues of knowledge-based economy to look into insights of the current state of green economy and sustainable development.

The Forum was organized by Al-Farabi Kazakh National University in cooperation with Ministry of Education and Science of the Republic of Kazakhstan, VII Astana Economic Forum Organizing Committee, Eurasian Economic Club of Scientists, National Academy of Science of the Republic of Kazakhstan, National Academy of High School of the Republic of Kazakhstan, Seoul National University (Republic of Korea), “Springer” Science and Business Media. Furthermore, this very initiative of Al-Farabi KazNU found its support among international organizations with considerable worldwide authority such as UN, UNESCO, FEANI, International Association of Universities, Consortium of Kazakhstan Universities and Green metric World University Ranking.

The Forum served for the participants as the unique platform for intelligent dialogue sharing ideas on the new developments regarding the following issues:

- **Consolidation of scientific and educational potential of higher educational institutions in addressing main challenges of present period;**
- **Internationalization in the condition of Eurasian diversity to increase awareness and competitiveness of Asian universities in the world;**
- **The role of Universities in creating conditions for sustainable development and energetic security;**
- **Establishment of joint projects on sustainable development and modernization of higher education universities of Eurasia.**

The Rector of the Al-Farabi Kazakh National University, Prof. Galym Mutanov pointed out the significant role of universities in taking development of the country to further step “Eurasian diversity requires us to find the most appropriate ways to further improve all universities, as universities play a major role in the development of each state, mostly contributes to the formation of values, the future of the nation and society. As with all the diversity we find common values, it allows us to unite and move forward together. As one of the main activities of the University we have chosen the concept of sustainable development – the main reference point for further development of human civilization.”

This year Al-Farabi Kazakh National University has been entrusted with the mission to serve as the United Nations Academic Impact Global Hub on Sustainability. This honor both proves the greatest achievements which Al-Farabi Kazakh National University makes in the sphere of sustainable development and obliges to take on new challenges and set up higher goals. Remaining committed to its responsibilities as a Global Hub Al-Farabi Kazakh National University developed Model Plan for Sustainable Development of Universities. The project has been designed on the basis of analysis of internationally recognized practices like Talloires Declaration on Sustainability, RIO+20 Declaration, Education Program of the UNESCO on Sustainable Development, UI Green Metric World University Ranking requirements for sustainable development and the others. The Model Plan focuses on combining collaborative efforts and mobilizing intellectual potential of universities in the world to implement the Millennium Development Goals and plans for sustainable development at the university, city and country levels.

Top three inherent principles of the Model Plan cover education and research, infrastructure and environment management and green energy.



Education and research aspect of the Model Plan aims at mainstreaming sustainable development and their research into the curriculum of the university whereas the other two aspects look into university use of environmentally friendly technologies in developing its infrastructure and pooling efforts and intellectual potential of university faculty staff, researchers and students for developing and implementing innovative projects in the field of environmental protection and sustainable development while promoting culture of social responsibility.

Through implementation of Model Plan it is expected to develop joint projects and measures on assessment and solution of global and regional problems regarding pollution, drain of natural resources and environmental protection using advanced international experience on indexing and assessment of present condition of universities and their programs on sustainability.

Oh Yeon Cheon President of Seoul National University and the founder of the Asian Universities Forum noted that “this meeting held with a group of Eurasian diversity can lead to the transformation of new generation of universities to the centers for smart life: they are designed to solve a range of problems of the Millennium through the young generations’ creative potential and innovative ideas. Not by chance this meeting is taking place in Kazakhstan – a symbol of unity and diversity of people, in the country which plays a huge role in building a symbolic bridge between Asia and the Western world. World universities create value in the context of diversity and diversification. We focus on the joint development and how to render assistance in the formation of new values in the presence of two perspectives: the humanitarian personal approach to education of an individual and diversity and openness of mind in the global context. From this point of view, these two perspectives are very important for universities in different countries.”

Dirk Bochar, Secretary General of the European Federation of National Engineering Associations highlighted some of the European projects on sustainable development in which European Universities are involved. Giving examples of changes taken place at different universities of European countries regarding curriculum content and students’ attitude and approaches to sustainability issues, Mr. Bochar remarked how those changes had driven students around the continent to learn and involve themselves in practical exercises and find their own way in which they can make their voices heard and actively contribute to building a sustainable home for all. He emphasized the

role of education and innovation in ensuring sustainable development by quoting Nelson Mandela “*Education is the most powerful weapon which you can use to change the world.*”

Participants of the III Asian Universities Forum have agreed to unite their efforts with the purpose of creating effective international academic and scientific programs in the field of sustainable development and unanimously approved the Forum Resolution which says:

- to facilitate the process of transforming the universities into the centers of spreading values, information, academic and research programs on sustainable development to meet the needs of society in preparing qualified professionals in the field of environmental protection and sustainable development.
- to initiate the inclusion of sustainable development issues to the university curriculum;
- to increase the level of awareness, enhance social responsibility of the society in the field of sustainable development through ecological facilitation, that promotes mastering of a range of ecological and ethical values, norms of behavior necessary for providing sustainable development;
- to support the initiative of Al-Farabi Kazakh National University, which leads the United Nation’s Academic Impact (UNAI) Global hub on sustainability in disseminating and introducing the “Model Plan for Sustainable Development of Universities” among other universities of the world;
- to develop and implement programs for independent university performance review in the field of sustainable development by using advanced international experience on rating and assessing the current condition of the universities and their programs in developing university campuses, as GreenMetric of University of Indonesia;
- to cooperate in implementing the United Nation’s Academic Impact Program, the UN Declaration RIO+20, the UNESCO Program on the Environmental and Ecological Education, to take an active part in promoting the proposals of the present Resolution on “Model Plan for Sustainable Development of Universities” and to attract other public and international organizations in order to discuss the programs on sustainable development. To initiate active participation of the universities in discussing the Model Plan, in sharing the advanced experiences, programs and achievements in the field of sustainable development by placing the information on <http://greenbridge.kaznu.kz> virtual-communicative website.

#### FURTHER INFORMATION

<http://greenbridge.kaznu.kz>

# Netherlands

## Technology Keynote Speech



Delivered by Martin van Pernis, President of the Royal Dutch Society of Engineers on Monday, 15 September 2014

**W**e can hardly imagine a world without technology. It sounds so positive. And it is, of course. Every day we enjoy the benefits and comfort which technology has brought to our lives. Our technological systems ensure that people can live a significantly longer life while robots partly take over the duties of carers. But as is the case with every type of progress, there are certain drawbacks to these technological developments. This became quite apparent when a high-tech aircraft was shot down unscrupulously by another piece of technology. In the Middle East, an army of fanatical extremists is waging a ruthless war and sharing these horrendous acts using “new” techniques in social media. Seeing the footage of a man on a motor bike with an IS flag, which heralded the arrival of the jihadists, was sufficient to make an entire village flee.

These days, it is hard to imagine what society, at its best and worst, would be like without technology.

Technological developments continue at an ever-increasing pace. It is impossible to keep track of the number of innovations, whether the production of computer chips with more and smaller layers or of the robots that assist surgeons in performing complicated operations.

In the run up to the Opening of Parliament, a lot of attention has been paid to economic growth and employment. Technological development also plays a key role in this: our economy relies on renewal and innovation for its survival. Falling behind in this race means economic contraction and often dependence on other, often dominant, powers.

Whereas before our competitors were located here in Europe and in the United States, new players have since emerged in the global market which have caught up with or even overtaken us completely. While in the past countries like Korea, China, India, Vietnam and Brazil relied on technology that we exported, the trend has in the meantime reversed for some of them and they have become the suppliers of the latest innovations. Brands like Samsung and Huawei are no longer known as bad copies, but instead have come to epitomise extremely innovative technology and a level of quality that is comparable to that of European products.

We can only compete in this race by optimally tuning our Formula-1 technology. We will have to continue to train the best engineers and provide them with the best laboratories. We will have to show that we are world specialists by using innovations in our own country. Fortunately, we have such technologies. Things that come to mind include seed improvement, our dairy products, our shipbuilding industry, our water management systems, our radiation equipment and much more.

**“Technological development also plays a key role in this: our economy relies on renewal and innovation for its survival. Falling behind in this race means economic contraction and often dependence on other, often dominant, powers.”**

At the same time, however, we will need to be capable of developing new technology and products. We need companies of all sizes for this, but in particular we need people who have had proper training and who are capable of contributing to this with the knowledge available to them. Investing in the future consequently means first investing in the training of people, especially in those disciplines and industries in which the Netherlands excels and with which we can earn a living.

We know that major shortages of technicians will arise at all levels from intermediate vocational education onwards. Now and then we tend to let ourselves be lulled to sleep by the economic crisis and increased unemployment. I regularly see and hear people claim that the problem is not as bad as we think or even that it simply does not exist. This, dear people, is just a temporary perception and the shortages will inevitably occur. We therefore already have to promote an interest in technology and the amazing opportunities offered by technological studies among very young children. Parents and educators also play

an important role in this framework. Technology needs to become hot: I don't just mean the products that are produced with technology, but also the knowledge needed to create these products and their impact on our society. We need to ensure that people are already aware from a young age where their future lies. That is where we must use our power of innovation to tackle major societal challenges, where we must develop products and services that meet the greatest needs. From January 2016 onwards the Dutch government has a tremendous opportunity, in the framework of the EU Presidency, to make its mark and put STEM education, or education in Science, Technology, Engineering and Mathematics, on the agenda at European level. We also need to be proud about those who spend their days, having completed their technological studies, developing a multitude of products and services that help define our enjoyment of life. We need to take pride in the recognition of their work and the rewards it generates.

Many more major initiatives need to be developed. Large projects which appeal to people, but also require the utmost of the technicians executing them. The Delta Works and other water projects have led to a major development of specific knowledge in the past, which we have benefited from and will continue to benefit from for several decades. Nowadays, obviously, there are similar projects, such as the JSF and the Second Maas Plain. The Netherlands' effort as a model country for autonomous driving, as announced by Minister Schultz, is also an excellent example. But new initiatives will have to be jointly developed by the business community, knowledge institutions and governments.

Such partnerships have already emerged in Eindhoven, Twente and Groningen. A building campus is currently being developed in Delft as well as several initiatives in Limburg. But things will have to move even faster and be more convincing.

In those disciplines in which we have developed knowledge we have to better convert this knowledge into excellent economic performance. The Netherlands was at the cradle of the fastest and largest data connections. While Bluetooth and Wi-Fi were originally developed in our country, the economic success often happened elsewhere.

In recent decades, technology standards have become open. Developments by one party are the cornerstone of developments for someone else. The number and complexity has simply become overwhelming for some companies. Now that we realise the negative consequences of this we are truly justified in wondering whether closed innovations would be better. However, answering this question affirmatively means without a doubt slowing down the pace of innovation. The question also remains whether it isn't too late already. The standards on almost all continents, excepting parts of Africa, are comparable. In my opinion, this is not the way forward. I think the solution lies in faster innovations and sufficient focus.

The second question that arises is how much energy is needed to achieve this. We have chosen to no longer focus on an autonomous energy supply. After all, there are also advantages to depending on each other. I am therefore convinced that the

combination of Russian energy and Western European technology must provide an opportunity for achieving stability in Europe.

A boycott, which results in disadvantages on both sides, does not seem like the best way forward. Russia is very dependent on Western technology and this may help lead to a set of agreements whereby Russia reviews its policy of dominance and restores a vital sense of peace throughout Europe. Obviously, goodwill on either side of the table is vital in this framework.

In spite of this, we must also review our own alternatives as we have become too dependent on unilateral sources. That is why it was a good initiative to bundle all the energy research, even before flight MH17 was shot down, in the Netherlands Energy Research Alliance (NERA). Our advice to the government is to significantly increase its available budget. We will also have to examine all the energy supply alternatives, highlighting the risks and possibilities, and then make a responsible choice. It would be short-sighted and senseless to automatically exclude alternatives without first studying them.

US Senator McCain even indicated that in three years' time his country will be able to source a large part of its energy supply domestically. The question here is whether this is realistic, or actually even desirable.

As you know, every year KIVI organises a major convention where current issues are discussed in more detail based on presentations and research results. In the past years topics have included the energy supply, rare earth metals, technology in health care and sustainable mobility. This year's theme is City in the Delta. As a result of the global migration to the big cities and progressive climate change, the mega cities, which are often built in river deltas, are incurring major problems. In the course of the centuries, the Netherlands have learned to make the urban delta eminently viable by developing expertise in the field of water management, land reclamation, spatial planning, food production, hygiene and so on. On almost all continents coastal cities that are significantly bigger than our small country suddenly face several questions. Just think of cities like Mumbai, Jakarta and Shanghai, as well as countries like the Philippines and Bangladesh. They call on Dutch expertise. At the same time, the management of the city in the delta also requires an innovative approach. Climate change and the associated more extreme weather conditions also result in new requirements in terms of water management. The growing global population is hoping for new food production methods. The digital revolution provides tools which only require us to discover all the opportunities for a city, for example in terms of safety.

Transport and transportation in the city still pose a great challenge for us, and this also applies to the way in which a city can sustainably provide for its own energy and raw materials and convert what we currently consider waste flows into new resources. There are a huge number of projects in the pipeline for the city in the delta.

**“The Netherlands have a significant amount of knowledge and some excellent engineers, but we need to do more to maintain as well as improve our position.”**

The Netherlands, Dutch companies, knowledge institutions, engineering firms, food specialists and many others have a lot to offer here. We must join forces even more to turn this knowledge into an economic success. In many cases, the only competition our Dutch companies have is from other Dutch companies. Together, we can also cope better with the foreign competition in this area.

The theme was prepared in the course of the past year by a working group, along with the input of many of our members. During the Annual Convention several practical proposals for improvement or optimisation will be made. Kindly save the date: 12 November in Delft.

There has been a lot of talk about care recently. Significant cost cuts, the transfer of tasks from the national to the local level, the return of informal care and selective care purchases by insurers. For the first time in decades we have to contend with the actual impact of the cost of care. And naturally the review of these costs is also considered an infringement of acquired rights. On a positive note, however, here too technology is often considered as a possible replacement of personal care, often with better monitoring and treatment as a result. Technology can improve care and make it more personal. Medical apps are growing tremendously, allowing the care consumer to establish a specific and better diagnosis faster. The sector is emphatically resisting the use of many of these digital resources. However, the specialists and nurses have no choice but to take this step, or there is a genuine risk that care will no longer be properly supervised. Our technical health care training programmes are an amazing initiative, and more attention needs to be focused on them as a way of generating interest among prospective students. There is a reason why Karianne Lindenhovius, Innovation Manager at Pontes Medical at UMC Utrecht, won the title of Engineer of the Year this year. She puts care professionals into contact with companies and new technological care products are developed, validated and put on the market under her supervision. Our own senior board member Michaël Landsbergen was designated Engineer of the Year two years ago. As the co-director of a large hospital he introduced the combination of care and technology to colleagues with a purely medical background.

When transferring care tasks from the national to the local level, a lot of problems arise due to a lack of knowledge about this modern type of approach. As a result, we will have to make certain that city administrators also understand and familiarise

themselves with the opportunities that technological resources can present for this specific type of care. We will also make an effort to do this with our association, KIVI, by inviting municipal services for presentations on this subject.

In the scientific field, we support the vision of 3TU.Federation, the collaboration of the Universities of Technology in Delft, Eindhoven and Twente, based on the government's science vision for the Netherlands. The key premise of this is that we must be capable of conducting technological and scientific research well before the fruits of this knowledge have been transposed into economic value. Only a broad spectrum of early scientific research will serve as a good basis for more practical research through which we can provide new opportunities to the industry. Yet this cannot be achieved without European cooperation. We therefore need to attain a scientific level such that it allows us to become full-fledged partners of other European research institutions.

The threefold approach as suggested by the association:

- science for science,
- science for social issues, and
- science for a competitive economy,

offers a good structure that ties in well with the Horizon 2020 objectives.

These initiatives, however, can only be successful if the universities are sufficiently free to determine their own programmes and can be guided by developments in technology, in society and in close consultation with fellow universities, knowledge institutions and the business community. The government will specifically have to indicate which social problems require a solution and in which areas and niches the Netherlands must have a solid research position. KIVI and the TUs will gladly contribute to achieving the latter to ensure responsible choices.

The examples of strategic themes are known, and I have already mentioned them: the metropolitan issues, energy supply, safe and healthy food, security, health and reuse. If we look at the research areas then the examples are robotics, cyber security, materials science, computer and data knowledge, biotechnology and nuclear knowledge.

The Netherlands have a significant amount of knowledge and some excellent engineers, but we need to do more to maintain as well as improve our position. This requires focus, efforts, research and funding. It also requires a government that behaves like a launch customer because if you cannot show that something really works in your own country you can just as well forget about launching it abroad. We need to shift towards a mindset that really means we want to make a difference.

KIVI is therefore concentrating heavily on the certification of engineers based on their training and work experience. Chartered Engineer, which already is quite normal in other professions, will help clarify the qualification of engineers and provide better access to the international market. KIVI has partnered with the European engineering organisation FEANI and the organisation of English Chartered Engineers to take the



lead. The Society is working hard on this along with the educational institutions, the business community, engineering firms and sister organisations.

Let me end with some comments on a few recent observations. Much has been made of the top-performing sectors. The comment that we were selling new wine in old bottles, and for much less money, undoubtedly rings true. Also, not all the sectors and underlying TKIs have been successful to date.

Yet a more balanced funding model between the government and the business community emerged from this, which can ensure that a number of important areas will be able to develop faster.

I am, however, concerned about a number of recent studies, such as the Ecorys one, which indicates that the share of the manufacturing industry in our exports has dropped in favour of the export of knowledge. While I don't think that the figures are lying, I feel that the conclusions are rather too simplistic. Without a manufacturing industry we lack sufficient knowledge creation, and without knowledge there is no manufacturing industry. The human component in both forms of export varies greatly, but if we want to maintain a society in our country that provides employment opportunities for many, which is the cornerstone of prosperity, then the manufacturing industry and the knowledge industry will have to work together to increase our overall export figures. Hans de Boer, the new chairman of VNO-NCW, was absolutely right: we need to get out there. We need to export everything we have in terms of products and knowledge much more, under good conditions.

Our engineers are an important factor in this story, and together we will work hard to make certain that they are up to the challenge.



# Netherlands/United Kingdom Chartered Engineers and Incorporated Engineers



Mrs Micaela dos Ramos (Director KIVI, NL) and Mr Jon Prichard (CEO Engineering Council, UK)

## 1. What is it?

- **A**n internationally recognized qualification given by the work field, through which an engineer proves to be developing continuously in his field of profession and to strive for excellence. The professional qualification provides an environment that enables quality and excellence during his or her career.
- The innovative strength of a company is increased by Chartered (CEng) and Incorporated (IEng) Engineers. External knowledge sharing is being combined with internal development paths.
- The professional qualification can be attained when the engineer has over four years of experience in his or her profession and after successfully completing the exam. When the registration is completed the engineer has to stay sufficiently active in the field of expertise, remain on top of his/her profession and thoroughly connected to the societal context to maintain the CEng or IEng title. This will be tracked in a scoring system.
- Panels within the professions identify the key elements and developments.
- The process for professional qualification as a Chartered or Incorporated Engineer is voluntary.
- For an Incorporated Engineer it is possible to eventually qualify as a Chartered Engineer.

## 2. Why is it important?

- A new generation of knowledge communities is being created where, next to knowledge sharing, there is reflective learning, peer review and continued professional development.
- All parties within the profession, i.e. engineers, businesses, universities and research centers are interacting both on national and international level. This creates an innovative learning society with an international quality standard.
- It helps to ensure the development of the engineering profession, with a deep connection to society.

## 3. What does the qualification bring for the Chartered or Incorporated Engineer?

- A professional quality standard;
- Participation in an international knowledge community;
- An opportunity to stand out and distinguish themselves;
- Reputational gain
- Access to interesting projects and better jobs.

## 4. What does it mean for the engineering profession?

- A CEng or IEng has a proven technical track record, which will guarantee that the engineer has “overview and continuity” within the profession.
- A professional qualification as CEng or IEng is proof that the engineer is continuously and at a high level engaged with personal and professional development, in collaboration with others inside and outside the field of profession.
- The system provides engineers with the opportunity to obtain knowledge from outside their own field of profession and to discuss and develop their knowledge within the community of the integrated profession.

## 5. What does it mean for companies?

- The company’s internal development paths are strengthened by external knowledge sharing within the knowledge communities. This creates an additional dimension to the internal development paths. This way Chartered and Incorporated Engineers increase the innovative strength of a company.
- Companies operating in different parts of the world have a way to internationally synchronize their internal qualification system and development paths.
- Companies can profile themselves as having an internationally recognized quality standard and that their employees can obtain an internationally recognized qualification. Companies can attract the best people and have a competitive advantage with clients, because they can demonstrate that they work with the best people in their profession.

- It provides a recognized quality level for employees and professional partners.
- In a growing number of countries the professional qualification is required or gives advantages for acquiring high level projects.

## 6. What does it mean for universities and knowledge institutes?

- Universities and knowledge institutes are able to maintain contacts with technological companies within the knowledge communities, and make a direct link with the needs of companies, engineers and society.
- Participating in the chartered engineers structure will spark new alumni activities for universities: the alumni have a strong substantial reason to return to their own university or take a course at another university. It provides a structural market increase for post-university education.
- Through the interaction with companies within the knowledge communities, universities receive input on the needs for post-university education, as well as improve their understanding of what knowledge, skills and competences should be provided and trained during the bachelor and master programs.
- Enables universities to continue to promote excellence amongst engineers.

## 7. What does it mean internationally?

- The professional qualification system of Chartered or Incorporated Engineers originated from the UK and is recognized by the member countries of the Commonwealth, by a host of countries outside the Commonwealth through several international agreements, in the Middle-East, Asia and in some South American countries.
- Several European countries are looking into introducing the system.

## 8. Who are our partners?

- The Engineering Council from the UK is our primary partner. They help shape our processes and will grant accreditation.
- The technical research universities and universities of applied sciences, the technological research institutions and a number of companies are the Dutch knowledge partners that will be involved in the implementation process.
- The foreign accredited institutes within the Chartered Engineers structure, several foreign engineers associations and FEANI, the European engineers organization, are our international knowledge partners.

# United Kingdom Continually Improving Professional Engineering Standards

To celebrate revisions to the UK professional engineering standards and the role that they play in delivering value to the economy, a number of guests from government, employers, professional engineering institutions, academia and trade associations attended a House of Commons reception on 20 May 2014, hosted by Sir Peter Luff MP.

The event marked the tenth anniversary of the UK Standard for Professional Engineering Competence (UK-SPEC) and the launch of the three revised Standards documents, UK-SPEC, the ICTTech Standard and the Accreditation of Higher Education Programmes (AHEP).

The standards set and maintained by the Engineering Council, through partnership and collaboration with professionals representing all of the engineering disciplines, are central to meeting the challenges faced by the UK in delivering security, prosperity and wellbeing for future generations.

In order to do this well, appropriate professional standards of knowledge, skill and personal commitment must be met and maintained right across the profession. Standards documents provide a common framework that ensures consistency across the different fields of engineering.

## UK-SPEC

UK-SPEC was initially launched in 2003. Since its introduction the Standard has enjoyed support across the professional engineering community, including employers and academia. Professor Isobel Pollock CEng FIMechE, Chair of the UK-SPEC Review Steering Group says: "The third edition builds on the strengths of the original and adheres to its fundamental principles and aims. It presents Engineering Technician (EngTech), Incorporated Engineer (IEng) and Chartered Engineer (CEng), as part of a progressive registration structure. It also stresses the value placed on every engineer and technician, no matter what their title, who each have an important and unique role to play in every engineering project or organisation."

The move towards recognition of the progressive nature of role competence within the workplace, started at the last review in 2008/9, has been further enhanced and this is reflected in a new annex to the Standard, which summarises the competences for EngTech, IEng and CEng, side by side. This also helps

to address the main issue that emerged – the need for greater clarity between Incorporated Engineer (IEng) and Chartered Engineer (CEng) competences.

Two key changes to UK-SPEC are to enhance the emphasis on the 'commitment' element of the registration requirement and the inclusion of a requirement for registrants to exercise their responsibilities in an ethical manner. New topics have been included, such as security, equality and diversity. More explicit cross references have been made to the CPD Code for Registrants, the CPD Policy Statement and Engineering Council guidance material, and a glossary has been provided.

## ICTTech Standard

The ICTTech Standard was first launched in early 2009, making this its first review. Chair of the ICTTech Standard Review Steering Group, Paul Excell CEng FBCS FIET, says: "The revisions are designed to make the Standard more accessible, relevant and attractive to the wide range of professional technician roles in the ICT sector. Given the exciting range of roles, work environments and technologies that ICT Technicians can be involved in, and the dynamic nature of the industry, the



The three Standards Documents: UK-SPEC, Accreditation of Higher Education Programmes and the ICTTechStandard



Sir Peter Luff MP launching the Engineering Council's revised Standards documents

Standard includes significant updates on relevant competences and professional development. It has also been closely aligned to UK-SPEC, with the same additions as described above.”

With regard to how UK-SPEC and the *ICTTech* Standard are used by professional engineering institutions, individuals and organisations, Jon Prichard, CEng FICE FInstRE, CEO of the Engineering Council says: “As a generic standard for the diverse profession we work in, UK-SPEC and the *ICTTech* Standard are designed to provide a threshold standard, which individuals may exceed, if not at the time of registration, then as their career develops. In addition, each institution is able to add its own interpretation, based on its distinct set of requirements.”

## AHEP

Accreditation of an engineering programme provides an important mark of assurance that the degree meets the high standards set by the engineering profession and is, therefore, of benefit to potential students, universities and employers.

Graduates from an accredited degree programme are recognised as having achieved part or all of the underpinning knowledge for professional registration as an Incorporated Engineer (IEng) or Chartered Engineer (CEng), which they can apply for once they have developed further skills and competences in the workplace.

First published in 2004, AHEP has been developed, and subsequently reviewed on a five yearly basis, in consultation with the profession and employers, both in the UK and internationally.

The latest updated version does not introduce any significant changes to the required overall standard for the award of accredited degree status and remains rooted in the UK Standard for Professional Engineering Competence (UK-SPEC).

Key changes, that have principally been designed to make the document even easier to use, include a re-ordering of the content and clarifying the differences between the accredited degree types. The main body now comprises four discrete sets of learning outcomes, one for each type of degree, prefaced by a description of the type of degree and its graduates. Topics that have come to the fore since the previous review, such as ethics, risk and intellectual property have been strengthened. What were previously termed ‘general learning outcomes’, sometimes known as transferable skills, have mostly been incorporated into the technical engineering outcomes, particularly for engineering design, to confirm their importance in the development of employable graduates.

Rob Best, CEng FICHEM and Chair of the AHEP Review Steering Group said: “Based on responses to the consultations that we carried out, it was clear that the previous version of AHEP was strongly supported, so we avoided making unnecessary changes. We are confident that universities and professional engineering institutions will welcome this, the third edition, and will find it easy to use as they develop the engineering degree programmes that will take us further into the 21<sup>st</sup> century.”

### FURTHER INFORMATION

The Engineering Council Standards documents can be downloaded from:

UK-SPEC: [/ukspec.aspx](#)

*ICTTech* Standard: [/professional-registration/standards/icctech-standard](#)

AHEP: [www.engc.org.uk/ahep](http://www.engc.org.uk/ahep)

# United Kingdom Ethical Engineering

The UK's Royal Academy of Engineering has published a new eBook: 'Engineering in Society' aims to equip first year students with a wider perspective on the profession of engineering. It provides an idea of what their future career might look like and an insight into the roles and responsibilities of an engineer.

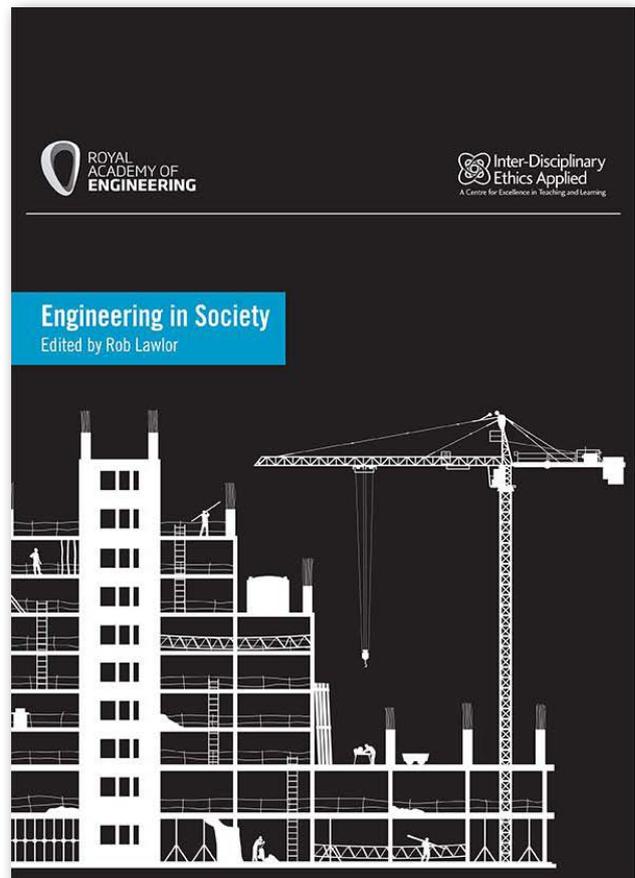
The eBook will help readers to gain a better understanding as to why a degree in engineering is not limited to the technical aspects alone, and why assessment may include report writing, group work and presentations.

Experience shows that students who have an appreciation of the wider skills required will engage more willingly in the full spectrum of the engineering curriculum. Undergraduates tend to under-estimate the importance of communication and negotiation, the amount of responsibility they are likely to have, and the extent to which they will need to use their own judgement.

Written by academics and practising engineers, *Engineering in Society* has been produced by the Royal Academy of Engineering and the University of Leeds' Centre for Inter-Disciplinary Applied Ethics (IDEA), supported by the ICE, IET, IChemE, IOM3, IMechE and the Engineering Council.

The eBook is available as a free pdf download from the RAEng website: [www.raeng.org.uk/engsoc](http://www.raeng.org.uk/engsoc) or can be purchased from Amazon.

*Engineering in Society* complements the Statement of Ethical Principles, produced by the Engineering Council with the Royal Academy of Engineering and a number of professional engineering institutions. The *Statement of Ethical Principles* sets a standard to which members of the engineering profession should aspire in their working habits and relationships. It guides them in meeting the UK-Standard for Professional Engineering Competence (UK-SPEC) requirement to exercise responsibilities in an ethical manner. The values on which it is based should apply in every situation in which professional engineers and technicians exercise their judgement. The leaflet can be found at <http://www.engc.org.uk/engcdocuments/internet/Website/Statement%20of%20Ethical%20Principles.pdf>



The new eBook: 'Engineering in Society'

#### FURTHER INFORMATION

**eBook:** [www.raeng.org.uk/engsoc](http://www.raeng.org.uk/engsoc)

**Leaflet:** [www.engc.org.uk/engcdocuments/internet/Website/Statement%20of%20Ethical%20Principles.pdf](http://www.engc.org.uk/engcdocuments/internet/Website/Statement%20of%20Ethical%20Principles.pdf)

# The Innovation Principle

European Risk Forum October 2013



“The Innovation Principle”, letter to the Presidents of the European Commission, the Europe Council, and the European Parliament



## Key Recommendations

1. Establish a formal regulatory policy framework to support innovation in Europe based on the principles of:
  - science based risk assessment and management
  - balance and proportionality together with precaution
  - reduction of regulatory burdens in line with the conclusions of the May 2013 *Competitiveness Council*
  - full inclusion of relevant expertise
  - transparency of information and evaluation processes
  - protection of commercially confidential information
2. Initiate an in-depth review of the effectiveness or otherwise of existing regulatory processes in supporting innovation
3. Amend the Commission's Impact Assessment guidelines to require formal evaluation of the impact on innovation and new technology development of new or amended legislation, regulation or administrative decisions
4. Revise the Commission's Impact Assessment guidelines to include specific methodologies for:
  - evaluation of the complex costs and benefits of advanced technological development
  - assessment of the impact of proposed regulation on product development economics and product de-selection
5. Develop formal regulatory process management standards for the use of science in legislative and regulatory decision-making and establish clear accountability within the European Commission for the development, use and continuous improvement of such standards
6. Require the obligatory ex-post evaluation of the effectiveness of risk management legislation, regulation or administrative decisions in addressing the issue originally identified as causing concern and provide for the amendment/reversal of such measures where:
  - new evidence becomes available to demonstrate an acceptable balance of risks
  - ex-post evaluation demonstrates no material impact on the issue originally identified as giving rise to concern
7. Provide a formal power for the Chief Scientist of the European Commission to review the use of scientific evidence in risk management legislation, regulation or administrative decision and to require further scientific assessment where appropriate

# Innovation Principle Q&A

Questions	Answers
<b>What do you mean with innovation?</b>	Innovation is the process of translating discoveries and ideas into technologies, processes, products and services and bringing these to market so that they can benefit society. As such, it is vital for consumers, citizens and companies of all types and investors in all sectors.
<b>Why is innovation so important?</b>	Innovation is the single most important driver of societal prosperity and is indispensable for sustainable development and economic growth. Without innovation European industry will lose competitive advantage and attractiveness for investment and steadily fall behind other economies.
<b>Why do you address innovation at the EU level?</b>	Prosperity concerns the life of everybody and is a common good. To achieve it, investors, managers, and entrepreneurs need to be innovative and take business risks. Governments can play an important role by supporting a business environment that encourages innovation. In Europe, such "enabling conditions" are mainly shaped and guaranteed through EU policies.
<b>Why is the Innovation Principle necessary?</b>	Innovation has been and remains a high priority for the EU, however the focus has generally been more on funding than the regulatory environment. Nevertheless, over the past two decades, the EU institutions have put in place important and far-reaching risk assessment and risk management functions. The Innovation Principle proposes to continue this development by establishing a new and positive policy-making framework in support of innovation. It seeks to balance a reliance on hazard based regulatory approaches, geared to removing or avoiding unknown risks, with encouragement of innovation as an equally important objective for the EU.
<b>Why so much emphasis on risk? Should safety not be the main objective?</b>	Safety and security are essential elements of prosperity. Nonetheless, without risk we would not have progress in areas such as transport, telecommunications or medicine. There is no innovation without risk and these risks need to be accepted, understood and managed if society is to reap the benefits & Europe is to be technologically competitive.
<b>Is the Innovation Principle intended to undermine or attack the Precautionary Principle?</b>	No. The Precautionary Principle is important and there for a purpose. The Innovation Principle is intended to create a positive framework for European innovation, providing a way to balance precaution and innovation for wider social benefit. Without such a balance, innovation and progress will suffer, with no demonstrable benefit for human health or the environment.
<b>Isn't this just another case of industry lobbying for innovation, without regard for human or environmental safety?</b>	The Innovation Principle is intended to support social progress and economic prosperity through encouraging innovation. Seen in this way, it's in everyone's benefit. Where there is real danger and unacceptable risk, precautionary considerations should be uppermost. The Innovation Principle does not set out to support innovation irrespective of its impact on health or the environment. It seeks to support an evidence-based approach, relying on scientific excellence, which is accountable, proportionate, balanced and reviewable.
<b>Who is behind the Innovation Principle?</b>	The Innovation Principle was conceived and developed by members of the European Risk Forum.
<b>What is the European Risk Forum?</b>	The European Risk Forum (ERF) is an expert-led, not-for-profit think tank, which promotes high-quality risk assessment and risk management decisions by the EU institutions and raises awareness of risk management issues at the EU level. The ERF pursues a strict cross-sectoral ("horizontal") approach in its promotion of good principle and practices for risk governance, and does not advocate for any individual industry or product. Further information on the ERF is available on its web site: <a href="http://www.riskforum.eu">www.riskforum.eu</a> .
<b>Why is the Innovation Principle not more specific?</b>	The ERF letter to the three EU Presidents, which was signed by twelve CEOs of leading innovative companies from a range of different industrial sectors, aims to initiate a process of support and encouragement for innovation. The letter and attached recommendations mark the start of a process, and not the end of one. It will take time, effort and vision to establish the Innovation Principle as a European policy framework, and stakeholders, experts and policy makers are encouraged to contribute to this process.
<b>Writing a letter to Presidents of the EU institutions is a good start, but won't the Innovation Principle just be forgotten after the Summit?</b>	Yes indeed. The Innovation Principle letter to the three EU Presidents alone will not of itself accomplish the objective. The ERF and its member organizations are committed to build on this initiative, and include other stakeholder, to give the Innovation Principle the momentum it needs to have a positive impact on EU policy making.

Questions	Answers
<b>Which companies signed the letter?</b>	The CEOs of the following companies have signed the letter: BASF, Bayer AG, Curis, The Dow Chemical Company, Dow AgroSciences, Dow Corning, Henkel, IBM, Novartis, Philips, Solvay and Syngenta. Other leading innovative companies from a range of industrial sectors have also indicated their support for the initiative and an interest to participate in the ongoing process of establishing it as a corner stone of EU policy.
<b>Why didn't more company CEOs sign the letter?</b>	With limited time before the EU Council's Innovation Summit, which will start on 24 October, it was important to move forward with this initial strong body of support for the Innovation Principle, before the summit. With this impressive start, the ERF is confident that other companies and sectors will contribute to the ongoing process of establishing the Innovation Principle in EU Policy.
<b>Which industrial sectors are represented by the CEOs who signed the letter to the three EU Presidents?</b>	CEOs representing the chemicals, pharmaceuticals, nutrition, materials, consumer products, electronics, biotechnology, crop protection and agricultural sciences sectors signed the letter.
<b>How can I learn more about this initiative? How can I signal my interest to participate?</b>	The European Risk Forum is coordinating the initiative. You can contact the ERF Secretary General, Dirk Hudig, at <a href="mailto:dhudig@riskforum.eu">dhudig@riskforum.eu</a> It may also be useful to liaise directly with peers at companies already participating in the initiative.

## European Risk Forum

The European Risk Forum (ERF) is an expert-led and not-for-profit think tank with the aim of promoting high quality risk assessment and risk management decisions by the EU institutions, and raising the awareness of the risk management issues at EU-level.

In order to achieve this, the Forum applies the expertise of a well-established network of experts to 'horizontal', cross-sectoral issues. In particular, it addresses regulatory decision-making structures, tools and processes, as well as the risks and benefits of new and emerging technologies, of climate change, and of lifestyle choices.

The Forum believes that:

- High quality risk management decisions should take place within a structured framework that emphasises a rigorous and comprehensive understanding of the need for public policy action (risk assessment), and a transparent assessment of the workability, effectiveness, cost, benefits, and legitimacy of different policy options (risk management).
- Risk management decision-making processes should ensure that outcomes are capable of meeting agreed social objectives in a proportionate manner;
- Risk management decisions should minimise negative, unintended consequences (such as new, unintended risks, economic losses, reduced personal freedoms, or restrictions on consumer choice);
- The way in which risk management decisions are made should be structured, consistent, non-discriminatory, predictable, open, transparent, evidence-based, legitimate, accountable, and, over time, subject to review.

Achieving these goals is, the Forum believes, likely to require extensive use of evidence (especially science); rigorous definition of policy objectives; clear and comprehensive description and assessment of problems and their underlying causes; realistic understanding of the costs and benefits of policy options; and, extensive consultation.

The Forum works with all of the EU's institutions to promote ideas and debate. Original research is produced and is made widely available to opinion-formers and policy-makers at EU-level. As an expert group, the Forum brings together multiple sources of evidence (such as the experience of practitioners and policy-makers; non-EU good practices; and academic research) to assess issues and to identify new ideas. Indeed, direct engagement with opinion-formers and policy-makers, using an extensive programme of conferences, lunches, and roundtables, is a feature of the Forum's work.

The ERF is supported principally by the private sector. The ERF does not seek to promote any specific set of values, ideologies, or interests. Instead it considers high quality risk assessment and risk management decisions as being in the public interest. An advisory group of leading academics supports the ERF's work.

### FURTHER INFORMATION

Visit [www.riskforum.eu](http://www.riskforum.eu) or contact:

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European Risk Forum  
Tel: +32 (0)2 613 28 28 – [dirk.hudig@riskforum.eu](mailto:dirk.hudig@riskforum.eu)



# What is Europe 2020?

Background: the Europe 2020 strategy was launched in 2010, against the background of an unprecedented crisis.

It sets out a vision for smart, sustainable and inclusive growth for Europe by 2020, based on five headline targets:

- To have at least 75% of people aged 20-64 in employment by 2020;
- To invest 3% of GDP in research and development by 2020;
- To cut greenhouse gas emissions by at least 20%, increase the share of renewables to 20% and improve energy efficiency by 20% by 2020;
- To reduce school drop-out rates to below 10% and increase the share of young people with a third-level degree or diploma to at least 40% by 2020;
- To ensure that 20 million fewer people are at risk of poverty or social exclusion by 2020.

Progress on the Europe 2020 strategy is monitored during the European Semester, the EU's calendar for coordinating economic, budgetary and social policies. The objectives of the strategy are embedded in the various steps of the European Semester, and are integrated in its priorities and in the country-specific recommendations addressed to Member States each spring.

Europe 2020 is supported by the single market, the multiannual financial framework and the EU's trade agenda. In addition, it has been buttressed by seven "flagship initiatives", which are projects in areas that are important engines for growth: A "Digital agenda for Europe", the "Innovation Union", "Youth on the move", a "Resource efficient Europe", "An industrial policy for the globalisation era", an "Agenda for new skills and jobs" and the "European platform against poverty".

The strategy was conceived as a partnership between the EU and its Member States, and its success depends on the commitment and involvement of national governments, parliaments, local and regional authorities, social partners, stakeholders and civil society. That is why it is crucial to get the views of all of those involved in the implementation of the strategy, and learn from their experiences and best practices.

**"(...) its success depends on the commitment and involvement of national governments, parliaments, local and regional authorities, social partners, stakeholders and civil society."**

# Europe 2020 Education Indicators in the EU28 in 2013

“Share of young adults having completed tertiary education up to 37%”

## Share of early leavers from education and training down to 12%

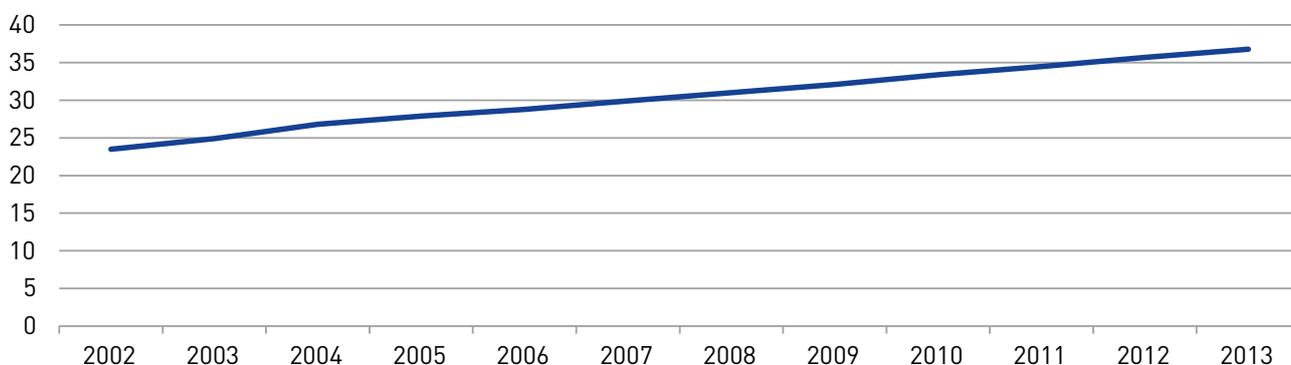
There has been a steady increase in the share of persons aged 30 to 34 in the EU28 who have completed tertiary education, from 24% in 2002, when the series started, to 37% in 2013. The Europe 2020 strategy's<sup>1</sup> target is to increase the proportion of persons having completed tertiary education to at least 40% of the EU28 population in this age group by 2020.

For early school leavers (persons aged 18-24 who had at most lower secondary education and were currently not in further education or training) in the EU28, there has been a steady de-

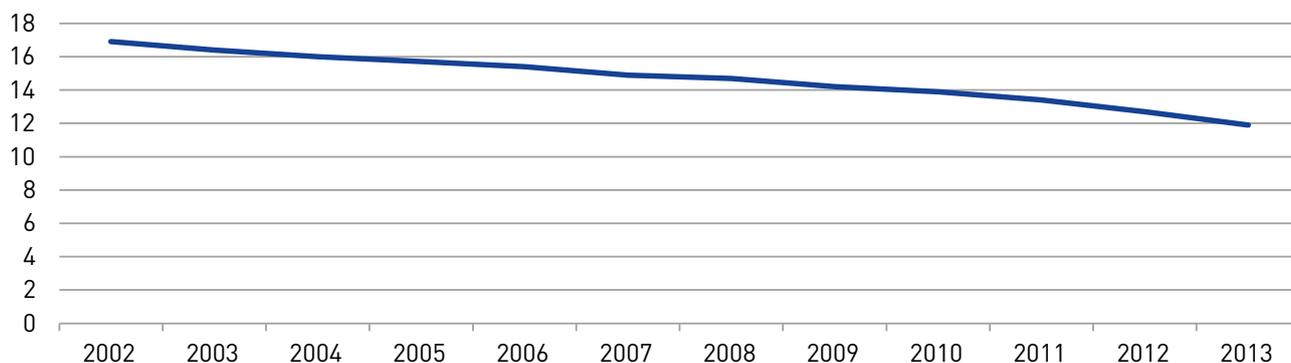
crease, from 17% in 2002 to 12% in 2013. The Europe 2020 target is to reduce the share of early leavers from education and training to below 10% of the EU28 population in this age group by 2020.

Improving the EU's performance in education is one of the key objectives of the Europe 2020 strategy. Today, Eurostat, the statistical office of the European Union, publishes the most recent data for the EU and Member States on achievement against the targets set under this objective.

Share of population aged 30 to 34 in the EU28 having completed tertiary education



Share of early leavers from education and training in the EU28



### Highest proportion of those aged 30-34 who completed tertiary education in Ireland, Luxembourg and Lithuania

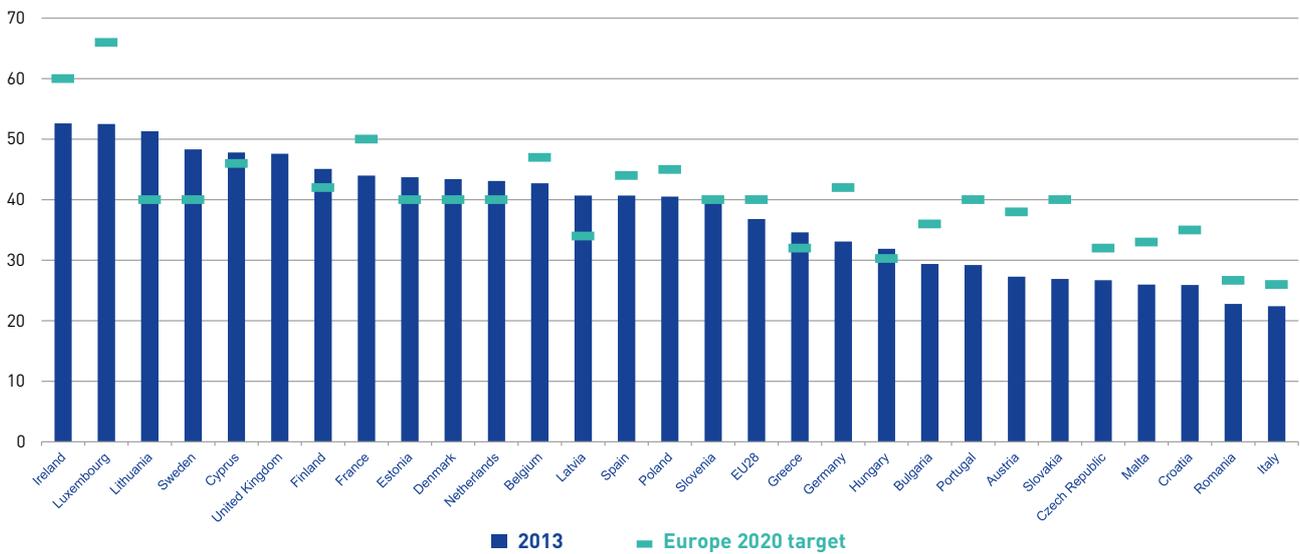
In 2013, the proportion of those aged 30 to 34 who had completed tertiary education increased compared with 2002 in all Member States. The proportion more than doubled in ten Member States: Poland (from 14.4% in 2002 to 40.5% in 2013), Malta (from 9.3% to 26.0%), Slovakia (from 10.5% to 26.9%), Romania (from 9.1% to 22.8%), Latvia (from 17.3% to 40.7%), Portugal (from 13.0% to 29.2%), Luxembourg (from 23.6% to 52.5%), Hungary (from 14.4% to 31.9%), Lithuania (from 23.4% to 51.3%) and the Czech Republic (from 12.6% to 26.7%).

In 2013, the highest proportions of those aged 30 to 34 having completed tertiary education were observed in Ireland (52.6%), Luxembourg (52.5%), Lithuania (51.3%), Sweden (48.3%), Cyprus (47.8%) and the United Kingdom (47.6%), and the lowest in Italy (22.4%), Romania (22.8%), Croatia (25.9%) and Malta (26.0%).

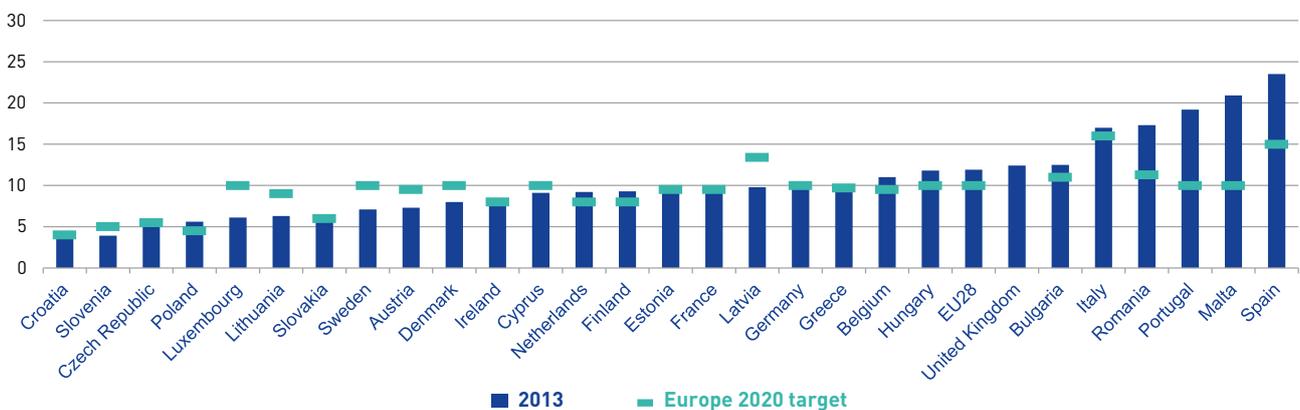
Eleven Member States have already met or exceeded their 2020 national targets for this indicator (Denmark, Estonia, Greece, Cyprus, Latvia, Lithuania, Hungary, the Netherlands, Slovenia, Finland and Sweden).

No national target for the United Kingdom. The national target for Germany includes post-secondary non-tertiary education (International Standard Classification of Education 1997 (ISCED97 4) and for Austria post-secondary non-tertiary education with programmes designed to provide direct access to first stage of tertiary education (ISCED97 4A).

Share of population aged 30 to 34 having completed tertiary education



Share of early leavers from education and training (no national target for the United Kingdom)



## Lowest shares of early leavers from education and training in Croatia, Slovenia and the Czech Republic

In 2013, the proportion of early leavers from education and training (population aged 18-24 who had at most lower secondary education and were currently not in further education or training) decreased compared with 2005 in all Member States, except Poland and Slovakia. The proportion halved in Portugal (from 38.8% to 19.2%) and Cyprus (from 18.2% to 9.1%).

In 2013, the lowest proportions of early school leavers observed in Croatia (3.7%), Slovenia (3.9%), the Czech Republic (5.4%) and Poland (5.6%), and the highest in Spain (23.5%), Malta (20.9%) and Portugal (19.2%). Eleven Member States have already fulfilled their 2020 national targets for this indicator (the Czech Republic, Denmark, Germany, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Austria, Slovenia and Sweden).

Tertiary educational attainment (% of those aged 30 to 34 having successfully completed tertiary education\*)

	2002	2007	2012	2013	2013 Men	2013 Women	Headline target
<b>EU28</b>	<b>23.5</b>	<b>29.9</b>	<b>35.7</b>	<b>36.8</b>	<b>32.6</b>	<b>41.0</b>	<b>40.0</b>
<b>Belgium</b>	35.2	41.5	43.9	<b>42.7</b>	36.2	49.3	47.0
<b>Bulgaria</b>	23.2	26.0	26.9	<b>29.4</b>	21.8	37.6	36.0
<b>Czech Republic</b>	12.6	13.3	25.6	<b>26.7</b>	24.0	29.6	32.0
<b>Denmark</b>	34.2	38.1	43.0	<b>43.4</b>	35.2	52.4	40.0
<b>Germany</b>	24.2	26.5	32.0	<b>33.1</b>	32.2	54.9	42.0**
<b>Estonia</b>	28.1	33.3	39.1	<b>43.7</b>	33.1	58.7	40.0
<b>Ireland</b>	32.0	43.3	51.1	<b>52.6</b>	45.9	39.0	60.0
<b>Greece</b>	23.4	26.2	30.9	<b>34.6</b>	30.5	45.3	32.0
<b>Spain</b>	33.3	39.5	40.1	<b>40.7</b>	36.1	48.4	44.0
<b>France</b>	31.5	41.4	43.6	<b>44.0</b>	39.5	30.3	50.0
<b>Croatia</b>	16.2	16.7	23.7	<b>25.9</b>	22.3	54.9	35.0
<b>Italy</b>	13.1	18.6	21.7	<b>22.4</b>	17.7	27.2	26.0
<b>Cyprus</b>	36.0	46.2	49.9	<b>47.8</b>	41.6	53.4	46.0
<b>Latvia</b>	17.3	25.6	37.2	<b>40.7</b>	28.3	53.1	34.0
<b>Lithuania</b>	23.4	36.4	48.6	<b>51.3</b>	41.9	60.8	40.0
<b>Luxembourg</b>	23.6	35.3	49.6	<b>52.5</b>	49.2	55.6	66.0
<b>Hungary</b>	14.4	20.1	29.9	<b>31.9</b>	26.5	37.4	30.3
<b>Malta</b>	9.3	21.5	22.4	<b>26.0</b>	23.1	29.0	33.0
<b>Netherlands</b>	28.6	36.4	42.2	<b>43.1</b>	39.8	46.3	40.0
<b>Austria</b>	***	21.1	26.3	<b>27.3</b>	26.7	27.9	38.0**
<b>Poland</b>	14.4	27.0	39.1	<b>40.5</b>	32.9	48.4	45.0
<b>Portugal</b>	13.0	19.8	27.2	<b>29.2</b>	23.6	34.8	40.0
<b>Romania</b>	9.1	13.9	21.8	<b>22.8</b>	21.2	24.6	26.7
<b>Slovenia</b>	20.7	31.0	39.2	<b>40.1</b>	31.1	49.6	40.0
<b>Slovakia</b>	10.5	14.8	23.7	<b>26.9</b>	22.3	31.8	40.0
<b>Finland</b>	41.2	47.3	45.8	<b>45.1</b>	37.6	52.9	42.0
<b>Sweden</b>	28.3	41.0	47.9	<b>48.3</b>	41.8	55.2	40.0
<b>United Kingdom</b>	31.5	38.5	47.1	<b>47.6</b>	44.6	50.5	****

\* Tertiary education: ISCED97 5 and 6

\*\* The national target for Germany includes post-secondary non-tertiary education (ISCED97 4) and for Austria post-secondary non-tertiary education with programmes designed to provide direct access to first stage of tertiary education (ISCED97 4A).

\*\*\* Austria: data not available for 2012

\*\*\*\* United Kingdom: no national target.

Early leavers from education and training (% of the population aged 18-24 with at most lower secondary education and who are currently not in further education or training\*)

	2005	2007	2012	2013	2013 Men	2013 Women	Headline target
<b>EU28</b>	<b>15.7</b>	<b>14.9</b>	<b>12.7</b>	<b>11.9</b>	<b>13.6</b>	<b>10.2</b>	<b>10.0</b>
<b>Belgium</b>	12.9	12.1	12.0	<b>11.0</b>	13.2	8.7	9.5
<b>Bulgaria</b>	20.4	14.9	12.5	<b>12.5</b>	12.3	12.7	11.0
<b>Czech Republic</b>	6.2	5.2	5.5	<b>5.4</b>	5.4	5.5	5.5
<b>Denmark**</b>	-	12.9	9.1	<b>8.0</b>	9.9	6.2	10.0
<b>Germany</b>	13.5	12.5	10.6	<b>9.9</b>	10.4	9.3	10.0
<b>Estonia</b>	13.4	14.4	10.5	<b>9.7</b>	13.6	5.8	9.5
<b>Ireland</b>	12.5	11.6	9.7	<b>8.4</b>	9.8	6.9	8.0
<b>Greece</b>	13.6	14.6	11.4	<b>10.1</b>	12.7	7.6	9.7
<b>Spain</b>	30.8	31.0	24.9	<b>23.5</b>	27.0	19.9	15.0
<b>France***</b>	12.2	12.6	11.6	<b>9.7</b>	10.7	8.8	9.5
<b>Croatia</b>	(5.1)	3.9	4.2	<b>3.7</b>	(4.7)	(2.7)	4.0
<b>Italy</b>	22.3	19.7	17.6	<b>17.0</b>	20.2	13.7	16.0
<b>Cyprus</b>	18.2	12.5	11.4	<b>9.1</b>	14.8	4.2	10.0
<b>Latvia</b>	14.4	15.1	10.6	<b>9.8</b>	13.6	5.8	13.4
<b>Lithuania</b>	8.1	7.8	6.5	<b>6.3</b>	7.8	(4.7)	9.0
<b>Luxembourg**</b>	-	-	8.1	<b>6.1</b>	8.4	(3.7)	10.0
<b>Hungary</b>	12.5	11.4	11.5	<b>11.8</b>	12.5	11.1	10.0
<b>Malta</b>	33.0	32.7	22.6	<b>20.9</b>	23.2	18.2	10.0
<b>Netherlands</b>	13.5	11.7	8.8	<b>9.2</b>	10.9	7.4	8.0
<b>Austria</b>	9.1	10.7	7.6	<b>7.3</b>	7.7	7.0	9.5
<b>Poland</b>	5.3	5.0	5.7	<b>5.6</b>	7.9	3.2	4.5
<b>Portugal</b>	38.8	36.9	20.8	<b>19.2</b>	23.6	14.5	10.0
<b>Romania</b>	19.6	17.3	17.4	<b>17.3</b>	18.6	16.0	11.3
<b>Slovenia</b>	4.9	4.1	4.4	<b>3.9</b>	5.0	(2.6)	5.0
<b>Slovakia</b>	6.3	6.5	5.3	<b>6.4</b>	6.7	6.1	6.0
<b>Finland</b>	10.3	9.1	8.9	<b>9.3</b>	10.4	8.3	8.0
<b>Sweden</b>	10.8	8.0	7.5	<b>7.1</b>	7.9	6.2	10.0
<b>United Kingdom**</b>	-	16.6	13.6	<b>12.4</b>	13.7	11.2	-****

Due to breaks in the series, data before 2005 have a limited comparability at Member State level.

\* "At most lower secondary education" means that the highest educational level attained by the person may be: early childhood education (ISCED 0); primary education (ISCED97 1); lower secondary education (ISCED97 2); or short upper secondary education of less than 2 years (ISCED97 3c short).

\*\* Break in the series for Denmark and the United Kingdom in 2007 and for Luxembourg in 2009. Data not comparable before those years and therefore not shown.

\*\*\* Break in the series for France in 2013. Reduced comparability of data before this year.

\*\*\*\* No national target for the United Kingdom

- Data not available

() Data with reduced reliability due to sample size

#### FURTHER INFORMATION

##### More information on the Europe 2020 strategy:

[http://ec.europa.eu/europe2020/index\\_en.htm](http://ec.europa.eu/europe2020/index_en.htm).

##### The dedicated section on the Eurostat website:

[http://epp.eurostat.ec.europa.eu/portal/page/portal/europe\\_2020\\_indicators/headline\\_indicators](http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators)

##### About national targets:

[http://epp.eurostat.ec.europa.eu/portal/page/portal/europe\\_2020\\_indicators/documents/Europe\\_2020\\_Targets.pdf](http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/documents/Europe_2020_Targets.pdf)

**About other Europe 2020 indicators**, please see the Eurostat News Release on renewable energy

[http://epp.eurostat.ec.europa.eu/cache/ITY\\_PUBLIC/8-10032014-AP/EN/8-10032014-AP-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/8-10032014-AP/EN/8-10032014-AP-EN.PDF)

and Eurostat News Release on persons at risk of poverty or social exclusion:

[http://epp.eurostat.ec.europa.eu/cache/ITY\\_PUBLIC/3-05122013-AP/EN/3-05122013-AP-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/3-05122013-AP/EN/3-05122013-AP-EN.PDF)

##### Europe 2020 Statistics Illustrated:

[http://epp.eurostat.ec.europa.eu/portal/page/portal/europe\\_2020\\_indicators/headline\\_indicators/statistical\\_dashboards](http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators/statistical_dashboards)

# Integrating PhD Students into the EU Workforce

April 9, 2014

## Question for written answer E-001735/2014 to the Commission Rule 117 Vasilica Viorica Dăncilă (S&D)

Europe 2020 is the strategy via which Europe aims to combat the effects of the crisis and turn the EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion. One of the strategic priorities is the area of smart research/innovation and growth. In Europe, 2% of GDP is earmarked for research and development, which is less than the amounts allocated in the USA (2.6%) or, especially, in Japan (3.4%). Analysts consider that this situation has arisen in particular because privatesector involvement in this field has tailed off, including in the university and hightech sector, which largely explains why Europe is lagging behind the USA.

While the work done by PhD students points to the quality of European universities, especially when one considers their standing in the international rankings of higher education establishments, it is sometimes difficult for PhD students to find work as researchers in the EU.

What is more, many students leave Europe once they have completed their PhD, precisely because they cannot find employment on the European job market.

How does the Commission intend to dovetail these considerations – i.e. to increase the proportion of PhD students hired, especially by the private sector, so that they stay in Europe, and to raise the percentage of GDP invested in research from the current 2% to 3% in 2020 – precisely so as to enable the EU to achieve the objectives contained in the 2020 Strategy?

## Answer given by Ms Geoghegan-Quinn on behalf of the Commission

The number of new doctoral graduates in the EU has risen significantly from around 72 000 in 2000 to around 115 000 in 2010. Evidence shows that in France, Germany and the UK over 50 % of all PhD degree holders now take up jobs outside academia. Working with experts in this area, the Commission identified seven 'Principles for Innovative Doctoral Training' to foster excellence, transferable skills training and exposure to industry. The Council endorsed these principles and called on Member States to provide financial support.

The Marie Skłodowska-Curie Actions Horizon 2020 budget of EUR 6.1 billion will enable around 25 000 doctoral candidates to be recruited by 2020 to high-quality programmes in Europe.



These will provide experience outside academia, hence developing employability skills amongst PhD holders. Moreover, the ERC, with a Horizon 2020 budget of EUR 13.1 billion, is supporting investigator-driven frontier research across all fields.

As regards the EU R&D intensity, after remaining flat at around 1.85% between 2000 and 2007, it rose to 2.01% in 2009 and only reached 2.06% in 2012. If Member States meet their national targets, it could amount to 2.6% in 2020. The progress towards the 3% target in recent years, although slow, results from policies at EU and Member State level to foster and leverage private investment in R&D, and to protect and promote public R&D funding in line with the principle of growth-friendly fiscal consolidation.

The Commission stressed in its Annual Growth Survey 2014 that Member States need to find ways to protect or promote public spending that reinforces their growth potential, as is the case for R&I investments.

# Briefing for Lithuanian EU Presidency

## Improving STEM Talent Supply in Europe

Vilnius, November 2013

Ensuring that enough of our most precious resource (talent) will be available to address our most pressing challenge (building a sustainable future)

**“The greatest shortcoming of the human race is our inability to understand the exponential function”**

Albert Bartlett

**“A well educated population is the greatest asset a nation can have”**

Winston Churchill

### Background

Science can now draw a clear line where humanity has exceeded planetary limits and where it is on its way to do so. Few people however fully appreciate the implications of the exponential era we are now in.

It took until 1840 for the world population to reach the 1 billion level. It took 90 years to reach 2 billion mark in 1930. The 3 billion level was reached in 1960 after just 30 years. Currently the world population is 7 billion. Combined with economic development this has led to unprecedented levels of finite natural resource use and ecological stresses. The implications of these exponential developments are poorly understood by policy makers and society at large.

The Stockholm Resilience Institute, representing many scientists from all over the world, have established that on many parameters the world has exceeded planetary limits, that may lead to changes in the framework conditions for life on earth as it exists now.

The World Business Council for Sustainable Development has issued a report: *Vision 2050, 9 billion people, living well, and within the limit of the planet*, outlining a number of measures that need to be taken to have a chance to achieve this objective, which represents the greatest challenge human mankind has ever faced.

Where it is the role of science to define reality and the situation we are in, it is the role of government to set high-level objectives and to ensure the framework conditions and capabilities needed to enabling the development of a sustainable future. This includes physical infrastructures for example to accommodate varying and decentralised sources of renewable power generation. It also includes ensuring sufficient talent supply to develop innovative solutions for these new challenges.

Over the years in most EU Memberstates there has been a proportional decline in university enrolment in STEM (Science, Technology, Engineering & Mathematics) faculties. For a number of years this proportionate decline was hidden by the rising number of students entering universities, thus keeping the absolute number of STEM enrolment seemingly stable. With the demographic changes and the proportion of population entering universities leveling out, an absolute decline in STEM enrolment can now be observed.

Society needs more STEM education for two main reasons:

- Firstly to increase the proportion of total talent enrolled STEM education in order to increase our capacity for developing innovative solutions that can contribute to realising a sustainable future and a basis for European competitiveness.
- Secondly to improve the understanding about the 10 kilometers below and above us, the very thin layer (atmosphere) that enables life on earth. This enhanced appreciation of our planetary boundaries, will increase the awareness about the sustainability challenges and the need to accept the implementation of new innovative technologies.

Too often the beneficial effects of new solutions can not be enjoyed, because of failing understanding of the need for them often leading to failing societal support for implementation. E.g windmills (horizon pollution) of CO2 Capture & Storage (dangerous so better to release in atmosphere). Often these reactions are referred to as NIMBY (Not In My Back Yard) or as NIMTO (Not In My Term of Office) when it concerns politicians either lacking the understanding and vision or the courage to take the decision.

In order to have a sustainable future both Communication & Education are crucial enabling conditions. Education helps to broaden the understanding, so that communication can be understood, appreciated and acted upon.



# Platform Bèta Techniek

## Why strengthening Talent as a Strategic Enabler should be on the Dutch EU Presidency Agenda

### Towards a future proof Europe

Since the 2004 Dutch EU Presidency, Europe's environment has seen an exponential rate of change in increased financial stresses, grown social tensions and tightened ecological pressures. A well educated population is the greatest asset Europe can have to fundamentally address the challenges ahead and to meaningfully contribute to building a safe and sustainable future for all.

Europe wants to be a globally competitive continent based on a successful economy. Europe is the world's largest single market with a GDP of more than €12.6 trillion. The industrial share of Europe's GDP is 15.5%. Industry is one of the backbones of the European economy and significantly contributes to economic growth, employment and innovation. The European Commission wants to raise this share to 20% by 2020. To achieve this ambitious goal, joint actions by government, business and other organisations, such as schools and non-profit organisations, can and should be undertaken. This is especially urgent in view of the growing global competition, the tightening availability of natural resources and the increasing environmental constraints.

To foster Europe's industrial competitiveness and at the same time find solutions for future challenges like climate change, energy supply, healthy aging and digitalisation, adaptations and focus are necessary. There should be more emphasis on future industry including the circular economy. A sustainable future that has the potential to offer sufficient jobs, deliver required products & services and societal wellbeing. A new European industrial strategy is needed.

To ensure that Europe, through its member states, remain a world player in technology, skills and competences, one of the most important enablers is to invest in a labour market that will meet the needs of future industry. Innovation in general, and in industry in particular, rely on good skilled and trained experts that are flexible, highly productive and adaptable to the rapidly changing demands of global competition. Leakage and lack of well educated talent should be avoided at any time.



### Closing the skills gap

More, better and continuously improving technology is indispensable for a sustainable Europe. New industrialisation will play an important role. In order to reduce the skills gap and to address the high level of youth unemployment of today, it is of critical and strategic importance to focus on education. Europe is confronted with the highest levels of youth-unemployment in the world. According to Eurostat over 50% in some parts of Europe! Meanwhile the labour market's demand for STEM (Science, Technology, Engineering and Mathematics) talent in jobs continues to rise, whilst the existing STEM qualified population is ageing and retiring. This poses a threat to its social cohesion as well as its ability to compete economically and drive new innovation.

Too many young people are failing unnecessarily to capitalise on the opportunities that STEM can bring to them. There is a gender issue too, as girls are underrepresented in STEM. There is a decline of approximately 10% in terms of numbers of graduates. Moreover Pisa results show the relatively poor attainment of EU education, with the scores of most EU Member states in the categories "Fair" and "Good", but few appear in "Great" or "Excellent" whereas for example Hong Kong, Ontario, Singapore, South Korea and others do\*.

\* [https://mckinseysociety.com/downloads/reports/Education/How-the-Worlds-Most-Improved-School-Systems-Keep-Getting-Better\\_Download-version\\_Final.pdf](https://mckinseysociety.com/downloads/reports/Education/How-the-Worlds-Most-Improved-School-Systems-Keep-Getting-Better_Download-version_Final.pdf) (For int PISA comparison see Exhibit 3 on p15)

The US established the *STEM Education Coalition* and declared it a national priority. The FT commented on “Weapons of Math Instruction”. Also in Europe economic prosperity is closely linked with educational achievement. The Memberstates suffering most in the current crises are the ones that in the 90’s had the weakest PISA scores.

To give Europe a better chance for a desirable future, with talent that fits the needs of research, businesses and government, improving educational performance across all EU Memberstates is of strategic significance and should therefore be much higher on the European agenda.

### Providing the needed skills to foster Europe’s (industrial) growth

It is inconceivable that future growth, wellbeing and solutions for the challenges we face in the 21st century can be reached without science, engineering & technology ‘The Future of Europe is Science’.

We need to stimulating knowledge as a ‘commodity. For this we need industry, education and governments to take joint responsibility. Policy-makers must give direction, put the right framework in place and ensure best practice sharing. Only through cooperation will we become better prepared for the challenging future. This will not be like a sprint, but more like a marathon. The interest in STEM has slowly declined over decades and will not be restored overnight.

Three key areas can be identified where business and schools can work together to raise interest in STEM education and careers:

- helping build awareness about the challenges facing Europe;
- informing about meaningful life & career opportunities enabled by studying STEM subjects;
- offering role models for students.

This should be conducted on each level of education, from primary schools to higher education. Not only for those who will ultimately choose a STEM career, each student should be given a basic understanding of STEM in order to foster systemic thinking and to become well-informed citizens of Europe who can find fulfilling roles on the labour market.

Importantly industry can do much more in engaging with teachers. This does not mean that industry should take the responsibility to teach the teacher, but it does involve providing access to the contextual knowledge of STEM and the opportunities these subjects open up.

### Building on Existing Best Practices

Fortunately a large number of projects and initiatives targeting an increased interest in STEM education and careers already exist throughout Europe. A number of good and promising initiatives have taken off, such as Jet-Net (The Netherlands), Jet-Net DK (Denmark), leerKRACHT (the Netherlands and Belgium), Wissensfabrik (Germany and Austria), C.Génial (France), Futurelab (UK) and MATENA (Sweden). All these initiatives have created their own and unique ecosystem in which industry and education are working together. And all these initiatives have impact. For example, results in the Netherlands show that schools who participate in the Jet-Net program have a significant higher number of students choosing a STEM profile and study.

However, to face future challenges like climate change, increasing energy demand and healthy ageing Europe needs to accelerate. Time is money: early action will be cheaper than leaving it for the young to solve the problems when they have gotten more difficult to handle.

### Needing Multiple and Joined Efforts

Finally, it is imperative to address all stakeholders in this area. Creating meeting places, both physical and virtual, that can be replicated at different levels (local, regional, national and European), reinforcing a complete framework that fosters ‘best practices’. Furthermore it will be important to create new instruments to analyse labour market requirements in order to be able to train and equip people with the right sets of skills for when, again and again, new jobs come about. More studies should be conducted on how young people make choices and on what basis and to understand the evolving requirements for competencies needed in a fast changing workplace.

### Initiating by Dutch EU Presidency 2016

As one of the most knowledge-intensive economies in Europe, generating a high proportion of its wealth in international markets, it is in the interest of The Netherlands that fellow EU28 member states fare well too. Its acknowledged best practice experience with improving the Dutch Talent Pipeline, makes it fitting that The Netherlands put this strategic driver on its EU Presidency agenda and facilitate an exchange of global educational best practices for its fellow EU member states.

This would be welcomed in Brussels, as a ‘future proof’ education framework is also seen as a key factor of success to realize the Horizon 2020 plan. Without touching existing competences of the EC, “*Europe can do more on education and human capital, but only with a strong, committed EU Presidency to drive the process*”\*. Hence we urge the Dutch Government to use its EU Presidency of 2016, to initiate a Europe wide drive to strengthen the strategic foundation for a ‘future proof’ Europe.

\* Xavier Prats-Monne, Director-General for Education & Culture at the European Commission

# TTIP in Engineering



As the 8<sup>th</sup> round of the TTIP negotiations just ended in Brussels, Access reflects on the state of play of this major transatlantic trade deal.

When the Transatlantic Trade and Investment Partnership (TTIP) negotiations began in July 2013, the first talks of this massive EU-U.S. trade deal remained mostly unnoticed – because discussions were happening behind closed doors. Citizens, civil society, and lawmakers all responded that the process was not transparent.

In response to these concerns, the incoming EU trade commissioner, Cecilia Malmström, promised a “Fresh start” for the TTIP negotiations when she took office in November 2014. Malmström launched her first round of measures to promote transparency in TTIP, which included more open meetings and the publication of several fact-sheets and legal texts. Around this time, the EU Ombudswoman, Emily O’Reilly, decided to launch an inquiry into transparency in TTIP, organising a public consultation in which Access’ participated. The conclusions from this inquiry were presented last month, and the Ombudswoman acknowledged efforts by the trade Commission towards greater transparency but called for more measures to improve public participation, in particular regarding access to negotiating documents from the EU and the U.S.

Access welcomes these recommendations, and we echoed the call for greater transparency during our presentation before U.S. trade representatives and EU Commission officials at the

8th round of negotiations. We explained to the negotiators that “full legitimacy and trust in the negotiation process can only be achieved with full transparency and if mass surveillance programmes are abandoned.” Currently, the work of civil society groups and elected representatives from the EU and its member states is complicated by the lack of access to documents, forcing stakeholders to work on basis of leaked documents. The most recent leak on the e-commerce and data flow chapter from the Trade in Services Agreement – TiSA – revealed the serious threats these trade agreements could pose to fundamental rights, in particular the rights to privacy, data protection, and freedom of expression.

## Public participation

Full transparency in the negotiation process would strengthen citizen and stakeholder participation and increase public scrutiny. So far, the European Commission has attempted to improve participation by launching a consultation in 2014 on the highly controversial provision on Investor to State Dispute Settlement (ISDS), which enables companies to sue governments when new laws put their “expected profit” at risk, among other issues – (find out more about ISDS here). That consultation received more than 150,000 responses from citizens, civil society, and

companies from both the EU and the U.S. In January, the European Commission presented its long awaited report on this consultation, and revealed that more than 95 percent of the responses demanded that this dispute resolution mechanism be excluded from the TTIP.

In the meantime, several member states have expressed concerns toward ISDS. For instance, the French Parliament recently adopted a resolution calling for the exclusion of the mechanism in TTIP. Faced with this resistance, the Commission acknowledged that “there is a huge scepticism against the ISDS instrument” and decided to revise the Investor to State Dispute mechanism. But the debate on the mechanism is not about to stop. The EU Commission might face a so-called “maladministration” investigation after refusing five leading NGOs access to documents on ISDS. The NGOs have brought a complaint to the EU Ombudsman which will decide in the next few weeks whether to open an investigation.

### Next steps

The Commission still has a long way to go to ensure transparency in negotiations over this massive international trade agreement. It should strengthen the reform efforts it began in November and provide more concrete measures to allow participation from all stakeholders, such as the regular publication of updated documents and negotiating texts from both parties. Transparency will benefit both EU citizens and the negotiators.

## Maintaining high standards while making it easier to export

### Reasons for negotiating engineering products

In 2013, trade in engineering goods – such as fridges, plugs, mobile phones, pleasure boats, tractors, pressure equipment – between the EU and the US accounted for around 25% of all trade between us.

There are almost 200,000 companies in the electrical and mechanical engineering sector in the EU. Together, they employ almost 5 million people in the EU. But in some cases, there are big differences on either side of the Atlantic in:

- technical regulations
- standards and procedures for checking whether a product meets them.

This can make it harder to export or import products.

We want to improve EU-US co-operation on these issues.

The most effective point at which to do that would be whenever either side starts drawing up new regulations. Ideally, we would like to make our technical requirements and checking procedures compatible with each other. If regulators worked together, they could reduce the technical differences between EU and US whilst respecting our high standards. For example, they could decide that the colours required for wiring in machines would be identical.

The EU is looking to identify products which would most benefit from regulators working together.

### EU goals

We want to work with the US on:

- using standards widely used in the EU and other countries around the world, such as those set by the...
  - International Organization for Standardization (ISO)
  - International Electrotechnical Commission (IEC)
  - ...as a way of meeting US regulations.
- cutting the cost of checking if a product conforms to US standards
- getting EU and US regulators to talk to each other early on in the process to avoid unnecessary differences between their respective regulations.



# Why Education should be excluded from the TTIP

## EUCIS-LLL Position February 2015

In 2013, the European Union started negotiations for a free trade agreement, the Transatlantic Trade and Investment Partnership (TTIP), with the United States (US). This partnership agreement is aimed at reducing barriers and harmonising systems between the two actors. The 8<sup>th</sup> round of TTIP negotiations took place from 2 to 6 February 2015 in Brussels. EUCIS-LLL is deeply concerned by the possible consequences of the negotiations on our European education and training sectors. EUCIS-LLL promotes a comprehensive approach to education where bridges are made between non-formal and formal education. Without a clear exemption system, the agreement could represent a threat to most educational sectors and in turn be a threat to our European social model. EUCIS-LLL thus wants to firmly underline that education is a public good and asks the European Commission and the Member States to exclude education from the negotiations as it did for the audio-visual sector based on the public interest in preserving and promoting cultural and linguistic diversity. EUCIS-LLL also shares the views of stakeholders in the field who are concerned about the transparency of this process and demand to stop closed-doors negotiations. This position paper reflects the views of our members as regards the ongoing TTIP negotiations

### Education is a public good: it cannot be traded

EUCIS-LLL strongly believes that education is a public good and a human right and, as such, cannot be treated as an economic good. This would dismiss the multiple purposes of education, endanger access and contribute to the commodification of education.

We are aware that this agreement is being pursued to facilitate economic recovery but the social dimension of education must not be left aside, and must rather be considered as the core of our European social model. Facilitating market access to “pure” private providers, who only seek a short-term goal of raising profits that are not reinvested for the sake of the public good, is not improving our social model.

If education is included in the TTIP, multinational companies would have the right to bid for educational contracts in the EU Member States. It could entrench privatisation, as governments which attempt to regain public control could risk being sued by multinational companies through the Investor-State Dispute

Settlement mechanism – and this is already happening in the US. A sovereign government’s power to protect its citizens would thus be limited; private investors could for instance contest the implementation of quality standards and accreditation systems as “disguised barriers to trade” or “more burdensome than necessary” under the ISDS (see ETUCE statement)\*. EUCIS-LLL thus warns against the pressure of private lobby groups that pursue commercial interests that are detrimental to the European citizens’ general interest in the current negotiations.

Member States must provide education as a public good, and the inclusion of any educational services would undermine the democratically legitimate decision-making in the sector. According to the Treaty of Maastricht of 1992, “The Community shall contribute to the development of quality education by that encouraging cooperation between Member States and the activities of the Member States, while fully respecting the responsibility of the Member States for the content and organisation of education systems and the diversity their cultural and linguistic support and supplement” (article 165). Europe has a strong need to invest in education and to clearly push for a common framework for quality education. Opening up TTIP negotiations to education would be detrimental to this goal.

### All sectors are concerned...

In the Commission factsheet on services in TTIP, the Commission states that “the EU doesn’t take any commitments for publicly funded health, education or social services” – this only concerns primary and secondary schools, colleges and universities. This definition excludes important sectors such as adult education. Besides there is not an agreed definition of these concepts (what is covered under “universities”?) at EU level which creates a lot of confusion. Educational actors are very diverse with important cultural differences across EU Member States especially as regards to their funding. The EU and the Member States have been pushing for more and more public-private partnerships in the educational sector. “The problem is that in many jurisdictions, the line between what is public and what is private education is blurring so that any exemption for public education may prove to be inadequate,” said Fred van Leeuwen, General Secretary of Education International which represents 30 million teachers worldwide.

\* “Only public authorities are entitled to speak on behalf of the public interest and can therefore decide to set up public services, define their scope, impose obligations on undertakings providing them, grant such undertakings any special rights required and establish appropriate regulatory bodies”, Public undertakings and services in the European Union, European Parliament, Economic Series W21

The adult education sector (popular education, workers' education, etc.) is particularly diverse in Europe reflecting different realities and cultures. The organisations providing such services have different legal constitutions, are financed via public and private funds and are sometimes recognised as being of "public utility". Including adult education in the TTIP could be very disruptive in a sector that is already suffering from severe budgetary cuts. "The European benchmark on adult education has decreased and stagnated instead of growing, which shows that it is already difficult to provide affordable adult education for learners. In many countries, this can only be achieved by very cheap, free-lance trainers or through volunteers – any added pressure through US companies would further undermine the provision of adult education" explained Gina Ebner, European Association for the Education of Adults which represents 123 member organisations in 42 countries and represents more than 60 million learners Europe-wide.

The same applies for the inclusion of "private" youth work in the agreement. If private non-formal education is not specifically excluded in the negotiations, the trading rules could limit the scope of public services and accelerate the commercialisation and privatisation of the youth sector. This tendency can have a detrimental effect on the provision of important and sensitive services especially those targeted at disadvantaged groups. This could affect the quality and affordability of youth work.

Many concerns are also expressed in higher education where public and private inputs are inextricably linked. This could lead to American for-profit institutions opening branches in Europe; and the cultural differences between higher education systems in Europe and the US could alter our educational model. "In the US they aim for profit, and divide the money between the shareholders. In Europe, private institutions do not aim for profit and use tuition fees for educational or similar purposes," said Rok Primozic, ESU former chairman, which represents 47 National Unions of Students from 39 countries. A commercialisation and privatisation of our educational systems leading to opening EU doors to for-profit schools and institutions is to be avoided.

For privately funded education, the EU's position has differed from one EU country to another. In the Trade in Services Agreement or TiSA – as in all EU trade negotiations – each EU Member State is free to decide whether to allow companies from outside the EU to provide education services in its territory and if it does so, the conditions these companies have to meet. Whatever each country decides, it is still free to devise its own education policy and programmes.

Education should thus be entirely and formally excluded from the negotiation on the TTIP.

### The exemption shall be specific and clear

Negotiation documents so far have been quoted to state that "services supplied in the exercise of governmental authority" will be excluded from the negotiations. This formulation is weak especially for the education sector, as it opens the floor to various, and sometimes contradicting, interpretations.

The exemptions should be applied to services of general interest that are provided on a non-commercial basis. If we take the example of distance learning provided by universities where a specific fee can apply, education may not benefit from the general exclusion. The formulation of exemption shall be much more specific.

EUCIS-LLL agrees with ETUCE that the "negative list approach" is dangerous and should be replaced by a "positive listing". Indeed, the latter is much clearer and will not lead in the future to conflicting interpretations. Other trade agreements have chosen this approach in the past that should be the one of all trade agreements, as it is safer for all parties and will avoid potential future disputes.

EUCIS-LLL asks the European Commission and the Member States to entirely and formally exclude education and furthermore all public services from the negotiation on the TTIP.

### Transparency and civil society involvement are to be strengthened

The TTIP negotiations have so far taken place behind closed doors, and civil society positions have not been included. On December 4th 2014 EU Commissioner for Trade Cecilia Malmström agreed with the concerns of stakeholders in saying "we need to open up the TTIP talks further". She has also called for a fresh start in TTIP for more transparency and bigger engagement of civil society. EUCIS-LLL thus strongly welcomes the publication of EU negotiating texts in TTIP on 7 January 2015. A specific briefing on the status of negotiations in the field of education could clarify the position of the EU in that area.

EUCIS-LLL calls upon negotiation teams from both sides to open up their talks and consider the concerns of stakeholders. More generally the EU needs to be more transparent as regards TTIP, notably in relation to its contacts with business representatives.

We, teachers, learners, educators, school heads, youth workers and leaders, parents do not want to see an agreement which is likely to undermine our social standards. We utterly call decision-makers to exclude education from the trade agreement.

#### FURTHER INFORMATION

##### Download the paper here:

[www.eucis-lll.eu/eucis-lll/wp-content/uploads/2015/02/EUCIS-LLL\\_Position\\_Paper\\_TTIP.pdf](http://www.eucis-lll.eu/eucis-lll/wp-content/uploads/2015/02/EUCIS-LLL_Position_Paper_TTIP.pdf)

**URL:** [www.eucis-lll.eu/news/eucis-lll-news/eucis-lll-position-paper-why-education-should-be-excluded-from-ttip/](http://www.eucis-lll.eu/news/eucis-lll-news/eucis-lll-position-paper-why-education-should-be-excluded-from-ttip/)

# Businesses as Shareholders in the Skills Formation Process

April 28, 2014

At an inaugural speech at a seminar organised by the Institute for Social and Economic Policy Education (ISWA) in Berlin, Cedefop Director James Calleja said that in today's economic climate, 'businesses should be considered as shareholders in vocational training and an integral part of the skills formation process'.

Mr Calleja addressed German businesspeople and participants of a seminar on opportunities for cooperation on vocational training and youth employment in Europe, on 27 April. ISWA organises regular seminars with the Confederation of German Employers' Associations, the Federation of German Industries and the Association of German Chambers of Commerce.

The Cedefop Director said that vocational training is one of several tangible solutions to ensure that young people are adequately trained and employable in a challenging labour market.

Cedefop is today in the forefront of enabling policy-makers to design strategies based on evidence of practices which can be considered success stories such as robust and highly recognised apprenticeship programmes, work-based learning and vocational education and training (VET) qualifications which reflect the relevance of skills acquired to labour market realities.

Youth unemployment, Mr Calleja said, coincides with recruitment problems with the common argument being that young people are ill-prepared for work. In Europe, he added, 29% of highly qualified workers are in jobs that require medium and low qualifications. He noted that since 2008 there has been slow job creation, high replacement needs in firms and an increasing demand from employers of work-based skills.

Mr Calleja delved into the added value that EU initiatives have to address these issues. In particular he mentioned the EUR 6 billion front-loaded and structural funds (ESF) to support youth employment.

The promotion of work-based learning/apprenticeships through the European alliance for apprenticeships is another case in point. Mr Calleja insisted that 'we need more apprenticeships and especially in non-traditional sectors and occupations; we need more work-based learning and therefore businesses that create the physical space and time for learning; we need governments that support businesses so that they engage more young people in work experience and we need to transform the youth guarantee as a platform to the work environment and a bridge that links the world of education with the world of work.'

Mr Calleja insisted that the youth guarantee initiative should be seen as a catalyst for greater cooperation between employment services and education, improved and relevant guidance and counselling and a measure to reduce skills mismatch and increase youth employment. He referred to the positive response from the majority of EU Member States to the youth guarantee, stating that most countries have pledged to introduce dual training in formal VET, other Member States plan to improve governance, career guidance, quality, monitoring and to carry out attractiveness campaigns. Member States with well-established apprenticeship schemes are also indicating efforts to improve quality, targeted support for enabling low achievers to develop skills and competences through work-based learning.



'What is essential', Mr Calleja reiterated, 'is that we improve the quality of apprenticeships across the EU and change mindsets towards apprenticeship-type learning.'

The European tools such as EQF, EQAVET, ECVET, Europass and several other facilitate this process if they are used effectively. 'Member States need more commitment towards the European tools – using them can make a significant difference to transferability, recognition, mobility and progression,' Mr Calleja said.

In concluding, he encouraged businesses to approach education services and ensure that their voice is not only heard but also recognised as policy for the future of our youth skills development, and argued that 'moving away from a stakeholders' role to a shareholders' role for businesses, carries greater visibility for the labour market but also responsibility and structured commitment towards education and training.'

FURTHER INFORMATION

[www.cedefop.europa.eu/EN/news/23935.aspx](http://www.cedefop.europa.eu/EN/news/23935.aspx)

# Skill Mismatch

## European Centre for the Development of Vocational Training – briefing note

Skill deficits do not cause unemployment; Europe's most talented workforce is being wasted.

The global financial and economic crisis has led to alarmingly high unemployment and underemployment in many European Union (EU) countries. Yet, surveys still find that more than one in three employers has problems filling vacancies. The latest European company survey, in spring 2013, found that about 40% of firms across the EU had difficulties finding staff with the right skills. A 2010 Eurobarometer survey found some 33% of employers identifying a shortage of applicants with the right skills as their main challenge in filling vacancies\*. Manpower's 2013 survey also found that, on average across 17 Member States, more than 25% of employers reported recruitment difficulties. Some 34% of these employers cite a lack of technical competences while 19% believe candidates also lack workplace skills.

Many employers and policy-makers argue that these problems are because young graduates and other workers are ill-prepared. They claim that endemic skill mismatch in Europe's economies is responsible for high rates of unemployment. However, there is evidence that factors other than skill deficits are mostly responsible for rising unemployment coexisting with difficult-to-fill job vacancies.

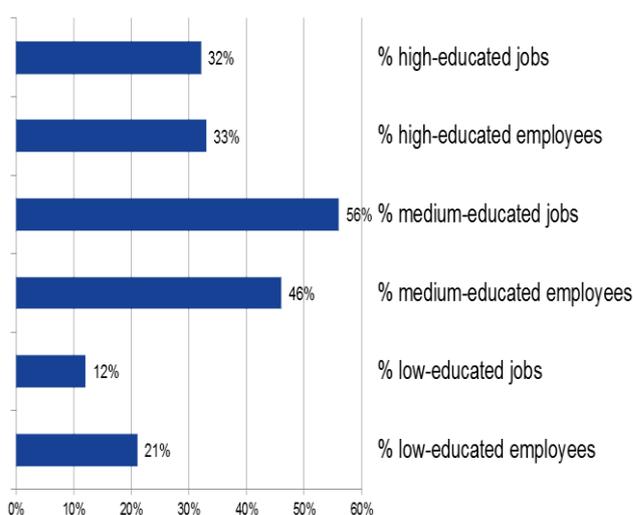
### Skill mismatch in the labour market

With imperfect labour markets it is inevitable that all economies have some imbalance between supply of and demand for different skills.

Broad skill demand and supply trends indicate that there are more low-educated employees in the EU than there are jobs at that level (Figure 1). The number of jobs usually requiring a tertiary qualification is roughly in line with the number of highly-educated employees available. But a significant imbalance lies between jobs requiring medium-level qualifications and people qualified at that level. Often the labour market adapts to these imbalances.

But skill mismatch is not just about skill shortages. It also concerns the extent to which people work in jobs matched to their qualifications and skills (Box p.46). And data indicate that current skill mismatch is not due to a lack of skills. Weak employment demand is increasing competition for jobs and people are more

Figure 1: Imbalances in the EU labour market, adult employees (age 25-64), 2011



Source: Cedefop based on EU labour force survey micro data.

willing to accept jobs which do not match their level of qualification. In the EU, around 29% of highly-qualified workers are in jobs usually requiring medium- to low- level qualifications, making them overqualified.

Some qualification mismatch is due to people's preferences and/or personal circumstances. Some mismatch is temporary as people move to new jobs. When, however, high levels of mismatch become persistent they can have significant economic and welfare costs.

Overqualified workers are more likely to suffer wage penalties, lower job satisfaction and higher turnover than people in jobs matched to their qualifications. More than a third of overqualified workers, particularly vulnerable groups notably migrants, female and younger workers, underuse their skills. They are frequently trapped in jobs where they cannot develop and fully exploit their abilities. Overqualification can also scar a person's job prospects in the long term.

\* Eurobarometer survey (2010). *Employer's perception of graduate employability*.

### Understanding skill mismatch

**Skill mismatch** is often used indistinctively to describe various forms of mismatch between supply and demand in the labour market.

Employers having difficulties filling vacancies with the right talent, despite offering market-clearing wage rates, face *skill shortages*. However, *qualification or skill mismatch* is also where individuals take jobs in which their educational qualifications and skills are inadequately used.

To understand skill mismatch better, in 2014, Cedefop will undertake the first pan-European skills survey (eu-SKILL).

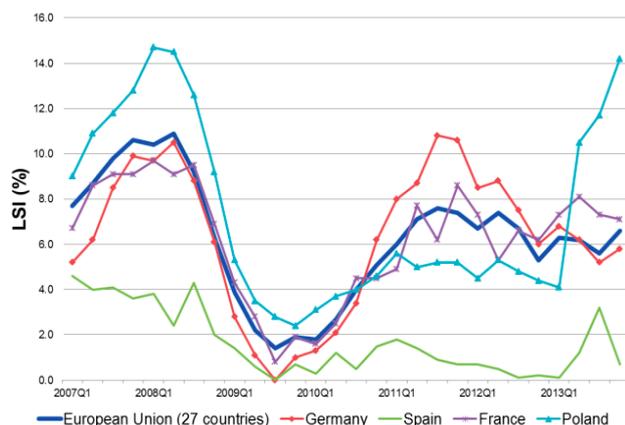
Some 48 000 adult employees across all 28 Member States will be surveyed to quantify incidence of educational and skill mismatch to see how it develops during individuals' careers. The survey will examine drivers of skill development and mismatch, in relation to changing complexity of people's jobs. It will also consider initial and continuing vocational training's capacity to mitigate skill mismatch.

### Labour shortages and rising unemployment

Those arguing that the EU workforce's skills are not matched to labour market needs point out that signs of economic recovery and more job vacancies have not seen a corresponding fall in high levels of unemployment.

However, there has been no widespread collapse in skill levels since 2008 that would justify skill deficits causing unemployment. In most EU countries current labour shortages are well below pre-crisis levels. Although labour shortages edged up slowly until end of 2011, they have fallen back again over the past two years. Recruitment in all sectors is much lower than in 2008. According to Eurostat, job vacancies in 15 Member States in the third quarter of 2013 are still 25% below those in 2008.

Figure 2: Trends in labour shortages, EU and selected Member States, 2007-13



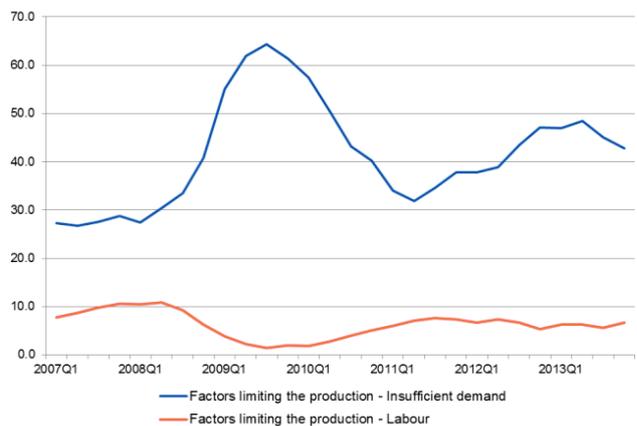
Source: Euroind database.

Data on overall labour shortages in Europe also mask big differences between Member States. At end 2013, the labour shortage indicator (LSI) was above its pre-crisis average in only five Member States (Bulgaria, Germany, Slovakia, Poland and UK). Only in Germany is the LSI higher and unemployment lower than at the peak of the crisis.

Since 2010, differences in labour shortages between EU countries have widened considerably, marking emergence of a two-speed Europe in terms of a return to employment growth (Fig. 2).

More than 40% of EU manufacturers consider that insufficient demand is the primary factor limiting their production; only 6% blame labour shortages (Figure 3). Accordingly, expectations of low demand rather than lack of skills are more likely to reduce recruitment.

Figure 3: Trends in production bottlenecks, EU-27, 2007-13



Source: Euroind database.

### Unfilled vacancies, skill shortages and labour market friction

Some employers say they cannot fill vacancies because even highly-qualified candidates have the wrong skills. They claim education systems 'educate graduates of tomorrow in the skills needed in the industry yesterday'. Many employers are concerned that applicants lack 'soft skills', such as interpersonal, communication and problem-solving abilities. This complements a belief that jobs in growing sectors such as health, education and other services require different skills than those acquired by unemployed people who worked in declining sectors, such as agriculture and manufacturing.

Certainly some firms, for example industry leaders in innovation and product quality, have temporary recruitment difficulties for some professions, such as ICT developers. It is also difficult to attract people to some occupations. Recruitment bottlenecks are often reported for doctors, nurses and midwives and for jobs requiring specific vocational skills, notably engineering. But in many instances recruitment difficulties reflect labour market friction such as low labour mobility, seasonal shifts in demand, for example in tourism, lack of information and wage rigidities. These affect efficiency of matching job-seekers and firms, but are not directly related to lack of skills.

Firms can experience recruitment difficulties if they offer poor wages and unattractive working conditions. Only 6% of respondents to the 2013 Manpower survey say that they improve benefits to attract applicants for hard-to-fill vacancies. Only 5% increase starting salaries. Inability to offer a competitive starting salary is cited by about 25% of employers in the 2010 Eurobarometer survey as a reason for unfilled vacancies. Another 11% of firms say limited resources inhibit their ability to market their graduate vacancies. Some firms, particularly small- and medium-sized ones with fewer resources for recruitment and training may have difficulties in hiring or developing talent. Taken together, credit and cost constraints are as much of a barrier to filling vacancies for firms as lack of skilled workers, particularly in, for example, Bulgaria, Greece, Spain, Croatia, Latvia, Hungary, Poland, Portugal, Romania and Slovakia.

Mobility, or rather lack of it, can also cause recruitment problems. Some occupations, such as health professionals, are mobile. Many skilled people move to work in more affluent areas or countries. But, overall, European labour market mobility tends to be low, not only due to language barriers and unwillingness to move, but also to lack of information on job opportunities. Obstacles to recognising qualifications gained in other countries also persist.

Inefficient recruitment and training strategies have also been identified as culprits for vacancies being difficult to fill. The 2013 Manpower survey found some 24% of employers complaining about lack of experience and work attitudes of young applicants. However, firms fail to engage in on-the-job or dual training programmes that would improve young people's job-readiness or enable employees to acquire necessary work-related skills. Eurostat data show that only about 33% of employees in the EU received training provided or paid for by their employers in 2010. And most employees were already highly-skilled individuals.

Weak employment demand can also lead to exacting recruitment criteria. Faced with oversupply of highly-qualified job candidates, employers prefer to wait for the perfect applicant rather than provide training, good working conditions and pay to attract talent\*. The 2013 Manpower survey found only 7% of employers willing to redefine qualifying criteria, even though this would make recruitment easier. Only about 13% of employers

\* Cappelli (2012). *Why good people can't get jobs: the skills gap and what companies can do about it*. Wharton.



indicate they recruit more widely to address recruitment difficulties. Employers tend to overlook possible candidates from outside the region or country as well as young people, women and older workers. Many in this pool of unexploited talent are skilled workers. Around 40% of unemployed people were previously working in high-skilled or skilled non-manual jobs.

In some countries, for example the UK, less than 20% of unfilled vacancies are attributed to skill deficits among applicants. Only 10% of firms find that their newly-recruited university graduates lack the necessary skills, although in some countries such as the Czech Republic, Estonia, Lithuania and Slovenia skill deficiencies tend to be more pronounced.

### Tackling all types of skill mismatch

Despite high levels of unemployment, firms continue to report difficulties finding the people they want. However, when examined more closely, the argument that this is largely due to skill shortages is not wholly convincing. Weak labour market demand and high unemployment is making other types of skill mismatch, notably overqualification, more prominent.

This does not mean that efforts to bring education and training and the labour market closer together should stop. On the contrary, they should be reinforced with strong commitment from employers. This includes policies to increase high-quality apprenticeships and internships. Evidence shows young people on such schemes are more likely to acquire useful skills and attitudes to find suitable work. Nor does it mean that people no longer need to learn. Both employed and unemployed adults need continuous development and use of skills throughout working life. Firms must invest in and offer learning opportunities to their workforce.

Cooperation between governments, employers and unions in managing education and training systems should also be strengthened to adapt curricula quickly to meet changing skill demands. Such cooperation should develop VET at all levels, including tertiary, and cover short-term training to address swiftly skill deficits, for example in innovative sectors. Better labour market intelligence to identify skill mismatches and anticipate future needs can also improve labour market relevance of education and training. It can also support high-quality career guidance to help people make well-informed choices about their learning and careers.

In addition, closer scrutiny of all problems of matching skills to labour market needs is required. This includes encouraging firms to review their recruitment practices, extend training strategies in the workplace and broaden their recruitment pools.

It is claimed that despite high unemployment, there are still two million vacancies in the European economy. But in 2012, about 25.3 million people in the EU were unemployed, some 45% of which were long-term unemployed. Another 20.4 million were

underemployed, constituting a potentially discouraged or marginal labour force. This means around 20% of the EU's total labour force – some 46 million people – are currently unemployed or underemployed, many of which are educated at above upper-secondary level or have prior experience in skilled jobs. At the same time, about 23.4 million young Europeans aged 18 to 24 are continuing to invest in education and training.

Consequently, the concern must be that unless the low demand driving high unemployment is reversed it will foster and perpetuate skill mismatch and skill obsolescence through overqualification and unemployment which, eventually, will lead to a lack of skills becoming entrenched.

The World Economic Forum has published a paper on skill mismatch to which Cedefop contributed substantially\*. The paper points out that skill mismatch is mainly an outcome of structural rigidities in labour markets, but is also influenced by the cyclical gap between demand and supply. Job creation is fundamental but all aspects of skill mismatch must be addressed. If not we may only prolong the jobs crisis as people will fail to have opportunities to develop the skills required by the jobs the economic recovery creates.

#### FURTHER INFORMATION

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\* [http://www3.weforum.org/docs/GAC/2014/WEF\\_GAC\\_Employment\\_MatchingSkillsLabourMarket\\_Report\\_2014.pdf](http://www3.weforum.org/docs/GAC/2014/WEF_GAC_Employment_MatchingSkillsLabourMarket_Report_2014.pdf).

# Switzerland and EU join Forces in Science and Research

December 5, 2014

The European Union and Switzerland are today (5 December 2014) signing a comprehensive international agreement associating Switzerland to parts of Horizon 2020, Research and Training Programme of Euratom and the ITER project. This will see Switzerland participate in project consortia in eligible programmes on an equal footing with EU Member States, while financially contributing to these programmes with an estimated €400 million until the end of 2016.

Commenting on the signature of the agreement, Carlos Moedas, European Commissioner for Science, Research and Innovation said: *“This agreement is of paramount importance for our scientific communities. EU researchers benefit from access to excellent Swiss research facilities and institutions. At the same time, access to schemes for researcher mobility like Marie Skłodowska-Curie or to excellent research in programmes like ERC and Future and Emerging Technologies is vital for the Swiss. Furthermore, with this agreement Switzerland renews its commitment towards our long standing and fruitful collaboration.”*



As part of the Horizon 2020 programme, Swiss beneficiaries will be able to participate with an associated status in actions under the “Excellent Science” pillar, which contains the European Research Council, Future and Emerging Technologies, Research Infrastructures and the Marie Skłodowska-Curie actions as well as in actions under the specific objective “Spreading excellence and widening participation”. In addition, Switzerland will also participate as an associated country in the Euratom Programme and the ITER project.

The participation of Switzerland is effective from 15 September 2014 until 31 December 2016. Beyond 2016, association to these programmes will depend on Swiss measures to ensure

the non-discrimination of Croatian citizens and researchers. If Switzerland resolves the issue of the free movement of persons by February 2017, the association will expand to the whole of Horizon 2020 including the parts not yet covered. Otherwise, the whole agreement will be automatically terminated.

## Background

Cooperation in research and technology between the European Union/Euratom and Switzerland has a long history. Switzerland has been associated to the two previous framework programmes while in fusion it has been associated since the start of the programme in 1978 (“historic partnership” for Euratom). In the last programme (FP7, 2007-2013) Switzerland has had a very active participation with 4,457 participations from Switzerland in 3,404 signed grant agreements, which ranks Switzerland at first place amongst the Associated Countries in terms of number of participations and budget share. The Swiss participants have been particularly active in areas such as: nanotechnologies, ERC, Marie Curie actions, food, agriculture, fisheries and biotechnologies and ICT. Switzerland has been a valuable partner for Euratom research, and it is the only third country associated to the entirety of the previous Euratom research programme (2012-2013). By virtue of its association to Euratom, the ITER Agreement applies also to Switzerland. In relation to cooperation in fusion under the Euratom Programme the new agreement will replace the 1978 Fusion Cooperation Agreement.

### FURTHER INFORMATION

Horizon 2020:  
<http://ec.europa.eu/programmes/horizon2020/>

International cooperation in Horizon 2020:  
<http://ec.europa.eu/research/iscp/index.cfm>

[http://europa.eu/rapid/press-release\\_IP-14-2383\\_en.htm](http://europa.eu/rapid/press-release_IP-14-2383_en.htm)

# New Modes of Learning and Teaching in Higher Education

## Report to the European Commission

October 2014



The higher education landscape is undergoing significant change as a result of technological innovations. We are witnessing changes in the way higher education is taught and in the way students learn. While the conventional setting of the lecture hall will continue to form the bedrock of higher education systems, it will be enhanced by the integration of new tools and pedagogies, and it will be complemented by many more online learning opportunities and a greater variety of providers in higher education.

These new technologies and approaches to education are already having a clear and positive impact on higher education provision. They can support efforts within the Bologna Process and the European Union Modernisation Agenda to enhance the quality and extend the reach of higher education across Europe. And they are already starting to facilitate better quality learning and teaching for both on-campus and online provision, as educational resources from around the globe become more freely accessible and more interactive media for learning are employed. Methods of teaching can be better tailored to individual students' needs and advances in learning analytics are enabling quicker feedback on students' performance.

There is enormous potential for widening access to higher education and increasing the diversity of the student population. Online technologies provide opportunities to learn anywhere, anytime and from anyone. This flexibility is essential for non-traditional learners and will enable a shift change in the engagement of higher education institutions in lifelong learning and continuing professional development. This will provide an important tool to governments in ensuring a diversity of provision within higher education systems to meet the needs of all learners. It also provides a platform for reaching international markets and complements existing developments in cross-border education.

Finally, new technologies can facilitate greater collaboration, both with global partners and at a more local level. Developing educational partnerships is an important element of Europe's strategy for cooperation with other parts of the world and also provides a mechanism for enhancing educational attainment rates in emerging economies. At the local level, technologies can underpin national efforts to drive greater collaboration between institutions, combining expertise and delivering greater critical mass.

The benefits are clear and Europe needs to take concerted action to ensure that the potential is fully realised. While the debate on digital learning has been dominated in recent times by the MOOC phenomenon, the impact of technology can and will be much wider. Governments must strongly encourage and support a greater integration of new technologies and associated pedagogical approaches in conventional provision. Traditional providers must diversify their offering and provide more courses online, especially targeting continuing professional development and lifelong learning. They should also be encouraged and incentivised to engage with newer forms of open, online courses as these become more established. The momentum towards openness and freely accessible education resources needs to be maintained and built on. The goal should be to ensure that all publicly funded education resources are openly available.

Realising these ambitions is not a straightforward task. It will involve significant changes in how higher education institutions operate, as well as a change in culture and mindset. The challenges will require targeted actions and support.

There remains a culture of conservatism within European higher education which needs to change. This demands strong leadership and vision from both public authorities and institutional leaders. While a broad range of good practice is already emerging across Europe, this is happening to a large degree in an uncoordinated bottom-up approach. It is now time for governments and institutions to develop comprehensive strategies at both the national and institutional level for the adoption of new modes of learning and teaching within higher education. Governments need to decide on the mix of provision necessary across the system to meet the needs of all learners, and they must identify the support needed to deliver this. In particular, targeted financial incentives will be paramount in kick-starting initiatives. Dedicated centralised structures and supports within institutions can provide the engine for driving change and mainstreaming new approaches across the institution. Teaching staff are, of course, at the frontline of delivering these changes and they must be equipped with the skills and knowledge to allow them to fully utilise the range of new teaching tools available. Continuing professional development for teachers must become the norm across all European institutions.



New models of provision such as open online courses bring specific challenges. But given the opportunities that they offer for lifelong learning, continuing professional development and internationalisation, it is imperative that public authorities consider how these learning opportunities can be brought more fully into the higher education system. There are many anxieties about the quality and wider acceptance of these learning experiences, and action is needed to quell these concerns. Guidelines around quality assurance and developing a means of providing credit and recognition for these forms of learning will advance efforts to instil them as a credible alternative to the traditional degree programme. The ECTS system gives Europe an obvious advantage in this regard. Online learning has also brought with it the ability to collect and analyse learner data that has not been possible before. This brings great potential for personalised learning and enhanced retention, although the utmost care must be taken to ensure students are fully aware of and give full consent for the collection and use of their personal data.

Our message is clear. While accepting that higher education institutions and, more particularly, teaching staff are the main actors in delivering these pedagogical changes, it is the responsibility of public authorities to create the environment and incentive for action. The European Union also has an important role to play. Through the Erasmus+ programme, financial support can be given for supportive policy initiatives at a national or institutional level. Support can also be made available for peer learning and collaborative cross-border initiatives, for example, infrastructures, quality assurance guidelines and credit recognition.

We stand on the cusp of real transformative change in higher education. This must be embraced fully to ensure that we provide the best learning experience for all students, not just in Europe but across the globe.

### Quality assurance and accreditation

Robust processes for assuring the quality of higher education provision is a fundamental requirement for instilling trust in and recognition of qualifications. Significant efforts have been made under the Bologna Process to strengthen quality assurance procedures across the European Higher Education Area. As a result, national quality assurance regimes are coping well with ensuring the quality of on-campus, distance education and even transnational provisions, leading to smooth accreditation and recognition of study programmes. These processes can therefore provide the appropriate mechanism for ensuring the quality of new ICT-based approaches within conventional provision (blended learning).

However, newer developments like MOOCs have yet to really feature in discussions on quality assurance. Higher education institutions are responsible for the quality of the qualifications they award and institutions will ultimately be held accountable to students, graduates, businesses and governments for the learning of students, regardless of the modes of delivery. Higher education systems need to prepare themselves for the foreseeable transition of entire education systems to more providers, be they public, private, semi-public, diversified offerings, blurred boundaries between VET, higher education, further and continuous learning. Whereas courses from private providers will

be “recognised”/“quality assured” by market forces and reputation, higher education institutions must be able to assure the quality of all aspects of their provision including outsourced and unbundled elements. While we do not see the need for separate procedures, authorities must consider these developments and ensure that they are appropriately captured within established systems. Quality assurance systems will also be important for monitoring retention levels across an institution's portfolio of provision, and in guiding the level and type of support needed for different types of learner.

It is equally important that quality assurance procedures do not act as a barrier to the emergence of creative and innovative pedagogical developments and course design. In particular, requirements for individual programme accreditation sometimes create rigidities that do not encourage the timely adaptation of courses, including the introduction of novel approaches and pedagogies. In this regard it is promising to note from the European Commission's recent progress report on quality assurance that there is an on-going trend in external quality

assurance, from the traditional focus on accreditation of individual programmes to the evaluation of the entire institution. This will allow for a much greater flexibility in course design and delivery, and the integration of emerging technologies and new pedagogies within normal provision (e.g. OER, classroom technologies, etc.). These should become fully integrated in normal quality assurance and accreditation procedures, taking due account of the European Standards and Guidelines for Quality Assurance.

To go a step further, digitalised learning and teaching modes offer the opportunity to bridge procedures of quality assurance used in research and in education. In the area of research, peer review of content (and conduct) are institutionalised procedures. Teaching and learning in digitalised formats allow ex-ante peer reviews of course material and these should become an integral part of quality assurance of online provision. This can further add to the quality of learning and teaching across our higher education systems.

## Policy recommendations overview



### Recommendation 1

The European Commission should support Member States in developing and implementing comprehensive national frameworks for diversifying provision and integrating new modes of learning and teaching across the higher education system. It should promote mutual learning on key aspects including skills development, infrastructures, legal frameworks, quality assurance, and funding, in particular by exploiting the potential of the Erasmus+ programme.



### Recommendation 2

The European Commission should prioritise support to higher education institutions under the Erasmus+ programme, to enhance digital capacity and mainstream new modes of learning and teaching within the institution. Erasmus+ funding should also be made available to promote experimental partnering with specialist service providers.



### Recommendation 3

The integration of digital technologies and pedagogies should form an integral element of higher education institutions' strategies for teaching and learning. Clear goals and objectives should be defined and necessary organisational support structures (such as the European Academy of Teaching and Learning) established to drive implementation.



### Recommendation 4

National authorities should facilitate the development of a national competency framework for digital skills. This should be integrated into national professional development frameworks for higher education teachers.



### Recommendation 5

All staff teaching in higher education institutions should receive training in relevant digital technologies and pedagogies as part of initial training and continuous professional development.



### Recommendation 6

National funding frameworks should create incentives, especially in the context of new forms of performance-based funding, for higher education institutions to open up education, develop more flexible modes of delivery and diversify their student population.



### Recommendation 7

National authorities should introduce dedicated funding to support efforts to integrate new modes of learning and teaching across higher education provision. Funding should encourage collaborative responses to infrastructural needs, pedagogical training and programme delivery.



### Recommendation 8

National and regional authorities should utilise opportunities under the European Structural and Investment Funds programme to support the development of necessary supporting infrastructures, technologies and repositories.



### Recommendation 9

Public authorities should develop guidelines for ensuring quality in open and online learning, and to promote excellence in the use of ICT in higher education provision.



### Recommendation 10

The European Commission should support cross-border initiatives to develop quality standards for open and online learning under the Erasmus+ programme.



### Recommendation 11

Higher education institutions should ensure that quality assurance arrangements apply to all forms of credit-awarding provision in the institution. Institutions should use the quality assurance system to monitor retention rates and inform the development of appropriate supports.



### Recommendation 12

The European Commission and national authorities should encourage and incentivise higher education providers to award and recognise credits under the European Credit Transfer and Accumulation System for all forms of online courses. The current revision of the ECTS Guide should incorporate these principles.



### Recommendation 13

Governments and higher education institutions should work towards full open access of educational resources. In public tenders open licences should be a mandatory condition, so that content can be altered, reproduced and used elsewhere. In publicly (co-)funded educational resources, the drive should be to make materials as widely available as possible.



### Recommendation 14

Member States should ensure that legal frameworks allow higher education institutions to collect and analyse learning data. The full and informed consent of students must be a requirement and the data should only be used for educational purposes.



### Recommendation 15

Online platforms should inform users about their privacy and data protection policy in a clear and understandable way. Individuals should always have the choice to anonymise their data.

# Momentum for European Innovation and Competitiveness

## “European Investment Bank Conference”

Berlin, 2 March 2015: speech by Mr Carlos MOEDAS, Commissioner for Research, Science and Innovation on “Momentum for European Innovation and Competitiveness”

Ladies and Gentlemen,

**M**y message to you is simple, that in the future we will be judged for the investments we choose to make now. What? Where? When? and Why? Now, above all. Sufficient time has passed to understand the complex nature of public effort needed to advance new entrepreneurship and innovation. As policymakers, we can no longer afford to hide behind the words “progress” and “opportunity”, because of our own vanity. Just to be seen to be investing in something, anything, anywhere, anytime. European citizens are at a point of zero tolerance for well-meaning, but ineffectual gestures. And rightly so. Now more than ever, we will be judged not for the quantity but for the quality and patience of our investments.

Since unification, successive German governments have led by example, making Research, Science and Innovation permanent features of public investment. The European Union has acted with equal foresight, substantially increasing its current budget for Research and Innovation, at a time when the overall budget was being reduced. There are no guarantees in life, but that decision is already etching its mark.

My first formal act as Commissioner, was to launch a swift process that channeled substantial funds into Ebola vaccine research. In record time, the European Commission was able to launch a major call. Able to mobilise over 200 million Euro and many hard working researchers. Just last week, we received news from Inserm. News of their promising, new treatment for early stage Ebola infection. We can be uplifted, proud, of this breakthrough, and everything we hope it will mean for humanity. But we can do more than even this.

Our economies are no longer in free-fall. Capital is no longer scarce in many places, and yet we, in Europe, remain lethargic, occupied by investments that deliver short-term gains, look safe and conventional. The irony is, that this misplaced caution has a strangle-hold on the clearest path to our common prosperity. Limiting the potential of our investments in European research, science and market-creating innovation.



Despite our creative diversity, we are the ones standing in our way. The alternative is prioritising investment in what has never failed us. In what has always been our greatest gift to the world. In the very essence of any great European enterprise or discovery. In the lifeblood of prosperity.

I ask that we invest more in knowledge and in people. That is our differentiator. As Europe we are the best at producing knowledge and our diversity is key for our future. And so today, I wish to touch on two points in particular. The first is what we’re doing at European level to treat the ailment of anaemic R&D expenditure, and the second is the kind of cooperation with Member States, industry and private sector investors we hope will lead to the healthy and vigorous transfer of science to market.

And so to my first point: What are we doing? We’re investing as never before. We’re investing in a way that is flexible enough to respond to major crises like Ebola. We’re investing in a way that allows for research and innovation to create markets and get us as someone once said from the Internet of Things to the Age of Intelligent of Things. We’re investing in a way that will help bring research results to market faster. Whether it be

through public private partnerships or the European Research Council. And we're investing patient capital into long term projects, that require fundamental research, and will lead to the kind of science and innovation from which future methods, technologies and business models can grow. So how is all this investment taking shape?

As I mentioned earlier, Horizon 2020 saw a 40% budget increase from our previous framework programme – making it the biggest multinational research programme in the world today. Open to the world. Funding excellence wherever it finds itself.

As presented by President Juncker earlier today, the new European Fund for Strategic Investment will further support research and innovation, by leveraging more public and private sector financing for “high risk high reward projects”. From a rent seeking economy to a knowledge economy. Covering a much broader range than could ever have been achieved with Horizon 2020 alone. What's more, new synergies with Structural Funds will make Regions key partners for improving R&I capacity and competitiveness across the EU.

Finally, we have taken the first steps towards creating a Capital Market Union, which should provide innovative projects with more diversified venture financing in Europe. We are far too dependent on bank financing. In the US, around 80% of financing comes from capital markets and 20% from Bank Loans. The situation in Europe is basically the opposite and this has consequences. Banks shy away from high-risk, R&D-intensive investments. The investments we need for Europe's competitiveness.

So Horizon 2020, the new European Fund for Strategic Investments, better use of Regional Funds for Innovation, and the moves towards a Capital Markets Union are just four of the ways the European Commission is taking new steps to improve the quality of public expenditure on research, and stimulate more private investment.

Because we will never be able to tell what the future holds in terms of innovation. It wasn't that long ago that smart phones entered the global market place. Now many of us don't think twice about reading our emails at the touch of an app, at thirty thousand feet, on a flight that costs the same as a tank of petrol.

As politicians, there is also a lot we can do to eliminate the barriers to natural growth and innovation. If we want to see Europe's natural inquisitive and entrepreneurial spirit flourish, we cannot afford to stifle innovation with red tape. We must not kill creativity and invention with bureaucracy. Innovation needs “creative abrasion” for ideas to flourish into products. We have 28 Member States and over five hundred million people, whose ideas could achieve something, if we let them. If we invest in making Europe a more attractive place for everyone to test out their ideas. If we make Europe a continent that invests in Open Science and Responsible Research and Innovation. I call it the three Os: Open Science, Open Innovation and Open Data. If we provide far better incentives.

There was a time when the billion dollar tech startup was a pipedream: quasi-mythical entities that became known as unicorns. Now unicorns like Uber, Dropbox and Airbnb, and European ones like Spotify, Shazam or Rovio, are showing the whole world what disruptive innovation is all about. We need more examples like these. And we need them in all sectors. We need to provide the kind of incentives that encourage all European innovators to think global from their first day in business.

Good ideas, set free, can change the way we do just about anything.

Which brings me to my second point. This is where working together with Member States, industry and private investors becomes paramount. Member States must play their part in ensuring the Commission's new Investment Plan supports European research, science and innovation whenever and wherever possible. Just as industry and private sector investors must have the right information and incentives to take up these opportunities whenever and wherever possible.

When it comes to research, science and innovation - no matter how popular or unpopular the EU may be at home – Member States must put as much effort into building momentum at European level as they do at national level. It is in everyone's interest! To do so, is to invest in nations too.

In this day and age, no one country can solve climate change. No one country can end chronic disease or make their ageing populations young. Alone, no one country can even maintain a space station. 21st century science and technology show the value of working across disciplines and across borders.

It was at CERN, the European Organization for Nuclear Research, where physicists and engineers probe the fundamental structure of the universe, that Tim Berners-Lee, a British scientist, invented the World Wide Web in 1989. A European hub of cultural, intellectual and scientific exchange, resulted in an innovation that has fundamentally changed the way we work, communicate and learn.

The new European Fund for Strategic Investments, if used to fund research, science and innovation at every opportunity, could lead to breakthroughs the consequences of which we can only imagine. Who remembers that it was by discovering the concept of anti-matter, that Medical Research developed the PET Scan decades later, able to detect cancer.

So my call to action is this. Let us invest in knowledge and people. Let us continue to explore every frontier, so that we may profit from even one lightening bolt of inspiration that will encompass the whole world.

#### FURTHER INFORMATION

[http://europa.eu/rapid/press-release\\_SPEECH-15-4532\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-15-4532_en.htm)



# Prof. Dr. Bernard REMAUD, new President of ENAAEE

Prof. Dr. Bernard REMAUD, former president of CTI (Commission des Titres d'Ingénieur, France) elected as new President of ENAAEE. New Administrative Council members take office.

**E**NAEE, the European Network for Accreditation of Engineering Education, has chosen its new leadership. Prof. Dr. Bernard REMAUD was elected as the new President of ENAAEE at the General Assembly held in Brussels on 20<sup>th</sup> March 2014. He succeeds Dr. Iring WASSER, Managing Director of ASIIN, Germany, who was President since 2012.

Bernard REMAUD was Executive President of CTI (Commission des Titres d'Ingénieur, France) from 2006 to 2012. CTI is the French accreditation institution for engineering degree programmes in France. While at CTI, REMAUD worked to adapt CTI (created in 1934) to the new European Higher Education Area, to develop CTI activities at large and to promote the EUR-ACE label (more than 300 labels awarded in France and in other countries). He has served on the ENAAEE Administrative Council since 2012.

REMAUD is Professor Emeritus at the University of Nantes from which he graduated with a doctorate in Nuclear Physics in 1971. He served as Dean of two Engineering Graduate Schools, respectively IRESTE (University of Nantes) which specialized in Electronics and Computer Engineering, from 1995 to 2000; and at the Polytech'Nantes from 2000 to 2005 where he established a multidisciplinary engineering graduate school. This became the template for a network of 13 such postgraduate schools in France.

Building on his experience, REMAUD wishes to serve ENAAEE to enable it to achieve its objectives; in particular, the revision of its standards and procedures, the discussions with IEA (International Engineering Alliance), and the mutual recognition of EUR-ACE labelled engineering degree programmes by authorised accreditation agencies. Furthermore he believes that ENAAEE has to develop its policies and procedures to embrace joint programmes, distance learning, lifelong learning...

He also sets as priorities, to enhance the level of recognition of the EUR-ACE label with industry and other stakeholders, to spread its membership to new countries (in and outside Europe) and to be a major actor in worldwide engineering education.



The General Assembly also elected four new members to fill vacant positions on its Administrative Council (AC). Prof. Dr. Claudio BORRI (UNIFI, Italy) was reelected for a second term. Dr Ralph APPEL (VDI, Germany), Mr. Mike BRIDGEFOOT (EngC, UK) and Dr Rafael FERNANDEZ-ALLER (IIE, Spain) were elected for a first term. The newly elected President and members of the AC take office on 1 April 2014.

ENAAEE thanks outgoing AC members Dr. Ahmed Erbil PAYZIN (MÜDEK, Turkey), Prof. Dr. Yuri POKHOLKOV (AEER, Russia) and in particular the outgoing President Dr. Iring WASSER for his commitment and achievements in developing the Network.



European Network for Accreditation of  
Engineering Education (ENAAEE)

FURTHER INFORMATION

ENAAEE: [www.enaee.eu](http://www.enaee.eu) – [info@enaee.eu](mailto:info@enaee.eu)

# The EUR-ACE<sup>®</sup> Label, assuring Quality Engineering Degree Programmes

Over 1,490 engineering degree programmes in 300 universities in 22 countries have now been awarded the EUR-ACE<sup>®</sup> (EUROpean ACcredited Engineer) Label. So how does it work and what does it have to offer to employers looking for engineering graduates?



**E**stablished in 2006, the EUR-ACE<sup>®</sup> label is a reliable verification of the high quality of an engineering degree programme above the minimum standards set by national laws. There is a database of all accredited engineering degree programmes which have been awarded the EUR-ACE<sup>®</sup> Label at <http://www.enaee.eu> where it is possible to search by country, programme or educational institution.

ENAAE (European Network for Accreditation of Engineering Education) [www.enaee.eu](http://www.enaee.eu), is the organisation which authorises accreditation agencies (or similar bodies) in different countries to award the EUR-ACE<sup>®</sup> label to the engineering degree programmes they accredit.

## What is programme accreditation?

Programme accreditation is a review process that assures the educational quality and the job relevance of an engineering degree programme against a set of standards. It helps people make important decisions about engineering education including:

- Students choosing an educational programme
- Institutions seeking to improve the education provided by their programme
- Employers recruiting well-prepared graduates
- Industry seeking to voice educational needs to institutions

## How does this work?

An accreditation agency which accredits engineering degree programmes applies to ENAAE for the authority to grant the EUR-ACE<sup>®</sup> Label to the programmes they accredit at Master and Bachelor degree level. If ENAAE is satisfied that the procedures and policies of the agency satisfy the standards set out in EUR-ACE<sup>®</sup> Framework Standards (EAFS), then that agency is authorised to award the EUR-ACE<sup>®</sup> Label to the programmes it accredits.

## The needs of engineering employers

To be successful in the workplace, engineers are required to have not only technical and problem-solving expertise upon completion of their engineering degree programme, but also transferable skills. Transferable skills are those which are required to work across disciplines and teams, and the ability to communicate effectively in the workplace.

The six programme outcomes of EUR-ACE<sup>®</sup> Labelled accredited engineering degree programmes are:

- Knowledge and Understanding
- Engineering Analysis
- Engineering Design
- Investigations
- Engineering Practice
- Transferable Skills

### The EUR-ACE® label is relevant to all European engineering degree programmes

The EUR-ACE® label is relevant across all European countries because it uses a consistent framework of standards to measure the effectiveness of an engineering degree programme. The EUR-ACE Framework Standards (EAFS) specify engineering programme outcomes i.e. the knowledge, skills and attitudes required of engineering graduates at the Bachelor and Master level (and consequently the EUR-ACE® label distinguishes between EUR-ACE® Bachelors and EUR-ACE® Masters).

The EAFS take into account the diversity of engineering programmes that are necessary for working in the European engineering industry. Due to the way they are structured, they can accommodate innovation in teaching methods, as well as encouraging the sharing of best practice and can incorporate the development of new engineering disciplines.

An important part of the role of ENAEE is to continually ensure that the EUR-ACE® label incorporates not only the views and perspectives of industry and higher education institutions, but also relevant changes in engineering technology. So ENAEE promotes engineering education, and the EUR-ACE® label assures its quality.

### How does the EUR-ACE® label help engineering employers?

Each Higher Education Institution (HEI) that has a EUR-ACE® labelled engineering degree programme must undergo regular evaluation as to the quality and relevance of its engineering education degree programmes.

Engineering academics together with engineers from industry are engaged to regularly evaluate engineering degree programmes from authorised accreditation agencies to check that these programmes comply with the EUR-ACE® standards and so retain the authorisation to award the EUR-ACE® label.

At a higher level, engineers from industry also sit on the Boards and Councils within each EUR-ACE- authorised accreditation agency. These decision-making bodies are responsible for overseeing and checking the implementation of these standards by the agencies and their review teams.

(...name of accreditation agency...) is authorised to award the EUR-ACE® Label to the engineering degree programmes it accredits.

To access the database of all EUR-ACE® labelled programmes, please visit <http://www.enaee.eu> where it is possible to search by country, institution or type of engineering programme.



# Mutual Recognition of EUR-ACE Labelled Engineering Degree Programmes

## Signing of Agreement

Brussels, November 19, 2014



**E**NAEE (European Network for Engineering Accreditation), with support from the EU Tempus programme, was founded on 8 February 2006, by 14 European associations concerned with engineering education. ENAAE is rooted in the so-called Bologna process which aims at building a European Higher Education Area (EHEA), by strengthening the competitiveness and attractiveness of European higher education and fostering student mobility and employability.

ENAAE addresses specifically the education of engineers, whose importance is increasing in the global economy. ENAAE aims to enhance and promote the quality of the education of engineering graduates in order to facilitate their professional mobility and to enhance their individual and collective ability to fulfil the needs of economies and of society.



To achieve these goals, ENAEE authorises accreditation and quality assurance agencies to award the EUR-ACE® (EUROPEAN-ACCREDITED ENGINEER) label to their accredited engineering degree programmes. To be authorised, an agency must satisfy the standards published by ENAEE in the EUR-ACE® Framework Standards (EAFS) document. Since 2006, the EUR-ACE® label has been awarded to more than 1600 engineering programmes, delivered in more than 300 universities in 30 countries in Europe and worldwide.

The 13 authorised agencies have today signed a Mutual Recognition Agreement and have agreed to make every reasonable effort to ensure that the bodies responsible

- (i) for recognising engineering qualifications and/or
- (ii) for registering or licensing professional engineers to practice in its country or jurisdiction,

Accept the comparability of EUR-ACE® labelled programmes accredited by authorized agencies.

We expect that this agreement will further facilitate the implementation of the EU Directive on Recognition of Professional Qualifications throughout the European Union.



# Standards of Engineering Degree Programmes, the Requirements of Industry?

Brussels, November 19, 2014

Ralph Appel, Executive Director – VDI – The Association of German Engineers: speech for the event on Mutual Recognition of EUR-ACE® Labelled Engineering Degree Programmes, organized by ENAEE

Ladies and gentlemen,

It is a great pleasure for me to speak to you today. Mr President, Professor Remaud, thank you for your kind invitation to present my views on the requirements of industry concerning standards of engineering degree programmes.

VDI – The Association of German Engineers, as most of you probably know, has individual engineers as members, not companies. However, we co-operate closely with enterprises, large and small, to help identifying young engineering talents and to accompany graduates in their first career steps. My thoughts and observations about what companies expect from young engineers are a reflection of the experiences we have made working with employers in Germany as well as with the students and graduates.

Let me start by pointing out that employers from industry generally expect graduates to have a solid understanding of basic engineering concepts paired with a more detailed knowledge in the graduate's respective area of specialisation. In other words, technical expertise matters to almost any employer of engineers. However, technical expertise has never been the only issue that employers look at and in the future, additional factors will likely gain even greater importance.

I would like to highlight in the next few minutes three of these factors. These are international mobility, multidisciplinary and practice-orientation.

Let me start with international mobility. With the advancement of globalization and the further integration of the European internal market, the demand for qualified engineers, which are mobile across borders, is increasing. Not just large industrial corporations, but also small and medium-sized enterprises are taking an increasingly active role on foreign markets. This raises the demand for engineers who can be deployed flexibly on an international level.

Moreover, there are labour market imbalances in Europe: For many years, Germany has not been able to cover companies' demand for qualified engineers in full. Currently, there are 63.700 positions vacant and demographic trends will further aggravate this situation.

While Germany is lacking engineers, other countries are having too many of them: In Spain, for instance, many well-qualified young engineers are facing difficulties finding jobs. Enhancing mobility of engineering students and professionals would help to balance demand and supply on the European labour market more effectively.

On the flip side:

Enhancing compatibility of the various study programmes and thereby facilitating mobility of students across Europe has been at heart of the Bologna reform. However, even though the compatibility of the engineering programmes has been improved, still too few engineering students in Germany go to study abroad.

In 2012 only 10 percent of them have spent a semester abroad, whereas 25 percent of law and economics students go international. While ever more employers are seeking engineering graduates with first international experience, engineering science is still one of the more "immobile" academic disciplines in Germany!

To achieve improvements we must raise awareness amongst engineering students about the benefits that an international experience can have for their career prospects. Moreover, German universities should further strengthen their co-operation with partner universities abroad, for example by designing more double-degree programmes. They should better recognise qualifications obtained abroad or use available financial means to support their students studying abroad.



In VDI's view, our goal should be to increase cross-border mobility of engineering students in Germany in the mid- to long-term from 10 to 25 percent.

Ladies and gentlemen,  
Another important requirement is multidisciplinary.

This involves "crossing boundaries" through the combination of two or more academic disciplines. For our engineering sciences, multidisciplinary not only means to acquire basic knowledge of other disciplines such as business administration or communications. It also involves being able to understand the fundamentals of areas of engineering beyond one's own area of specialisation.

Why is multidisciplinary becoming more important?

I think it is because engineers increasingly have to contribute to finding solutions for major societal, environmental and economic challenges which are multidisciplinary by nature. This requires engineers to understand and respond to issues that lie well beyond their area of specialisation.

A prime example for such a challenge is what some call "Smart Manufacturing", "Industrial Internet" or "Industrial Revolution 4.0" and for which we Germans created the term "Industry 4.0". I am talking about the digitalization of the industry and the

**"Enhancing mobility of engineering students and professionals would help to balance demand and supply on the European labour market more effectively."**

manufacturing industry in particular. It aims at creating "smart factories" that are characterised by adaptability, resource efficiency as well as the integration of customers and business partners into the supply chain.

In the "Industry 4.0" mechanical engineering, automation and informatics all come together and the ability to create completely new business models will determine future success of companies and whole economies.

All this implies that the engineer of the future will have to develop further. He or she will have to work effectively at the interfaces between different disciplines and functions and be able to think outside the box.

Universities must prepare them adequately. They should strengthen their students' ability to acquire knowledge in a multidisciplinary way, apply it properly in production processes or integrated supply chain processes and communicate effectively with colleagues from other disciplines.

I do not mean to say that engineering programs should favour a broader education over technical expertise in areas of specialisation. I rather mean that students should be more exposed to the way of thinking in neighbouring disciplines and learn to interact with these.

Think of it as a "T"-shape model, necessary depth in one's own area of specialisation combined with breadth in understanding.

Ladies and gentleman,  
The third industry requirement I would like to draw your attention to is practice-orientation.

I am convinced that we need both kinds of engineers: The scientifically oriented engineer who has been educated with a focus on academic rigour and excellence, as well as the practically oriented engineer who's focus is on the immediate applicability of his or her knowledge in a company. The graduate with a focus on science is well prepared for a career in research institutions and R&D departments of a multinational corporation.

The more practically educated "hands-on" engineer will often build a career in the areas of design, testing, product development and in production. In particular, SMEs, which form the backbone of the German as well as the European economy, rely to a large extent on this "hands-on type" of engineer.

In Germany, we have traditionally developed a "role" division between technical universities with a focus on academic education and universities of applied science with a focus on the practical relevance and application of their education in industry. Combined, these two types of institutions have ensured that we create the engineers needed in business and science.

I am concerned though that universities of applied science are now increasingly striving for academic excellence, thereby losing their original profile, i.e. their comparative advantage of practice-orientation of their education.

In my opinion, we must reverse this trend, as industry will continue to seek engineers who have been educated in a practically oriented way and who can be employed "on the job" immediately.

In particular, the universities of applied science should therefore re-strengthen their practice-orientation. Ways to achieve this include internships in industry, field trips and visits to factory sites or lectures from professional practitioners.

When we strengthen the practice- and work orientation in study programs, we ensure that young engineers are a benefit to industry – right after graduation.

Ladies and gentlemen,  
Let me briefly wrap up my key points:

Firstly, engineering study programmes must reflect the international context of an increasingly interconnected global economy. The contents of engineering study programmes need to be comparable and through this, facilitate international mobility among students. Moreover, universities must provide additional incentives and support to foster international mobility.

Secondly, engineers increasingly have to contribute solutions to challenges which are multidisciplinary in nature. The engineering education must reflect this by strengthening approaches towards multidisciplinary learning and problem solving.

Thirdly, industry requires a large number of engineers who have gained practical experiences already at university and who are "fit for service" right after graduation. We need universities which incorporate practical experience as key element into their programs.

Thank you very much for your attention.

Ralph Appel

**"In the "Industry 4.0" mechanical engineering, automation and informatics all come together and the ability to create completely new business models will determine future success of companies and whole economies."**

# New method of Calculating a Qualified Majority in the Council

## Council of the European Union factsheet

Brussels, 29 September 2014

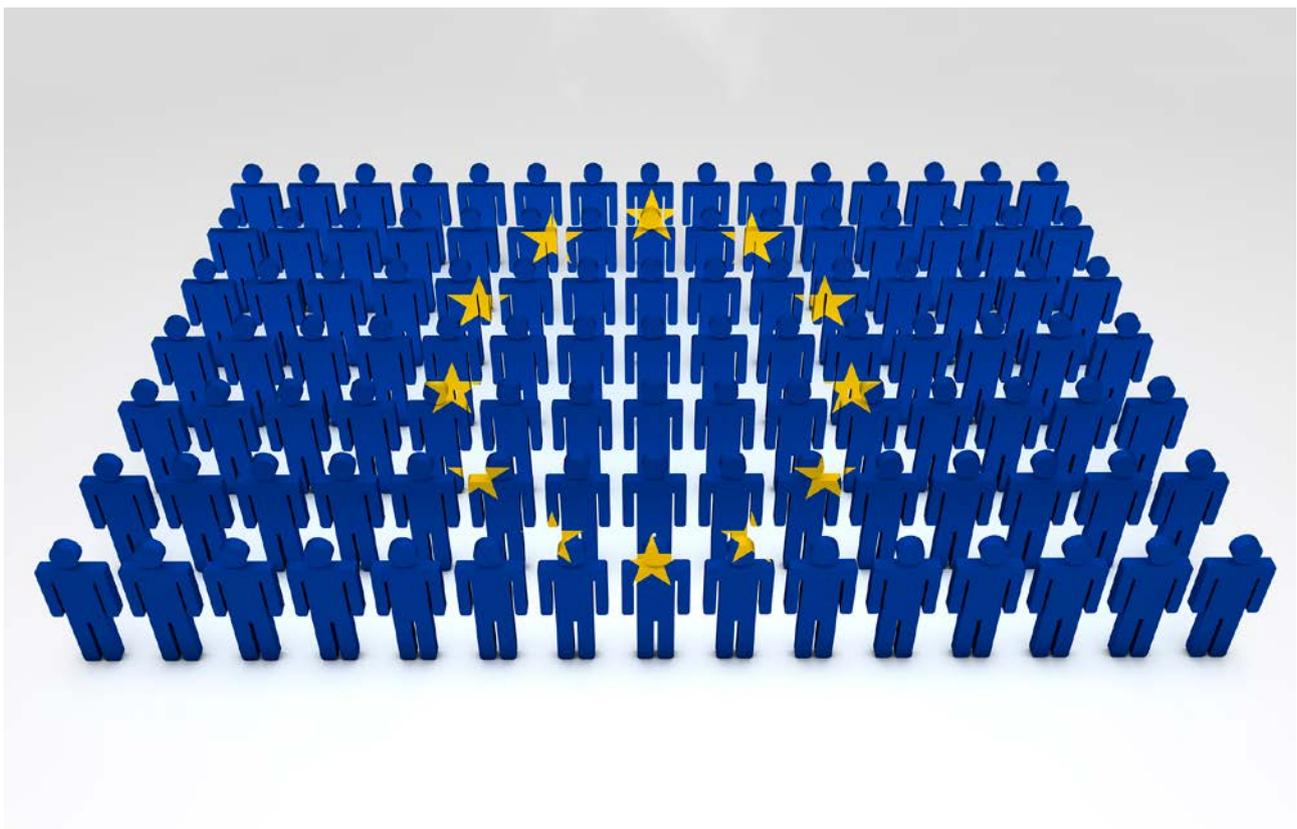
As from 1 November 2014 new rules for the calculation of a qualified majority in the European Council and in the Council of the EU will apply.

As from this date, a system of double majority of members and of population will replace the current rules based on a system of weighted votes attributed to each member state, applied since 1957.

The new voting rules are aimed at facilitating the European Council's and the Council's decision taking by qualified majority and at strengthening the democratic legitimacy, in line with the principle "one citizen – one vote".

When acting on a proposal from the Commission or the High Representative for Foreign Affairs and Security Policy, a qualified majority will require the support of at least 55% of the members (i.e. in the EU 28 at least 16 member states) representing at least 65% of the EU population (i.e. in 2014 around 328.6 million)\*. A blocking minority will have to include at least four members; otherwise, the qualified majority will be deemed to have been attained.

\* Out of a total of 505.6 million. The total population of the EU is updated by Eurostat and the Council's rules of procedure amended accordingly.



Where the European Council or the Council do *not* act on the basis of a proposal from the Commission or from the High Representative, the qualified majority threshold is 72% of the members (i.e. in the EU 28 at least 21 member states) representing at least 65% of the EU population.

In cases where not all members participate in voting on a proposal from the Commission or the High Representative (such as on acts adopted within an enhanced cooperation, acts concerning the Schengen area or acts on which only members of the eurozone vote) the qualified majority is reached when at least 55% of the *participating* member states representing at least 65% of the population of these member states are in favour. The member states' threshold increases to 72% when the participating members do not act on a proposal from the Commission or the High Representative. In those cases a blocking minority must include at least the minimum number of member states representing more than 35% of the population of the participating countries, plus one member.

**Population of each member state and its share compared to the total population of the EU for the period 1 November 2014 to 31 December 2014:**

Member state	Population (x 1 000)	Percentage of the total population of the Union
Germany	80 523,7	15,93
France	65 633,2	12,98
United Kingdom	63 730,1	12,61
Italy	59 685,2	11,81
Spain	46 704,3	9,24
Poland	38 533,3	7,62
Romania	20 057,5	3,97
Netherlands	16 779,6	3,32
Belgium	11 161,6	2,21
Greece	11 062,5	2,19
Czech Republic	10 516,1	2,08
Portugal	10 487,3	2,07
Hungary	9 908,8	1,96
Sweden	9 555,9	1,89
Austria	8 451,9	1,67
Bulgaria	7 284,6	1,44
Denmark	5 602,6	1,11
Finland	5 426,7	1,07
Slovakia	5 410,8	1,07
Ireland	4 591,1	0,91
Croatia	4 262,1	0,84
Lithuania	2 971,9	0,59
Slovenia	2 058,8	0,41
Latvia	2 023,8	0,40
Estonia	1 324,8	0,26
Cyprus	865,9	0,17
Luxembourg	537,0	0,11
Malta	421,4	0,08
<b>Total</b>	<b>505 572,5</b>	<b>100</b>
<b>Threshold 65%</b>	<b>328 622,1</b>	

In order to secure a smooth transition to the new rules, transitional provisions will allow any member state to request, until 31 March 2017, that the rules on majority voting in force before 1 November 2014 apply to a specific act.

In addition, there is a possibility for a member state to ask the Council to do all in its powers to reach, within a reasonable time, a satisfactory solution to address the minority's concerns when a qualified majority is reached in the Council but the minority is close to the blocking minority\* (so called Ioannina-bis mechanism).

\* From 1 November 2014 to 31 March 2017 a minority is considered close to a blocking minority when the opposed member states represent at 75% of the population or at least 75% of the number of countries necessary to constitute a blocking minority. From 1 April 2017 onwards the minority needs to represent at least 55% of the EU population or of the number of member states necessary to constitute a blocking minority.

“In order to secure a smooth transition to the new rules, transitional provisions will allow any member state to request, until 31 March 2017, that the rules on majority voting in force before 1 November 2014 apply to a specific act.”

#### FURTHER INFORMATION

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# The Economic Case for Education



## EENEE (European Expert Network on Economics of Education) Analytical Report No. 20 for the European Commission

The case for education can be made from many perspectives. This report makes the economic case for education. Based on the most recent empirical evidence, it shows the crucial role of education for individual and societal prosperity. Education is a leading determinant of economic growth, employment, and earnings in modern knowledge-based economies such as the European Union. Ignoring the economic dimension of education would therefore endanger the prosperity of future generations, with widespread repercussions for poverty, social exclusion, and the financial sustainability of social security systems. The available evidence warrants a strong focus of the EU policy agenda on the importance of education, knowledge, and skills.

From a theoretical perspective, education can be viewed as an investment into the knowledge and skills of people. It equips people with the skills that make them more productive in performing their work tasks and it conveys the knowledge and competencies that enable people to generate and adopt the new ideas that spur innovation and technological progress. To the extent that this increases individual productivity, educated *individuals* will be able to earn higher wages and – in societies with effective minimum wages – less likely to be unemployed. At the *macroeconomic* level, education can spur long-run economic growth by increasing aggregate productivity through accumulated human capital and by helping to generate and diffuse innovations which bring technological progress. Beyond

the economic benefits in the narrow sense, education also offers nonproduction benefits such as increased work satisfaction, improved health decisions, reduced crime, improved citizenship, and better parenting.

Empirical evidence strongly supports these theoretical considerations. At the country level, education is indeed one – if not the most – important determinant of economic growth. If measured by the skills actually learned, the education of its population is very closely linked to a nation's long-run growth rate. An increase in *educational achievement* by 50 PISA points translates into 1 percentage point higher rates of economic growth in the long run. This means that if the European Union was successful in improving average student achievement by the equivalent of 25 PISA points, the economic gain would amount to an astounding €35 trillion. Put differently, this amount is the *cost* to the EU of not improving the quality of its school systems.

At the individual level, employment rates are very closely related to education levels. In the modern economy, widespread *unemployment* is predominantly a phenomenon among low-educated people. Across European countries, unemployment rates are at 6% for those with a higher education, 9% for those with upper secondary education, and 18% for those who did not manage to finish an upper secondary degree. Over the entire employment *life-cycle*, there is a trade-off between vocational (occupation-specific) and general types of education programs, with early advantages of vocational programs in facilitating the school-to-work transition and later advantages of general programs in facilitating adaptability when economies change their structures and technologies over time.

Higher levels of educational attainment and skills also go along with substantial returns in the form of higher individual earnings on the labor market. Among those who have a job, earnings increase on average by 7.4% for each additional *year of education*. A substantial literature suggests that this association indeed reflects a causal effect of getting more education. When education is measured directly as *skills* in the new PIAAC adult-skill data, individual earnings increase on average by 17.4% for each step on the five-step PIAAC competency scale.

The report closes with some cautious implications for policy-making. The rather lackluster performance of European adults on the PIAAC skill test signals a dire *need for reforms* if the European Union wants to prosper in the future. While some EU countries have seen important improvements in their young generations' achievement levels on PISA over the past decade, achievement trends paint a picture of complacency in some other EU countries. Such complacency endangers future prosperity in the European Union. At the same time, the diverging trends in PISA show that achievement levels are not destiny, but can be improved – or let slip.

Given the crucial importance of knowledge and skills for future prosperity, the *EU policy agenda* should particularly focus on educational outcomes, rather than inputs or attainment. Not least in a context of tight public budgets, successful education reform calls for the need to improve efficiency. Given that most of the skill foundation is laid during youth, policy-makers should place a particular focus on schools and – as a pre-requisite



– high-quality early childhood education. Available research highlights that accountability, autonomy, and choice are three dimensions of good governance that are important for increased efficiency and high levels of achievement in the school system. Similar measures appear promising for the European system of higher education. To find out the best ways to nurture the skills of adults, more research is needed to evaluate the outcomes and effectiveness of different adult education and training programs. Throughout the education system, additional research could help in closing gaps in our current knowledge about what works best to improve educational outcomes.

#### REFERENCE

This study was financed by the EU (ERASMUS +). This document was prepared for the European Commission, however, it reflects the views only of the authors and the Commission cannot be held responsible for any use which may be made of the information contained therein.

# Masterplan on Education about Standardization

April 2014



## Response to the public consultation on EU area of skills and qualifications

At a time when knowledge is increasingly abundant and innovation eco-systems are opening, it is crucial to raise awareness and spread knowledge about standardization as a powerful tool to bring new technologies to market and drive future businesses.

Some initiatives have been developed and launched in several European countries in order to foster education about standardization. However, a significant scaling-up is required so that, all over Europe, public authorities and educational institutions are aware about the benefits of education about standardization and include courses and trainings about standardization in their curricula.

CEN, CENELEC and ETSI, the three European Standards Organisations, are committed to promote and support education about standardization. This Masterplan on Education about Standardization defines a framework for action with European level leadership, initiatives and vision, which is also intended to support the national level in the member countries.

In section 2, benefits of standardization and education about standardization are highlighted. Key stakeholders are identified in section 3. The overall approach is explained in section 4. It envisages three workstreams: 'Build Capacity', 'Engage key stakeholders' and 'Reach target groups'. Finally, a high-level breakdown of the overall work programme is given. Key elements are governance, coordination and concrete work areas which are 'Analysis', 'Events', 'Consultation and Partnering', 'Teaching' and 'Projects'.

This Masterplan is complemented by an Implementation Plan describing the specific actions which will be run in the first year after the adoption of the Masterplan.

### Introduction

CEN, CENELEC and ETSI have developed this *Masterplan for Education about Standardization* to set a strategy for achieving the vision set out in the Policy on education about standardization agreed in 2010.

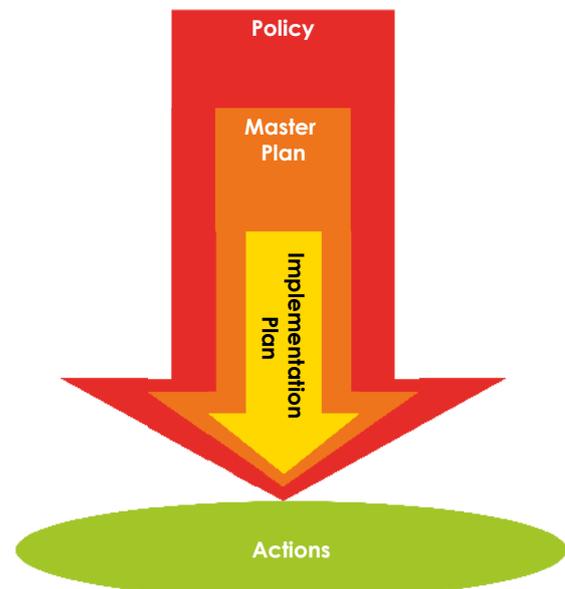
### What is Education about Standardization?

Education about Standardization (EaS) is teaching pupils, students, CEOs, managers, employees in business, and life-long learners the subject of standards and standardization. The level of education has to be carefully tailored to these target audiences. It may include the use and benefits of standards, the strategic importance of standardization for business and Europe's competitiveness, how to implement standards in businesses and how to participate in standardization to influence the content of future standards.

### Context

In 2010 the CEN/CENELEC/ETSI Joint Working Group Education about Standardization (JWG-EaS) developed a Policy on education about standardization. This policy has been used to advise the content of this Masterplan which will, in turn, be supported by an Implementation Plan. All three documents will then be the basis for action, as shown in Figure 1.

Figure 1: The relationship between the policy, Masterplan and implementation for education about standardization.



### List of abbreviations

<b>CEN:</b>	European Committee for Standardization
<b>CENELEC:</b>	European Committee for Electrotechnical Standardization
<b>CEO:</b>	Chief Executive Officer
<b>ESSG:</b>	European Stakeholders Steering Group
<b>ETSI:</b>	European Telecommunications Standards Institute
<b>IEC:</b>	International Electrotechnical Commission
<b>ISO:</b>	International Standards Organisations
<b>ITU:</b>	International Telecommunication Union
<b>JWG-EaS:</b>	Joint working Group on Education about Standardization

- Standardization fosters innovation, which is indispensable for economic growth especially in developed countries through establishment of new technologies in the market and providing interoperability and compatibility between new and existing products, services, processes and systems;
- Being a policy tool which facilitates regulation aimed at developing new markets for products and services as well as the Single European market.

Education and awareness of standards and standardization in Europe have not kept pace and this has resulted in a deficit in the understanding of both the use and the development of standards.

Other regions of the world, notably Asia, have increased efforts on education about standardization, with resulting benefits. In the medium and long term, the lack of knowledge, skills and scientific research in Europe about standardization will result in a reduction in the competitive abilities of European businesses.

Europe needs to maintain competitiveness of European businesses at world-class level and prepare current and future CEOs, managers and workers for the changing needs of the emerging markets. A key factor in this will be education about standardization, using a wide spectrum of learning approaches including conventional and innovative methods. This is expected to improve the employability of the European workforce as they understand, to a greater level the significance of using standards and how to participate in the standardization process.

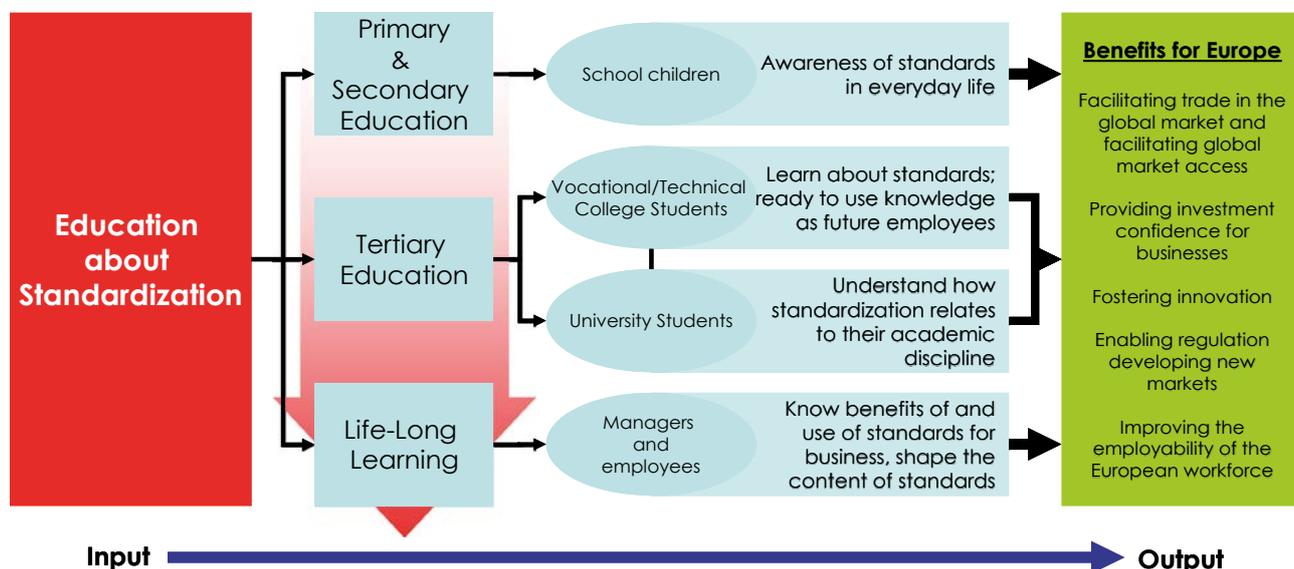
Figure 2 shows how harnessing these approaches to integrate education about standardization could deliver benefits to Europe.

CEN, CENELEC and ETSI have decided to put significant effort into addressing this shortfall in awareness, knowledge and skills.

As stated in the European Standards Organisations’ Policy on education about standardization, the importance of standards and standardization for businesses and society has increased dramatically over the last decade. Standards provide a range of major benefits, including:

- Facilitating trade in the global market and enabling global market access by removing technical barriers to trade and increasing competitiveness;
- Providing investment confidence for businesses through the certainty achieved by codifying in standards existing knowledge e.g. proven technologies;

Figure 2: How education about standardization can benefit Europe



### The Challenge

Throughout Europe we can observe some practices in performing standardization education or stimulating it. However, these activities are fragmented and the impact is limited. The major challenge is to achieve a much better inclusion of standardization in education and learning processes in Europe by improving and extending current activities in a systematic way.

This requires a significant scaling up of the activities on and visibility about education about standardization, with correspondingly increased leadership, commitment and coordination.

### National Responsibility

The Masterplan is a framework for orchestrated action of major stakeholders in Europe, with European level leadership, initiatives and vision, which support nationally coordinated and implemented actions. This recognises that education in general (including education about standardization) is primarily a national responsibility which leads to diverse national education 'landscapes'.

As Figure 3 shows, European approach is designed to support national standards bodies in creating their own structures to drive national activities and share best practices.

Figure 3: European approach supporting national initiatives



### Stakeholders

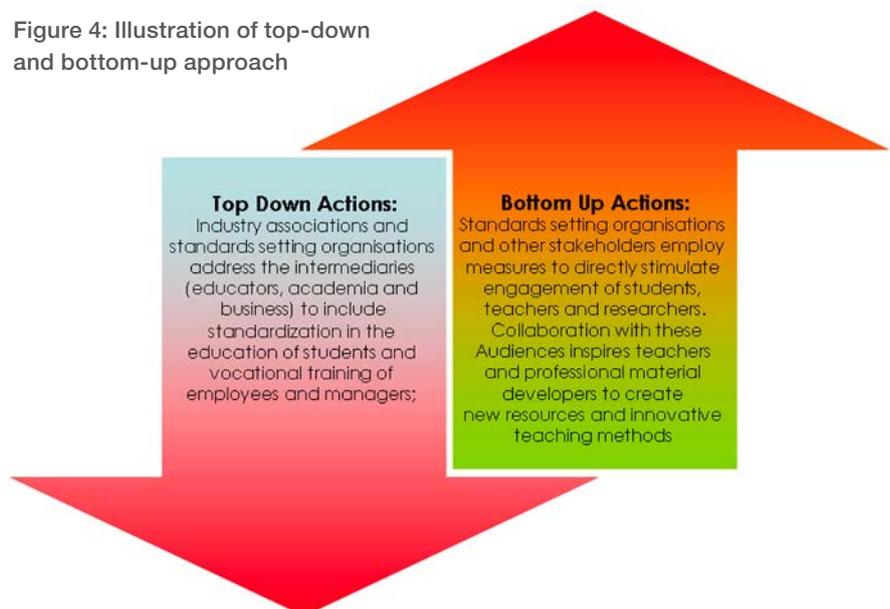
This Masterplan aims at enhancing knowledge and skills about standards and standardization to make European business more competitive, sustainable and innovative on the world stage by addressing:

- Education systems in member states: engaging educators, academia and business to include standardization in education and life long learning; (top-down)

- The Target groups: Informing, inspiring and involving pupils, students, CEOs, managers and employees as well as teachers and trainers about standards and standardization. (bottom-up)

As Figure 4 shows below, stakeholders at both European and national level will be involved in engagement activities through a range of top-down actions and directly with school pupils, students, managers, employees and teachers by way of bottom-up actions.

Figure 4: Illustration of top-down and bottom-up approach



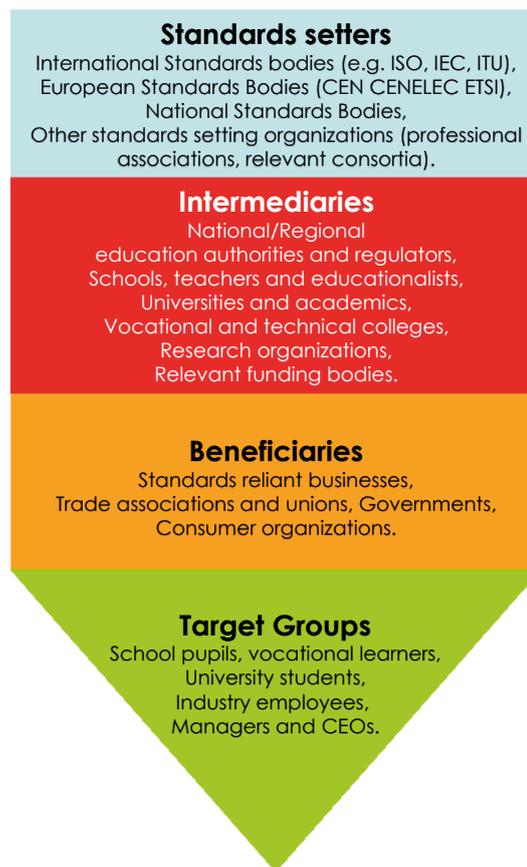
The main stakeholder groups are:

- Standards setting organisations: the formal and non formal standards organisations, facilitating the development of standard at national, European and global level. This also includes the technical experts contributing to the standardization work.
- Intermediaries: the education systems and responsible public authorities
- Beneficiaries: organizations for which standards and standardization are important
- Target groups: the final targets

Figure 5 sets out these stakeholder groups and shows that, in order to succeed in reaching the target groups, a high degree of collaboration between the groups is needed.

Standards setters International Standards bodies (e.g. ISO, IEC, ITU), European Standards Bodies (CEN CENELEC ETSI), National Standards Bodies, Other standards setting organizations (professional associations, relevant consortia). Intermediaries National/Regional education authorities and regulators, Schools, teachers and educationalists, Universities and academics, Vocational and technical colleges, Research organizations, Relevant funding bodies. Beneficiaries Standards reliant businesses, Trade associations and unions, Governments, Consumer organizations. Target Groups School pupils, vocational learners, University students, Industry employees, Managers and CEOs.

Figure 5: Identified stakeholders of education about standardization



## EaS Approach

The EaS Policy aims are addressed through three work streams, which form the basis of this Masterplan:



Figure 6: The three work streams of the approach to education about standardization

## Build Capacity

Creating a new framework of structures to support the composition and management of education in standardization in Europe is a necessity. At European level three primary structures will be set up: The European Stakeholder Steering Group (ESSG) for governance, the JWG EaS for management and coordination, and task forces for generating and executing specific projects.

Member countries are encouraged to set up similar structures at the national level to ensure sufficient education about standardization in their country.

## Engage key stakeholders

Key stakeholders should be engaged in activities focused toward target groups. Increasing the amount and level of education about standardization in Europe must be a joint effort in which the key stakeholders work together in achieving the best possible results.

Only by cooperating and partnering with intermediaries and beneficiaries will the impact be high enough to ensure that present and future generations will have sufficient skills and knowledge about standardization.

## Reach target groups

The final work stream is reaching the target groups. Here activities should be set up which have a direct effect on the target group both at national and European level. This can for example be giving guest lectures, having internships, or developing innovative material such as games and applications. Additionally, the materials and approaches developed at the European level may be beneficial at national level.

The overall EaS work programme has to be implemented in several stages. Three phases are envisaged:

- a set-up and initiation-phase
- a trial-phase
- a roll-out phase.

## High level breakdown of the EaS approach

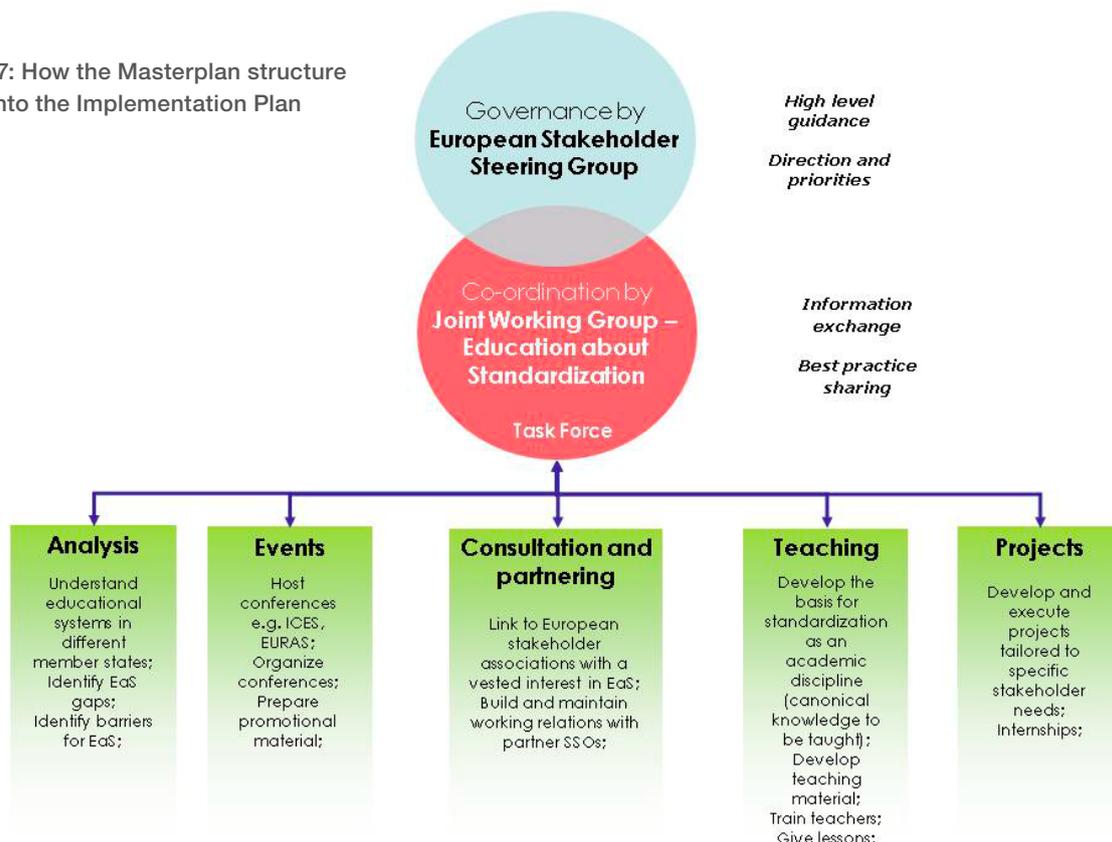
This section describes the high level breakdown of the EaS approach. The following levels are distinguished (Figure 7):

- a governance level, i.e. the European Stakeholder Steering Group for high level guidance and scope
- a management level taken over by the JWG-EaS to share practices and leverage knowledge
- concrete work areas.

In the first work stream of the EaS approach (Figure 6), Internal Capacity for handling the above mentioned levels should be build. The two additional work streams, Engaging Key Stakeholders and Reaching Target Groups will be governed by the ESSG (governance level) and management by JWG EaS (management level). In addition to this concrete work areas will be set up in each of the work streams in order to ensure that the goals for education about standardization are met.

Figure 7 forms the basis for the Implementation Plan. In the Implementation plan recommendations for actions, which should be launched at national and European level are described, goals are set and responsibilities laid out. The Implementation Plan focuses on the upcoming year, but gives an outlook to the future.

Figure 7: How the Masterplan structure feeds into the Implementation Plan



# ETUC Resolution on Improving Quality of Apprenticeship and Work-based Learning

April 14, 2014

Source: European Trade Union Confederation (ETUC). Note that this resolution, published on April 14, was already adopted at the ETUC Executive Committee on 11-12 March 2014.

Work-based learning, which is generally associated with apprenticeships for young people and dual systems of vocational training, is part of the policies supporting the transition from school to the labour market. It is integrated into broader education and training policies linked to labour market issues.\*

The European Commission, together with the European Parliament and several Member States, has recently strongly emphasised the crucial role that apprenticeship schemes and dual systems can play in facilitating transition from education and training to labour market, and in tackling the youth unemployment and NEET (Not in Employment Education or Training) phenomena affecting young people in most of the EU countries.

Apprenticeship and dual systems were part of the strategies set in the Employment Package (Towards a job-rich recovery, 18.4.2012), as well as privileged tools to be implemented by Member States in the framework of the Youth Guarantee and of the Youth Employment Initiative.

At the basis of such initiatives there is the Commission's conviction that education and training in general, and work-based learning in particular, together with labour market reforms, can be successful in tackling unemployment in Europe.

We, as the ETUC are not in line with such an analysis, because we are strongly convinced that only investment and different macroeconomic policies, other than austerity, can boost recovery and create jobs. Furthermore, in order to avoid jobless growth, the creation of good and fair jobs and a strong social dimension should provide the basis of the European economic governance.

The ETUC recognises that sound and work-oriented education and training policies and tools are essential to support and enhance broader macroeconomic actions to tackle recession and unemployment, particularly for young people. But at the

same time the ETUC also underlines that education and training, as well as research, should be considered in the larger perspective of being essential supports to citizenship and human development, and not only as tools serving economy and labour market.

On the basis of its own analysis, the ETUC actively participated in the launch of the European Alliance for Apprenticeships, signed in Leipzig on 2 July 2013 by the European Commission, the European social partners and other stakeholders.

The ETUC together with its national and sectorial affiliates, as well as the other social partners, are now involved in implementing the Alliance and are strongly committed to putting in place actions to achieve this goal.

“Common understanding is needed in Europe about what proper apprenticeships should be, and about which kind of reforms are needed to ensure the right definition and implementation of apprenticeship schemes.”

\* Work-based learning is often confused with workplace learning which actually means continuous training and to some extent lifelong learning for people already in work. Workplace learning is defined as activities to promote learning and training and personal development for workers in the workplace. It contributes to ensuring that workers remain in or re-enter the labour market, and that they are properly up skilled and prepared to face restructuring processes and economic changes.

In this sense work-based learning and workplace learning are the most important pillars of the European trade union strategy to ensure that education and training policies serve labour market and workers' needs [http://www.etuc.org/sites/www.etuc.org/files/EN-ETUC\\_resolution\\_Supporting\\_Workplace\\_Learning\\_to\\_tackle\\_unemployment\\_in\\_Europe-2\\_2.pdf](http://www.etuc.org/sites/www.etuc.org/files/EN-ETUC_resolution_Supporting_Workplace_Learning_to_tackle_unemployment_in_Europe-2_2.pdf)

Apprenticeships schemes, when properly implemented, can significantly contribute to facilitating transition processes, to tackling skills mismatches in the labour market and to encouraging employers to provide young people with fair and good jobs.

However, we have also to recognise that in the current economic situation, with most of the countries still facing recession or stagnation and few of them experiencing very slight recovery, not all employers are able to create new job opportunities or are ready to employ apprenticeships properly and fairly.

Furthermore, common understanding is needed in Europe about what proper apprenticeships should be, and about which kind of reforms are needed to ensure the right definition and implementation of apprenticeship schemes, as well as full protection for apprentices.

In such a context, the ETUC developed in 2012/2013 a 1-year European project entitled “Towards a European quality framework for apprenticeship and work-based learning: best practices and trade unions contribution”, which was funded by the European Commission. The project investigated apprenticeships and work-based learning, as well as the role played by trade unions in designing and delivering these schemes, in the

following countries: the United Kingdom, the Netherlands, Ireland, Italy, Spain, Germany, Cyprus, Bulgaria, Denmark and Estonia.

The final project report includes a comparative study, and a list of recommendations, which constitute the basis for this Resolution. The proposed draft Resolution therefore takes into account the results of the discussion in the final conference of the project (15-16 October 2013), as well as contributions from the ETUC Lifelong Learning Working Group.

### The ETUC Recommendations for Apprenticeships

The ETUC, together with its affiliates, is committed to:

- a)** Analyse the obstacles to the proper and full implementation of apprenticeships and dual system schemes in as many EU countries as possible.
- b)** Put in place trade unions’ and social partners’ actions to address these obstacles and to support the social partners’ role in the implementation of the European Alliance for Apprenticeships and in the negotiation and enforcement of national reforms
- c)** Ensure quality in apprenticeships and dual systems, by linking them to the existing education and training quality assurance tools at the EU and national levels, with the aim of setting up a possible European quality framework for apprenticeships
- d)** Ensure appropriate working conditions and protection for apprentices and young people involved in work-based learning.

In line with such general commitments, the ETUC sets the following list of recommendations, to be addressed to trade unions first, but also to other social partners and also the European and national institutions that are involved in developing and implementing apprenticeships and dual systems:

- e)** Apprenticeship schemes should be clearly defined on the basis of the proposal made by CEDEFOP, the European Centre for the Development of Vocational Training, the specialist agency set up by the European Union: ‘...systematic, long-term training alternating periods at the workplace and in an educational institution or training institutions. The apprentice is contractually linked to the employer and receives remuneration (wage or allowance). The employer assumes responsibility for providing the trainee with training leading to a specific occupation’.
- f)** Apprenticeship schemes should be built on stable foundations, on the basis of national law, regulations and/or collective bargaining agreements.
- g)** Apprenticeship schemes should cater for the real employment and skills needs of employers within the framework of sectorial and/or national priorities and at the same time the personal development and career opportunities of apprentices.
- h)** Apprenticeship schemes should require employers to enter into formal employment contracts with apprentices describing the rights and obligations of both parties, while respecting general national law or regulation.
- i)** Apprenticeship schemes should require training institutions to enter into training contracts with apprentices describing the rights and obligations of both parties, while respecting general national law or regulation.
- j)** Apprenticeship schemes should ensure that apprentices are paid by the employer, according to collective agreements, or a national and/or sectorial minimum legal wage, for the period of training.
- k)** Apprenticeship schemes should be governed at all levels by a partnership between the social partners (trade unions and employers’ organisations), together with public authorities and training institutions.
- l)** Apprenticeship schemes should guarantee good quality and safe working environments, and the public authorities together with social partners (trade unions and employers’ organisations) should be given responsibility for monitoring the suitability of workplaces and for accrediting interested companies. Before joining an apprenticeship scheme all apprentices should be provided training on health and safety at work.
- m)** Apprenticeship schemes should provide appropriate guidance for apprentices, before, during, and after the training process.
- n)** Apprenticeship schemes should provide opportunities for apprentices to enter higher education (e.g. universities).



- o)** Apprenticeship schemes should provide opportunities for apprentices to participate in quality assurance procedures.
- p)** Apprenticeship schemes should cover a wide range of different occupations and thus provide employment opportunities for all, men and women alike.
- q)** Apprenticeship schemes should be built on a solid base of knowledge, skills and competences acquired in the primary and secondary school system.
- r)** Apprenticeship schemes should include a strong training component, with a clear majority of learning provided in the workplace and a clear commitment to forward-looking developments within the labour market and society.
- s)** Apprenticeship schemes should provide good quality training in the workplace, with in-company mentors trained for this purpose, and also within training institutions employing trainers that have up-to-date and appropriate skills.
- t)** Apprenticeship schemes should be properly funded, with equitable cost sharing between employers and public authorities at regional and/or national and European levels.
- u)** Apprenticeship schemes should be competence-based and have a duration which enables apprentices to attain the appropriate standards to work competently and safely.
- v)** Apprentices should be accompanied by trade union representatives in the company to ensure that their rights are respected
- w)** Apprenticeship schemes should be certified by competent tri-partite bodies to ensure that the knowledge, skills and competences acquired are recognised within the labour market and throughout the education and training system.
- x)** Apprenticeship schemes should offer qualifications which are clearly placed within National Qualifications Frameworks (NQFs), thus ensuring progression pathways to other NQF levels and programmes.
- y)** Apprenticeship schemes should ensure the recognition of knowledge, skills and competences acquired by means of non-formal and informal learning.
- z)** Apprenticeship schemes should include provision for the mobility of apprentices at the transnational level within the European Union.

Trade unions throughout Europe should continue to demonstrate their active and committed support for good quality apprenticeship schemes.

Trade unions throughout Europe should improve their engagement with apprentices in the workplace so as to represent their interests more effectively.

#### FURTHER INFORMATION

[www.etuc.org/documents/etuc-resolution-improving-quality-apprenticeship-and-work-based-learning#.U0vpr\\_mSxnE](http://www.etuc.org/documents/etuc-resolution-improving-quality-apprenticeship-and-work-based-learning#.U0vpr_mSxnE)

# Greeks want to see Heads Roll

Marloes de Koning, Belgian Newspaper "De Standaard", February 19, 2015



**Athens.** Something snapped inside Alexandros Politis (32) when, back in December, he saw the revised assessment for the pension and health fund for engineers and architects.

First, there was the 30% increase in the mandatory contribution, which by law had already been made retroactive to 2011. This forced him to cough up another 2000+ euros. "And then I had to pay back interest on that amount too," he says indignantly. That was the last straw. "A few weeks ago I surrendered my engineering licence," he says while chatting over a meal. If the board of the federation of engineers upholds the suspension of his professional status, he won't be able to approve construction plans anymore. But from a practical standpoint, that won't make much difference. "There's no work anyway. Construction has been stagnant for years, but as independent contractors we've had to keep paying all our taxes."

Alexandros is the epitome of moderation: a good-humoured structural engineer who specialises in energy-efficient construction. He votes "green", and during these last elections he voted for Syriza because the Greens joined this coalition party. He is someone who understands quite well that taxes must be raised if there is a gap in the budget, and he fully endorses the need to reform the Greek government. For this reason, it wasn't until the end of the crisis that he became really angry, but that's what it has come to. "My mother is furious, my friends are furious, and so am I," is how he sums it up. The manner in which successive governments have attempted to deal with public finances over the past five years has created enemies among the population. Vengeance was thus a primary motive for Greeks when they cast their votes for Syriza in such large numbers. What they really want – even more than a revised agreement with the rest of the eurozone – is to see heads roll. They want to see the

big names from the past behind bars – along with their corporate friends. In the time to come, the new government will be trying to cater to these voters, and the Greek press is full of reports about investigations being launched and charges being laid.

This may quench the thirst for revenge, but it won't create any jobs. Alexandros is seeking his salvation in continuing education and retraining, while also working a job for which he is over-qualified and providing occasional services as a designer. He has just completed a second master's degree in "environmentally-conscious design of buildings and cities". Most of his fellow students live and work in the United Kingdom, Germany and the Netherlands, and he is considering a similar move. He now speaks fluent Portuguese.

Greek engineers in the north of the country, near the Bulgarian border, have found another solution, he says. They are opening letterbox companies on the other side of the border, which is possible because Bulgaria is also part of the European Union. Taxes and social security contributions are much lower there. The same thing is happening with other professional groups and many Greek lorries now drive around with Bulgarian number plates. Alexandros has thought about this too, but so far hasn't done it. "At this point, I refuse to put my energy into those kinds of things," he says. "As an architect, I want to create things that are sustainable. It would be great if politicians would focus on doing the same."





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