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High-Tech Skills for Europe

National Policies and Funding Programmes for Skills Development

Expert Workshop Report (DRAFT)

Learning from Best Practices for Scaling up and Re-focussing Policies and Funding Programmes

May 2018

Workshop Report prepared for the
European Commission
Directorate-General for Internal Market,
Industry, Entrepreneurship and SMEs

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Imprint

This document has been prepared by empirica Gesellschaft für Kommunikations- und Technologieforschung mbH on behalf of the European Commission, Directorate General GROW - Internal Market, Industry, Entrepreneurship and SMEs.

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Preface

The objective of work in this service contract for the European Commission is to benchmark public policies and public-private partnerships, and make recommendations for scaling up best practices and re-focusing funding programmes and incentives in Europe specifically related to the acquisition of high-tech skills.

The activities aim to mobilise a large number of stakeholders and Member States contributing to the success of the EU high-tech skills strategy and efforts to facilitate the uptake of digital and key enabling technologies by European enterprises, especially SMEs and start-ups.

The results are supposed to inform policy-makers and business and social leaders regarding more effective policies, partnerships, funding programmes and incentives to increase the high-tech talent pool, employment and the competitiveness of the European economy and to contribute to the further evolution and improvement of European and national initiatives on high-tech skills.

The focus will be on high-tech skills which encompass the skills needs related to digital technologies (e-skills) and a group of six key enabling technologies (KETs) including: micro and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics, and advanced manufacturing technologies.

Contractor:

empirica

Subcontractor:

pwc

1 Introduction

Europe is facing a thorough skills challenge that requires a radical rethinking of the ways education and training systems work and the way skills are acquired and refreshed over the course of the lives of European citizens.

Estimates as to the number of jobs that will be lost to automation over the next decades have been alerting the general public and policy makers alike, and although the expected orders of magnitude differ by author and scenario, there exists quite broad consensus that many of the tasks carried out by human workers today are prone to be delegated to machines and artificial intelligence in the not too distant future.

As existing jobs are changing radically in task content, at accelerating pace, and as new jobs are emerging, policy must help workers adapt and keep pace with changing skills requirements. This calls also for a rethink of the way education is funded, governed and incentivised. This includes systemic questions, including which parts of education and training should be funded to which degree by citizens/workers, by employers or by public funds.

Current and future disruptions of the labour market need to be taken into consideration when designing and adapting Higher Education, VET and life-long learning systems and programmes. Incentives for workers and employers need to be carefully crafted in order for the labour market as a whole to better anticipate and cope with change.

empirica and PwC are analysing the funding models and education programmes at national level and EU level[1] and the synergies between the different instruments with a view to identify successful ones, i.e., best practices. Hopes are that these may be scaled up to become even more successful and sustainable and they may also serve as a guide for re-focusing and improving existing funding programmes and incentives.

The overall objectives of the work in this contract are to:

- Benchmark public policies and public-private partnerships,
- Make recommendations for scaling up best practices and re-focusing funding programmes and incentives in Europe
- Mobilise a large number of stakeholders and Member States contributing to the success of the EU high-tech skills strategy and
- Invest efforts to facilitate the uptake of digital and key enabling technologies by European enterprises, especially SMEs and start-ups
- Inform policy-makers and business and social leaders regarding more effective policies, partnerships, funding programmes and incentives to
- Increase the high-tech talent pool, employment and the competitiveness of the European economy and
- Contribute to the further evolution and improvement of European and national initiatives on high-tech skills.

For the 2020+ funding period, policy changes are currently under discussion. Without interfering in the political process, our work will bring a contribution by analysing and documenting best practices and identifying scalable and sustainable mechanisms to support policy makers and stakeholders in improving the effectiveness and efficiency of their funding programmes and incentives.

If the impending challenges of re-skilling of the European workforce are taken seriously, massive efforts will be needed in order to support both re-training of the workforce and overhauling of education systems, and this will require a substantial collective effort and measures should therefore be thoroughly informed by the best available model examples that already exist so as to be effective and efficient.

[1] At EU level funding opportunities for skills development include: the European Structural and Investment Funds: European Social Fund; European Regional Development Fund; Youth Employment Initiative; European Agricultural Fund for Rural Development; European Maritime and Fisheries Fund; Erasmus+; Horizon2020; European Fund for Strategic Investment; EU Programme for Employment and Social innovation; European Investment Bank's "Skills and Jobs' loan programme"; COSME – Europe's Programme for SMEs; European Globalisation Fund ; and the LIFE Programme. Source: European Commission: Staff Working Document: Analytical underpinning for a New Skills Agenda for Europe Accompanying the Communication from the European Commission "A New Skills Agenda for Europe: Working together to strengthen human capital, employability and competitiveness" {COM(2016) 381 final}, Brussels 10.6.2016, p. 76

https://ec.europa.eu/info/funding-tenders/european-structural-and-investment-funds_en

As the analysis undertaken in this service contract so far shows, there are several shining examples of promising practice in pilot and model projects. Many of these are, however, often limited in regional reach and sustainability of financing their operation. The task ahead is therefore to analyse what it will take to move from short term and regionally limited approaches to more consistent and coherent ways of how to sustainably deliver and fund best practice at large scale – and the role the European Commission could play in designing policies and funding mechanisms to contribute to tackling this grand challenge. The aim of closer coherence between and greater integration of the different existing funding instruments should bring to bear greater synergies of research and funding programmes across and within different DGs of the European Commission and the mobilisation of national funding. The Blue Prints for sectoral skills cooperation currently under development potentially are such a European partnership for a long term solution.

This activity is undertaken as part of the service contract 'High-Tech Skills for Europe launched by the Commission (DG GROW). Results from an investigation of existing policies and funding programmes will be presented at the workshop.

Several experts have been invited to this workshop to present promising practices of national policies and funding programmes with the aim of critically reviewing and learning from these for scaling up and re-focusing but also supporting improving the effectiveness and efficiency of their funding programmes and incentives.

2 Promising practices of national funding programmes

2.1 Actions and achievements so far

Since the start of this activity in summer 2017 we have identified and assessed for suitability of further investigation a number of as yet 276 policies, funding programmes, incentives, instruments. So far, of these 69 have been selected and further analysed. More than 50 expert interviews have already been carried out.

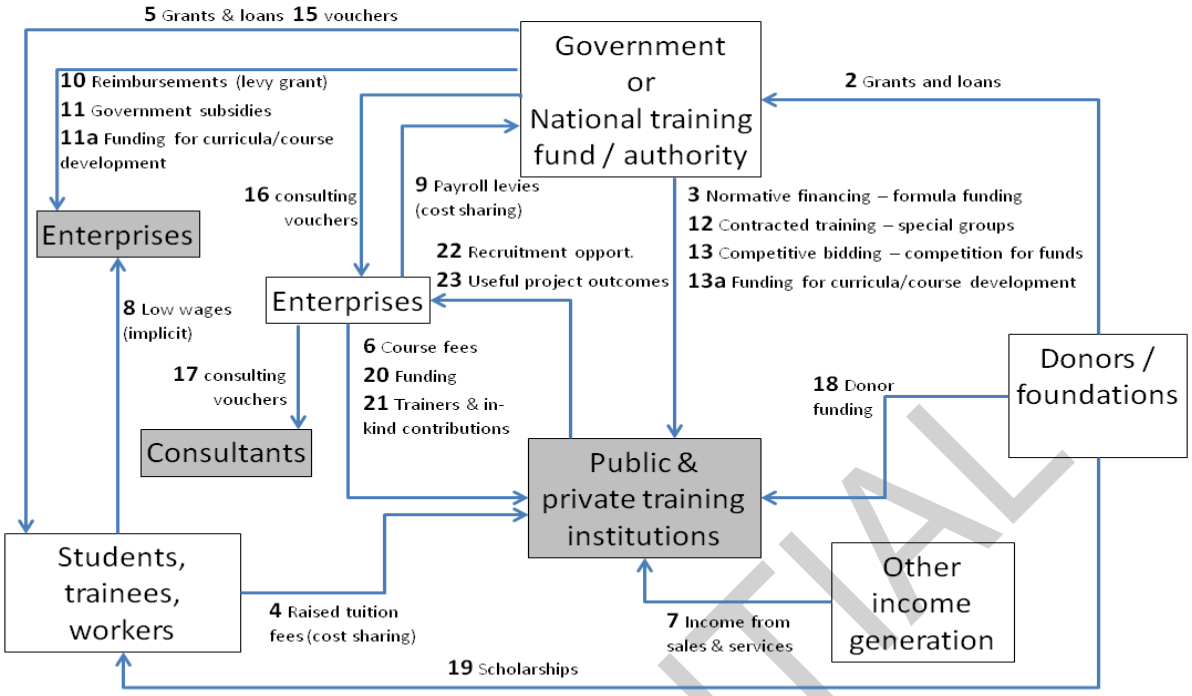
An informal expert group of around 100 experts from all over Europe have committed themselves to support the partners and the European Commission in this work by actively attending workshops, taking part in online surveys (the first survey will be organised for March 2018) reviewing documents and giving recommendations.

The country coverage agreed with the Commission is as follows: DE, FR, UK, ES, IT, PL, NL, SE, FI, EE. However, further interesting cases from other countries (e.g. DK, BE) are also considered. The following table provides an overview of the number of schemes identified in the different countries and those selected as promising practises and currently under further investigation.

Country	Identified programmes	Selected candidate programmes: Digital	Selected candidate programmes: KETs
Germany	54	6	5
France	21	7	4
United Kingdom	30	3	2
Spain	14	4	
Italy	20	1	
Poland	39	5	
Netherlands	16	4	3
Sweden	46	4	5
Finland	20	2	1
Estonia	12	2	
Denmark	2	2	
Belgium	1		1
Europe	4	4	
USA	5	3	
Global	1	1	
Total	**276**	**49**	**20**

For the selected cases funding flows and objectives have been analysed and mapped according to a scheme based on Ziderman (2016)[2] which was adapted and expanded for our purposes.

[2] Taken and expanded from: Ziderman, Adrian: Funding Mechanisms for Financing Vocational Training: An Analytical Framework. IZA Policy Paper No. 110. Bonn, 2016, p. 28



Note: blue arrows represent funding flows; training providers are indicated by shaded boxes.

Using and applying this extended framework the following typology of financing and funding programmes emerged. Altogether 10 different types have been distinguished. The 10 types of funding programmes are:

1. Funding for industry in building and running dedicated vocational education centres
2. Funding for the co-creation by industry and academia of new courses and curricula
3. Funding for of new innovative and alternative teaching/learning systems[3]
4. Funding excellence schemes with top universities to draw top academic talent and students
5. Funding SME vouchers for consulting contracts and knowledge transfer.
6. Funding high tech apprenticeships/traineeships in industry
7. Funding the development of open education resources (OER, including MOOCs)
8. Funding (lifelong) learners through vouchers, fiscal incentives and/or cost sharing
9. Funding upskilling/reskilling programmes for the workforce4 in particular sectors or regions
10. Other

In the following chapter the results of the second workshop are described. Six programmes have been presented at the workshop and we intend to record the major points of relevance from these presentations here including the major points from the discussions at the workshop. Finally, a summary, preliminary conclusions and a specification of the next steps are provided.

[3] Such as project or challenge based learning approaches, for students who might have difficulties in the traditional system, e.g. Ecole 42's approach, se: https://en.wikipedia.org/wiki/42_(school)

[4] With co-funding from industry

2.2 Education and further education in business 4.0 - funding line of the JOBSTARTER plus programme (Germany)

Katharina Kanschat, Head of programme unit JOBSTARTER, Bundesinstitut für Berufsbildung (BIBB)

JOBSTARTER plus – Funding programme for company-based vocational education and training (VET)	
Country	Germany
Short description& objectives	**JOBSTARTER plus: Funding programme for company-based vocational education and training (VET)** The Federal Ministry of Education and Research is supporting the improvement of the regional training structures through the JOBSTARTER plus programme. This programme (and its predecessor JOBSTARTER) has already supplied funding for more than 430 innovative projects (Since 2006, 123 since 2014) in vocational education and training. All these projects are helping to create additional traineeships in the regions and are offering various measures to support companies that have little or no experience with training, for example, companies in the sector of high technology. They also support companies to enhance or stabilize their engagement in VET. The core instrument of the projects' activities is the External Training Management. Other goals of the funding e.g.: integration of migrants and refugees, integration of student dropouts in the dual training and improvement of regional structures. **Programme structure and the volume of funding** JOBSTARTER contributes to achieve the goals of the National Alliance for Initial and Further Training 2015-2018 – Pact for Career Training and Skilled Manpower Development in Germany. **Funding at regional level** JOBSTARTER provides funding for regional projects which help to create additional in-company traineeships in small and medium-sized enterprises (SMEs) as well as to recruit suitable trainees. Improved cooperation between local stakeholders is supposed to strengthen regional responsibility for vocational education and training and at the same time contribute to structural developments. **Selection of projects** Projects are selected via annual calls for proposals. These are based on the respective current funding announcement, which defines the conditions for funding and lays down thematic priorities. The projects are implemented, among others, by chambers of trade and industry, local and educational institutions, unions, municipalities and companies. **Digitisation** One of the current lines of funding: "Initial and Continuing VET in the 'Economy 4.0' – Structures of support for SMEs in the process of adjustment of Vocational Education". 20 regional projects support small and medium enterprises on issues related to dual vocational training on topics related to "digitisation" and "automation", providing advice on how to develop related company-internal training methodically and didactically.
Duration	JOBSTARTER plus: 2014-2022
Budget	2014-2020: 108,8 million Euros (of which 61 million Euros are co-financed by the European Social Fund)
No. of applicants	300
No. of approved projects	123
Type of funding	Financial grants for personnel costs and business trips

Main stakeholders	Federal Ministry of Education and Research (BMBF) Federal Institute for Vocational Education and Training (BIBB)
Stakeholder(s) from	Industry, VET training providers, chambers, unions
Scope 1	
Scope 2	
Main target group	Small and medium-sized enterprises, micro and small enterprises
Impact	• About 64.000 training places acquired • Establishment of **sustainable cooperation structures and networks** of the VET stakeholders in the regions beyond the period of funding • Strengthening of the **regional responsibility** of the stakeholders of the dual VET system • Establishment of training structures in **specific economic sectors** • Development and testing of **additional qualifications** • Improvement of the **attractiveness of VET** • Strengthening of in-company VET in the **migrant community** • Stabilization and increase of SME's readiness and capability to enter vocational training
Scalability (and transferability)	
Sustainability	
URL	www.jobstarter.de
Contact	Katharina Kanschat Head of JOBSTARTER JOBSTARTER beim Bundesinstitut für Berufsbildung (BIBB) Robert-Schuman-Platz 3 D-53175 Bonn Tel.: 0228/ 107-2024 Fax: 0228/ 107-2887 E-Mail: kanschat@bibb.de

Funding scheme: Government, projects are under different funding types including • *Funding for industry in building and running dedicated vocational education centres* • *Funding for the co-creation by industry and academia of new courses and curricula* • *Funding SME vouchers for consulting contracts and knowledge transfer* • *Funding high tech apprenticeships/traineeships in industry*
Receiving organisation / applicant: regional projects
Beneficiaries: SMEs, professionals

Points from the discussion:

The discussion included mainly the peculiarities of the German dual system, its funding and the process of curriculum and syllabus definition in the corporatist manner which is a characteristic of the German system. Jobstarter plus activities in this environment include for instance funding of consultants through projects who help SMEs to take on apprentices. Companies which take on apprentices commit to abide to the rules of the dual system. They have to put in place the necessary personnel and material infrastructures; the process of which is supported by consultants in such programmes.

Jobstarter programmes usually stem from proposals for programmes made by regional actors such as chambers of commerce and vocational education providers. Proposals must relate to

predetermined challenges that are politically defined and prioritised. Digitalisation for example is considered by policy makers as a major challenge to be tackled and hence receives substantial funding.

Another issue that is politically high on the agenda is the struggle for the German system generally that an increasing number of companies retreat from the vocational training system or that new born companies (e.g. digital businesses) are not inclined to enter. There are some projects to retain or attract firms into the dual system.

Another issue is having more women as students in VET which is male dominated in many vocations.

The issue of flexibility and adaptability of vocational syllabi was discussed. As is true for any standard, shared vocational syllabi have a tendency towards inertness and naturally can react to emerging trends in their domain only at intervals of renewal, which is in tension typically and especially where fast changing occupational tasks other job contents prevail which is the case in dynamic fields such as IT. VET in the digital sector might therefore be in need of shorter overhaul intervals than VET provisions in other vocations. However, reluctance of digital firms towards the dual systems was also, or even mainly, regarded as a cultural problem, which might be addressed by information, awareness and practical support campaigns.

2.3 Digital manufacturing processes - Additional qualification for the future career in Industry 4.0! A JOBSTARTER plus project (Germany)

Christian Wiegmann, Nachwuchsstiftung Maschinenbau

JOBSTARTER - Digital manufacturing processes - Additional qualification for the future career in INDUSTRY 4.0! (Digitale Fertigungsprozesse - Zusatzqualifikation für die berufliche Zukunft in INDUSTRIE 4.0!)	
Country	Germany
Short description& objectives	With the project "Additional Qualification 'Digital Manufacturing Processes'", the Young Talent Foundation for Mechanical Engineering responds to the changes in the mechanical and plant engineering industry with regard to Industry 4.0 and the associated challenges and opportunities in the design of a future-oriented education. Apprentices are prepared for a fully digitized workplace during their training. The target group for the additional qualification 'Digital Manufacturing Processes' are ambitious trainees in the industrial and technical professions of mechanical and plant engineering. To start the additional qualification, the trainees should be in the 2nd or 3rd year of training. The additional qualification not only benefits the participants themselves, but also aims to make dual training in mechanical engineering more attractive for young people in the long term and at the same time to secure the demand for skilled workers in small and medium-sized companies. In particular, these companies are often for economic reasons unable to adequately respond to industrial developments with an adaptation qualification for their employees, employees and trainees. The qualification comprises 200 teaching units and will be implemented within 15 months of training. Within these 15 months, 7 modules will be completed by the apprentices. Each of them will be completed with a learning success examination: • M1: service and maintenance processes • M2: Automation technology • M3: Fundamentals of Data Protection and Data Security

	• M4: design and manufacture with CAD / CAM systems • M5: designing CNC manufacturing processes • M6: additive manufacturing processes • M7: Economic Contexts of Industry 4.0 Upon successful completion and passing of the exam, the participants will receive an IHK (chamber of commerce) certificate and a certificate from the Young Talent Foundation for Mechanical Engineering "Additional qualification - Digital production processes" in addition to their professional qualification. The high quality of the additional qualification and the special commitment of the participants are thus adequately and verifiably documented and recommended for corresponding positions in the company. The qualification takes place at the Carl Miele vocational college in Gütersloh and at the Berufskolleg Kreis Höxter in Brakel. With currently 34 participants in the first round (Dec 2016 - Feb 2018), the original target of 25 trainees was clearly exceeded and proves the high demand for well-trained and future-oriented skilled workers. The second run will start in March 2018 and the young talent foundation Mechanical Engineering expects a similar high response.
Duration	2016 – 2019
Budget	499.000,-€
No. of applicants	34
No. of approved applicants	1st round: 34 apprentices; 2nd round: 43 (as of 28th February 2018)
Type of funding	The Federal Ministry of Education and Research (BMBF) is funding the second funding round of the "JOBSTARTER plus - Training for the Future" program from federal funds and funds from the European Social Fund (ESF). The promotion of the JOBSTARTER plus program from the ESF is based on Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 (ESF Regulation) and Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 (General Structural Funds Regulation).
Main stakeholders	Federal Ministry of Education and Research (BMBF) Federal Institute for Vocational Education and Training (BIBB) Young talent foundation Maschinenbau in Ostwestfalen / Young Talent Foundation for Mechanical Engineering
Stakeholder(s) from	Industry, VET training providers
Scope 1	National
Scope 2	Advanced Manufacturing Technologies
Main target group	Apprentices, VET students
Impact	For the participants, there are no costs for the additional qualification. The additional qualification gives young people the opportunity to develop the processes of a smart factory along the value chain and to acquire unique expertise for future changes in the sense of Industry 4.0. And this already during your training. Thus, they already set themselves apart from the competition during their training for their professional career, which is a great advantage for all participants. As a lot of digitalization will change in the future, these young people will find a way that will help them, their business and the economy in the future to deal with these changes. Experience of a first-time apprentice: An apprentice of an SME was already integrated by his training company into a digitalization group before completing his training and the additional qualification. After graduation, the trainee takes over project responsibility in the field of digitization. There will be changes in the field of digitization, and apprentices will start learning and learning about these changes directly during their training. Many

	companies need professionals and well-trained skilled workers. Thus, the individual participants have a competitive advantage over other trainees. The additional qualification not only benefits the participants themselves, but also aims to make dual training in mechanical engineering more attractive for young people in the long term and at the same time to secure the demand for skilled workers in small and medium-sized companies. In particular, these companies are often for economic reasons unable to adequately respond to industrial developments with an adaptation qualification for their employees, employees and trainees. In addition, the company is more attractive in the external presentation, because they offer their potential trainees this option of additional qualification. The target regions Gütersloh / Beckum and Brakel are characterized by a strong medium-sized economy. Over 70% are small and medium-sized companies. The goal is logical to make dual training more attractive. This can be achieved with the additional qualification 'Digital Manufacturing Processes', as it gives trainees better career opportunities. The additional qualification increases the knowledge and competences of the trainees on the one hand, which brings greater satisfaction with the work situation and strengthens the motivation. On the other hand, companies are increasing their attractiveness for future applicants for apprenticeships in this field. The additional qualification thus represents a competitive advantage in the competition for the High Potentials. In addition, through the transfer of knowledge, the companies additionally receive qualified specialists in the field of digital production processes.
Scalability (and transferability)	Due to the high level of networking and the degree of familiarity of the young talent foundation mechanical engineering in industry, a transfer to other target regions is possible. The project managers work closely with the industrial and social partners from the outset to achieve a wide dissemination of the results. The transferability into further training companies is ensured by the practical relevance and connection of the association to its members and their customers. A transfer to neighbouring training occupations such as cutting machine operator already took place in the course of the project. Workers 'and employers' organizations of the metal industry are involved in the transfer. Due to the high demand, a transfer to other occupational groups took place during the first phase of the project. In addition to the actually intended occupational field of the industrial mechanic, other occupational groups have been added. For the second round, all technical and industrial apprentices can take part in the additional qualification in the second and third year of apprenticeship. Since autumn 2017, the Young Engineers' Foundation for Mechanical Engineering and the Ministry of Economic Affairs and Education have been working hard to establish this additional qualification as a pilot model in other regions in North Rhine-Westphalia. In mid-2018, 30 vocational colleges (5-6 vocational colleges in each district) in the Federal State of North-Rhine Westphalia (with a population of 16 million citizens) are to train teachers and trainers from the region to implement the additional qualification in their vocational colleges as of mid-2019.
Sustainability	At present there is no such type of additional qualification of this kind available for trainees. However, training in digitization in the future will be necessary for all companies. The participating companies use the additional qualification to bring in future digitization experts. In the future, these professionals will be able to support digitization in the company as a point of contact and in training new colleagues. Further regions have been and will be informed and acquired during the entire project period. At trade fairs or industry events, the project is reported about and advise is been given. Together with the IHK (chambers of commerce)

	Bielefeld and Münster a certificate for the additional qualification was adopted. The alternative would have been to change in the overall training framework, but this would have taken many years, and the pace of rapid innovation in digitization could not have been addressed in a timely fashion. This is a fully funded project and during the project period any type of marketing is not considered.
URL	https://www.jobstarter.de/de/zusatzqualifikationen-49.php
Contact	Eva-Maria Soja Bundesinstitut für Berufsbildung (BIBB) Mail: soja@bibb.de Tel.: +49 (0)228 107 - 19 32 Britta Ziebell Nachwuchsstiftung Maschinenbau gGmbH Mail: britta.ziebell@nws-mb.de Tel.: +49 (0) 5205 74-25 48

Funding scheme: Government • *Funding for industry in building and running dedicated vocational education centres* • *Funding for the co-creation by industry and academia of new courses and curricula* • *Funding high tech apprenticeships/traineeships in industry*
Receiving organisation / applicant: regional projects
Beneficiaries: SMEs, professionals

Points from the discussion:

Training the trainers was one of the challenges that the project faced, i.e. both the teachers at vocational schools as well as the in-company trainers. The question arose whether the certification given at the end of the qualification was accepted elsewhere, which was confirmed as it is a certificate by the chamber of commerce which is recognised across Germany.

It was suggested that the project which aims to create future project managers and company internal ambassadors or champions of digitalisation could be reframed as in fact an innovation programme where trainees are educated to become change agents. Impact regarding actual innovation in the firms involved was recommended to be monitored and obvious business plans for companies involved should be published so as to raise interest in the programme.

The cost of the programme for both companies and trainees was, apart from the wages the trainees were paid as apprentices. At a total cost of 500,000 Euros, the project has so far had 77 students, which amounts to a per capita cost of roughly 7000 Euros. When the programme is scaled up, the target will be to keep the offer free of cost for companies and trainees. However, this might be a challenge as funds need to be found to finance this.

Integrating the learning outcomes in the normal VET programme has not been a priority, as the re-definition of VET programmes is a time consuming consensus-building process in Germany.

The programme is currently only conceptualised as add-on modules for students who are in (initial) vocational education leading up to a VET degree qualification. It was suggested that the contents of the programme might be a very welcome CVET / life-long learning module for more senior practitioners who are as much or even more in need of skills for smart manufacturing and digitalisation as are young workers who usually start working in entry level positions after their degree. This, however, would fall within the responsibility of a different ministry (ministry of

economic affairs, BMWi) in Germany, a fact which highlights the importance of such political issues one is confronted with when thinking about a redesign of skills acquisition landscape in Member States.

2.4 Automotive Centre of Expertise (Netherlands)

Kees Slingerland, ACE

Automotive Centre of Expertise	
Country	Netherlands
Short description& objectives	The Automotive centre of expertise is a knowledge centre focused on automotive innovation. It has been set up as cooperation between Fontys University of Applied Sciences, University of Applied Sciences Arnhem and Nijmegen and University of Applied Sciences Rotterdam. It was set up in 2011 with these objectives in mind: 1. Increasing the amount of students choosing an automotive Higher professional education programme. 2. Increasing the amount of people that have an automotive background that find jobs in the automotive companies. 3. Increasing the quality of education and focusing more question based education. 4. Strengthening practice based research within higher professional education. Automotive centre of expertise is part of a bigger programme, and in the Netherlands you can find multiple centres of expertise focusing on different subjects. These centres of expertise fall under the educational institutes and get their funding via the government. These centres are meant to give the educational institutes a focus on their research. They are present in both higher vocational education and higher professional education. The vocational education centres have a strong connection to the employment market. These centres for innovative craftsmanship for vocational education and centres of expertise for higher professional education should grow into internationally well known centres where only the best students study. The Dutch government, specifically the ministries of education, culture and research and economics, will in the forthcoming years provide 28 million Euro for these centres.
	2011 - ongoing
Budget	For the centres of expertise programme there has been 28 million Euro provided by the government. Co-funded by the Ministry of Education and the Netherlands Enterprise Agency. The latter provides funding in terms of subsidies for every R&D-intensive project of ACE. Additional funding comes from the (low) tuition fees and business partners. The public finance will last for 2 more years and is at approx. 1 million Euro/year. The overall annual budget is 3 million Euro.
No. of applicants	
No. of approved applicants	In 2017 there were 27 workshops, 74 internships and 39 graduate students at partner companies In total 1200 graduates (people who have been placed into companies)
Type of funding	Public-private partnership
Main stakeholders	Government and industry, MBO/HBO students, research
Stakeholder(s) from	Industry and government

Automotive Centre of Expertise	
Scope 1	National
Scope 2	Automotive
Main target group	Industry and universities
Impact	Recently, a letter was written by the secretary of the minister of economics which contained a very short mid-term review. It was stated that the Higher professional education institutes and the universities do their best to implement the programme. To conduct this mid-term review a review commission was set up. They based this information on the yearly reports from different institutes and the extra information the institutes gave about their progress. Also conversations were held with the different institutes. All the institutes have succeeded in focusing more on their point of interest. This means that all the institutes are allowed to keep the contribution they received from the selective budget.
Scalability (and transferability)	Scalability is considered as high. They intend to become the Automotive Centre of Expertise for Benelux, not merely NL. It is easily transferrable in other countries due to the relatively simple business model.
Sustainability	Sustainability is perceived as high. It started in 2011 and now is fully operational with plans for extension. The Ministry of Education and the Netherlands Enterprise Agency have had a long-term vision in supporting the programme. Multiple streams of funding make it easily sustainable.
URL	https://www.rijksoverheid.nl/actueel/nieuws/2010/07/15/rijk-investeert-28-miljoen-in-kenniseconomie https://www.acemobility.nl/ https://www.zuyd.nl/onderzoek/centres-of-expertise https://fontys.nl/Innovatie-en-o
Contact	Name: Automotive centre of expertise Tel: +31 06 55 29 13 04 Mail: info@acemobility.nl secretariaat@acemobility.nl Saskia Lavoo –Program coordinator and account manager s.lavoo@acemobility.nl Kees Slingerland – CEO, Programme director k.slingerland@acemobility.nl

Points from the discussion:

The prime aim of ACE is to better connect education and research on the one hand with the needs and practices of the business economy on the other hand. Centres of Expertise in the Netherlands are financed mostly by government (70%, only 10% from industry) and should connect applied science universities with industry. Government's role of "just" giving money was seen as too small, as it should engage also in the skills dialogue. The business community should also be more engaged, directing through their needs the research done at the knowledge institutions and also the learning outcomes should be driven from the demand of industry and not the other way around.

The community aspect of the ACE, connecting automotive companies still has potential for growth.

In the discussion, it was mentioned that to stay open and agile, one needs a sharing approach to research which is exactly what is missing in universities. The recommendations given included:

- Involve industrial and/or societal partners upfront in the governance and, if applicable, in the ownership
- Organize a good interaction between supply and demand
- Focus at where luck can be found
- Stay small, fresh, strategic and be surprising in organizing (financial) continuity
- Communicate results
- Appoint proper staff.

This approach requires concentrating on speed, not size and having a determined management as well as staff who set the agenda themselves, not letting it be dictated by industry. This agenda needs to serve industry to have a debate about the future transformations of the industry.

The business plan of a centre like these hinges on the voluntary involvement of industry which they will only do if the activities fit with their business cases. This calls for lifelong learning offers which are actually demanded by industry so as to be able to sell them which contributes to funding the centre.

Courses are co-designed with industry after thorough discussions with industry about what they really need. The centre's MBA offer has been a result of that discussion.

The community needs to be built, and the centre's services which enable this are also matchmaking, initialising, and inspiring.

2.5 Alliance Industrie du future (France)

Thierry David, Chargé de mission enseignement supérieur et développement des enterprises, Ministère de l'économie et des finances, Direction Générale des Entreprises – Service de l'action territoriale, européenne et internationale

Alliance Industrie du Futur	
Country	France (Paris)
Short description& objectives	On July 20, 2015, the Alliance Industrie du Futur was officially created. Its role is to support French companies and especially SMEs in the modernization of their industrial processes and the transformation of their economic model by new, digital and non-digital technologies. It has two exceptional measures to support companies that will invest in the modernization of their production capacities: • € 2.5 billion in tax benefits for companies investing in their production capacities and; • € 2.1 billion of additional development loans distributed by Bpifrance to SMEs and mid-cap companies. The alliance created several working groups. The objective of the working group GT 03: 'Man and Industry of the Future' of the Alliance Industrie du Futur is about the impact of the digitisation of the value chain on the organisation of work and the implications on the provision of initial and continuous training. The Future Industry Alliance brings together public and private actors. It was founded by 11 founding members. It now has 34 active or associate members in 4 colleges: academic organizations, technological research organizations, professional organizations and corporate finance organizations.
Duration	2017 - Ongoing
Budget	In total, several billion euros massive investment programme; of this 150

Alliance Industrie du Futur	
	million investment will be in vocational training for coming years
No. of applicants	e.g. 4000 companies went through the digital check
No. of approved applicants	
Type of funding	Different measures, including tax benefits and loans
Main stakeholders	Industry
Stakeholder(s) from	Industry
Scope 1	National: France
Scope 2	Digital
Main target group	Industry
Impact	To be seen
Scalability (and transferability)	To be seen
Sustainability	To be seen
URL	
Contact	Name: Linda Debernardi, Direction Générale des Entreprises – Cabinet Mail: Linda.Debernardi@finances.gouv.fr Name: Michael Monerau, Head, Regional Economic Development Department, DIRECCTE, Haute-Normandie Mail: michael.monerau@finances.gouv.fr

Points from the discussion:

Alliance Industrie du Future was presented as a "philosophy" rather than a government programme. Discussion participants compared it to a Marshall plan for the French Digitalisation. There are about 100 industrial members who each invest 50,000 Euros, which makes a tiny contribution of 5 million compared to the whole budget of about 50 billion Euro investment in 5 years. Because of the magnitude of the problem, France sees the need for a grand and holistic approach.

One example is the Grande École du numerique. Regarding skills, the approach must be to train people to be adaptable rather than in any skill which will be obsolete in a few years time. Nobody can predict exactly what skills will be needed in the future, therefore the adaptability to acquire new skills must be taught.

Another example is the campus of jobs and qualifications (campus du metiers et qualifications, CMQ).

The aim is for policy to distribute massive amounts of money for digitalisation, to have a massive effect on all levels, increase the permeability of education. Experience is to be valorised.

It was agreed that it is probably too early for the effects of the programme to be seen but that the programme is a great experiment and use case. The results likely to be seen in a couple of years are already now eagerly anticipated.

2.6 Make IT work (Netherlands)

Ronald Kleijn, University of Applied Sciences Amsterdam

Make IT Work!	
Country	Netherlands
Short description& objectives	Make IT Work is an initiative which makes it possible for highly educated people (bachelor HBO) with no specific IT background to retrain to an IT position at higher professional education level and

Make IT Work!	
	start directly in a job. Students are selected for Make IT Work through a tool. Employers and prospective students meet during an employers' market. When the employer and the candidate have an agreement, the candidate can participate as a student in the retraining to become a Software Engineer, Cyber Security Specialist or Business Analytics Specialist. In addition to programming, attention will also be paid to cooperation and communication skills. The aim of the project is to offer the course participants a good and up-to-date course in the first part, so that the course participants can start working at one of the participating companies or institutions in the second part of the retraining. The students follow intensive training in a full-time course of four months, 1 month orientate and then work for six months, where they go to school one more day a week. The employer pays the retraining costs and offers an employment contract of six months for 32/40 hours per week with a market-based salary. In 2015 the Amsterdam University of Applied Sciences started with Make IT Work for the direction of Software Engineer. At the beginning of April 2017, Make IT Work, in collaboration with Hilversum Media Campus and MyBit, started the retraining to software engineer in the media. As of February 2018, the conversion courses Cyber Security and Business Analytics will also be offered by the Hogeschool van Amsterdam. The programme was part of the region plan that has been set up by the Economic Board of Amsterdam. Within this sector plan ten measures are taken to educate or re-train people for sectors filled with chances with chances and opportunities. The metropol region of Amsterdam, the ministry of employment and social cases and the employers all invest in the programme. This project is for the re-training of educated professionals in ICT. Half of the retraining costs are paid by the Ministry of Social Affairs and Employment the other half is financed by the employer, whereby the latter amounts to 6,000 Euro per employee. In September 2017 the government defrayment stops and at this moment the Hva runs the programme stand alone without any commercial companies. Employers payment is still 6.000 euro without any other fee cost. USP of this project is that we have all within the Hva (hunting and selection, education and connect with all our companies who are involved)
Duration	2015 - ongoing
Budget	1.3 million (50:50) budget for 2 years. The subsidy of 6,000 re-training cost has expired and is now to be borne by employers (6,000 Euro per employee to be paid by the employer) plus 1000 euro to be paid by the candidate.
No. of applicants	Profile of applicants: • Diploma from a higher professional education institute or university. • Knowledge of Dutch and English • Good analytical skills. • Good communication and advising skills

Make IT Work!	
	• Ability to work accurately • Ability to work independently as well as in a team. • Proactive attitude • Available for 40 hours a week Training can only start when 10+ persons enrolled.
No. of approved applicants	More than 200 students follow the program and work within the IT departments of participating companies, 97 percent still work at the company where they started at the beginning of the Make IT Work re-training. The 12th course will start on 16th of April 2018.
Type of funding	There is no funding of the programme anymore (until September 2017 there was funding through the government).
Main stakeholders	Main and only stakeholder is University of Applied Sciences of Amsterdam
Stakeholder(s) from	Universities, companies (formerly also government)
Scope 1	National
Scope 2	Digital
Main target group	Commercial Companies, students, universities
Impact	More than 200 students follow the programme
Scalability (and transferability)	Instruction of working together with other universities throughout the Netherlands with the aim to expand the programme
Sustainability	Unknown at present
Contact	Name: Ronald Kleijn, Project Leader Mail: info@it-omscholing.nl www.it-omscholing.nl Tel: 06 112 653 06

Points from the discussion:

The programme was generally seen as very successful initiative which could be copied or scaled up elsewhere easily. A transfer to other sectors should also be possible and in healthcare, a national roll-out is ongoing. The programme is a flexible university programme, basically a stripped down Computer Science B.Sc. where non-Computer Science contents have been erased. It is beneficial also for the university as it can be used as a test bed for new, employer driven content that, when working out fine, can be integrated into the regular BSc study programme.

Admission is based on a prior skills assessment, which assesses relevant non-IT skills (important to keep selectivity in mind for scalability). The course runs over 11 months. If a candidate wishes, they can continue studies with 1.5 years more to gain a BSC degree.

The target group consists of mainly three groups: young professionals who want an add on qualification to their prior degree, older professional who want to change career, and employees in a low paying or involuntary part time job who want to improve employment quality.

The certification given for this is acknowledged by employers and the quality has shown. As more graduates spread the word, awareness and reputation increase.

2.7 IT for SHE (Poland)

Małgorzata Szyszko, Fundacja Edukacyjna Perspektywy

IT FOR SHE	
Country	Poland
Short description& objectives	IT for SHE is a programme which aims to increase the participation of women in the high tech industry, by helping talented female students from IT faculties to enter the labour market. There are three main actions of the programme. The first is the Women in Tech Camp where the 130 best IT female students in Poland take part in a hackathon, workshops and mentoring. The second action is the Kids in IT, where 50 volunteer female students from IT departments teach 1,000 kids in rural areas basic coding, how to use 3D printers, Arduino programming and robot building. The third element is the Mentoring Program for female IT students, which is run by representatives of technology companies in Poland. The selected women get to work with mentors for six months on their professional and personal development. In 2017, IT for SHE was awarded with European the Digital Skills Award 2017 in the ''Women in IT'' category and thereby acknowledged as the most successful programme in Europe for women in IT. The 3 main actions of the program IT for SHE are: I. The largest in Europe, 5-days inspirational **"Women in Tech Camp"** for 130 IT girls In September 130 girls from entire Poland were invited for a 5-days "Women in Tech Camp," full of inspiration, activities and networking. The participants of the camp were the best IT students from Poland. The tech camp program consisted of: 1st Day – Welcome Day – with Women in Tech Hackathon, Artificial Intelligence Workshop and integration workshops, 2nd Day – Tech skills Day – 40 tech workshops run by specialists from partner companies, 3rd Day – Role Models and Mentoring Day – presentations by 6 great women from the IT industry and a short mentoring session with 80 mentors from tech companies from all around Poland, 4th Day – Career and soft skills Day – soft skills workshops, 5th Day – Final Day – Inspiration to take away – How to solve social problems by new technologies – final session with participation from international organisations like UNICEF, Amnesty International, PAH and social activism in the area of new technologies. More about Women in Tech Camp agenda: http://camp.itforshe.pl/ II. **1000 Kids in IT – Volunteering Campaign** encouraging young women, female IT students, to teach children from small towns and villages programming and new technologies. Last summer 50 volunteers (female students from IT departments) from 19 Polish technical universities visited for 5 days primary school children from small towns and villages in Poland and to teach them programming and technology – for free. The children learned, among others: basic coding, using of 3D printers, Arduino programming and robot (LEGO) building. Key element is the fact, that kids from small communities, their parents and teachers were able to observe the young female students in the role of experts in the fields of IT and new technologies. It was a great inspiration for little girls to invent their own professional future. The movie about the IT for SHE Voluntary Program: https://youtu.be/3NwJsIS-SIs III. **Mentoring Program** for female IT students, run by representatives of the best technology companies in Poland

	Female students and graduates of faculties of all Polish technical universities and the IT departments of universities were encouraged for application to IT Mentoring Program. They had a possibility to select one of 35 great mentors – employees of partner companies (from tech and HR fields) and work with them for 6 months on their professional and personal development. During the program there was opportunity to develop skills in the field of: programming, new technologies, project management, career planning and leadership. It was a unique, individual relationship with high profile experts from the top IT companies (partners are from Cisco, Intel, Ericsson, Citi, Google, Samsung, P&G, Goldman Sachs) Profiles of mentors participating in the program: http://itforshe.pl/program-mentoringowy/teksty/4-mentoring IV. **Women in Tech Summit** – the greatest event for women in technologies in this part of Europe, planned for 27-28 November 2018 in Warsaw. It will gather 1000 women, those just entering the high-tech world and those already stepping up on a career ladder. The idea of the conference is to present the potential women bring into the high-tech industry, IT, science, and the start-up world, and their contribution to the creation of the efficient ecosystem of innovations. Women in Tech Summit will be the place for ambitious women who want to gain newest tech-knowledge, broaden their professional contacts and advance their career in the high-tech industry. There will be grants for young talented women from Ukraine, Belarus, Russia and Central Asia to cover their travel costs and attendance. Along with the conference and networking meetings, there will be a Career Fair, where high-tech companies will present their job offers and universities their postgraduate and specialist courses.
Duration	ongoing
Budget	EUR 100,000
No. of applicants	600
No. of approved applicants	300
Type of funding	Private – high tech industry
Main stakeholders	Perspektywy Education Foundation: http://www.perspektywy.org http://www.perspektywy.org/index.php?option=com_content&task=view&id=38&Itemid=34
Stakeholder(s) from	Industry, non-profit organisation
Scope 1	National
Scope 2	Digital
Main target group	Female computer science students and professionals, kids from small cities – both genders
Impact	This year (2017) 130 students participated in the Women in Tech Camp; they expanded their knowledge and skills and became volunteers. This way a network for women in IT was created – women who support the IT for SHE project and are its ambassadors in the media. During classes for children we could present women as IT experts. This is a very important aspect, as in many places the stereotypes that women are no good in technology are still active. The beneficiaries of our program also include children from small towns – thanks to modern teaching aids they learned a lot about new technologies. They still keep in touch with the volunteers and eagerly wait for future meetings. The schools gained new approaches to teaching computer science. We are also planning for the program to result in the special initiative – Women in Tech Summit 2018
Scalability (and transferability)	The scalability of the project is strong – especially the “volunteering” part. It

	will be enough to encourage not 50 but e.g. 250 IT students to participate and we will be able to inspire not 1000 children from small towns and underprivileged families (like we did last year), but 10,000! There is a potential for scalability also in the project's partnership structure, allowing create its mutations in further regions. We have received a proposal to create something similar in Germany, basing it on the willingness to cooperate in the joint pool of high-tech industry partners.
Sustainability	The project is supported by partnership with high-tech industry representatives and by the Perspektywy Education Foundation – a non-profit organisation, along with volunteer activity. No public institutions are involved in it.
URL	http://www.itforshe.pl/
Contact	Bianka Siwinska Mail: b.siwinska@perspektywy.pl Tel.: +48 501 535 785 Anna Kamińska Mail: a.kaminska@perspektywy.pl

Points from the discussion:

IT for SHE has managed to increase the share of women in STEM to 30% in Poland. It provides scholarships, e.g. 25 scholarships with INTEL, a mentoring programme for women in STEM, a tech camp, a volunteering programme and its tech summit. It helps alleviate the shortage of IT specialists in Poland. In the volunteering programme, female IT professionals go to villages to teach IT to students to see them as female role models.

As the programme cannot rely on government grants, there are some financing challenges. The programme needs to acquire corporate sponsors, and the sponsorship is changing every year.

In the discussion, the TechTalent charter in the UK was mentioned as a potential learning example for IT for SHE. The Tech Talent Charter is a commitment by organisations to a set of undertakings that aim to deliver greater gender diversity in the UK tech workforce. Signatories of the charter make pledges in relation to their approach to recruitment and retention. There are over 200 companies signed up to the Charter.

3 Next steps

The analysis undertaken in this service contract so far shows, there are several shining examples of promising practice in pilot and model projects. Many of these are, however, often limited in regional reach and sustainability of financing their operation.

The task ahead is therefore to analyse what it will take to move from short term and regionally limited approaches to more consistent and coherent ways of how to sustainably deliver and fund best practice at large scale – and the role the European Commission could play in designing policies and funding mechanisms to contribute to tackling this grand challenge.

The aim of closer coherence between and greater integration of the different existing funding instruments should bring to bear greater synergies of research and funding programmes across and within different DGs of the European Commission and the mobilisation of national funding. The Blueprints for sectoral skills cooperation currently under development potentially are such a European partnership for a long term solution.

The work will be continued in phase 2 for the remaining types of funding programmes. For this analysis a specific format has been developed in which for each type the results are presented in an easy to grasp overview format which will allow for a straightforward assessment of the related strengths of each programme type. It will also ease and support the drawing of conclusions and the development and formulation of recommendations at a later stage. It has been filled in for one programme type, presented and discussed at the workshop, found positive recognition and feedback, and is shown below.

The results will undergo a further multi-step evaluation and validation with experts from the informal expert group and beyond. For this purpose two online surveys will be organised and carried out and a further two expert workshops organised and held in Brussels.

EXCELLENCE					
Title:	Excellence schemes with top universities and high tech industry funded by governments to draw more academic top talent towards industry careers				
Programme type	**Ref. no.**	**Description of funding / support mechanisms (financing flows)**	**Identified programmes**	**Effectiveness**	**Efficiency**
Funding excellence schemes with top universities to draw top academic talent and students (PPP for high-tech skills development, developing and offering tailor-made programmes to create future industry leaders)	5	Government or National training fund / authority funding students, trainees, workers through grants & loans	• Software Campus (DE) • Industrial PhD 2017 (SE) • Industrial Doctorates (NL) • Industrial PhD (DK)	**High:** The programmes reach the target groups, have successfully mobilised the relevant stakeholders (industry and universities) and the PhD candidates develop industry-relevant high-tech skills. Provision of funding works very well in most cases.	**High:** Evaluation reports (where these exist) show a high level of satisfaction among all stakeholders. The average cost per PhD candidate varies between 125,000 and 190,000 EUR is likely to be a reasonable investment and good value for money if the majority of candidates further pursue a career in industry or in their own start-ups and are likely to become top level industry leaders in the future.
	12	Government or National training fund / authority to fund public & private training institutions for contracted training of special groups			
	20	Enterprises supporting public & private training institutions through funding			
	21	Enterprises supporting public & private training through own trainers and in-kind contributions			
	22	Public & private training institutions offering partnership programme to enterprises with recruitment opportunities			
	23	Public & private training institutions provide enterprises with useful project outcomes			
Impact	+	The impact on high-tech skills development for future decision makers in industry is considered high, as the scope and focus are on bringing together national leading industrial and academic organisations in this field and fully targeting the high-tech skills topic. The programmes are expected to lead to growth and employment on macroeconomic level. On individual level they equip research talents with commercial insight and experience by working at a company while studying at university. The programmes are designed to create a larger pool of high-tech talents. Cooperation between research institutions and private companies is prone to leading to innovation and exchange of perspectives.			
Scalability	+	Scalability is considered to be high. The programmes can be considered highly scalable regarding the involvement of further industrial companies including larger SMEs, the public sector and additional higher and executive education and training institutions (reaching beyond the top technical universities). Programmes possibly need not only be addressed to PhD but may also include Master students. Replication on a larger scale requires rather high investments should this model be replicated 1:1. Transferability is considered to be rather high. The model offered by the initiative is highly transferable to different contexts, which is demonstrated by the fact that the Dutch programmes was built on the basis of the experiences in Denmark. Replication of the Software Campus in other European regions may also be feasible with less investment and funding.			
Sustainability	+	The programmes can be described as excellence initiatives funded through a combination of private and public sources, integrating industry and higher education and training, with a strong link to practice and mentoring, gaining work experience in a company and practical problem solving through carrying			

<table>
<tr><th colspan="5">EXCELLENCE</th></tr>
<tr><td>Title:</td><td colspan="4">Excellence schemes with top universities and high tech industry funded by governments to draw more academic top talent towards industry careers</td></tr>
<tr><td>Programme type</td><td>Ref. no.</td><td>Description of funding / support mechanisms (financing flows)</td><td>Identified programmes</td><td>Effectiveness</td><td>Efficiency</td></tr>
<tr><td></td><td></td><td colspan="4">out and leading a project dealing with an issue of relevance for the company.
With the present shared funding model the programmes can be considered to be highly sustainable.</td></tr>
<tr><td>SWOT</td><td></td><td colspan="4">
<table>
<tr><th>STENGTHS:</th><th>WEAKNESSES:</th></tr>
<tr><td>Proximity of university education and industry including corporate top executive training for PhD candidates.

Real top management and industry leader candidates as outcome.</td><td>Transferability requires quite substantial investments.

Danger of lack of sufficient number of candidates when focussing on PhDs only.

Comparably high levels of churn of corporate participation have been observed in Germany which may hint to weaknesses, but reasons for this are yet to be identified.</td></tr>
<tr><th>OPPORTUNITIES:</th><th>THREATS:</th></tr>
<tr><td>Increasing the pool of industrial leadership talent, strengthening the integration of innovation systems.</td><td>Potential misuse of budget when transferring it to universities as just another source of research funding (can be avoided by proceeding according to the Nordic model: employer status of PhD candidate and direct payment).</td></tr>
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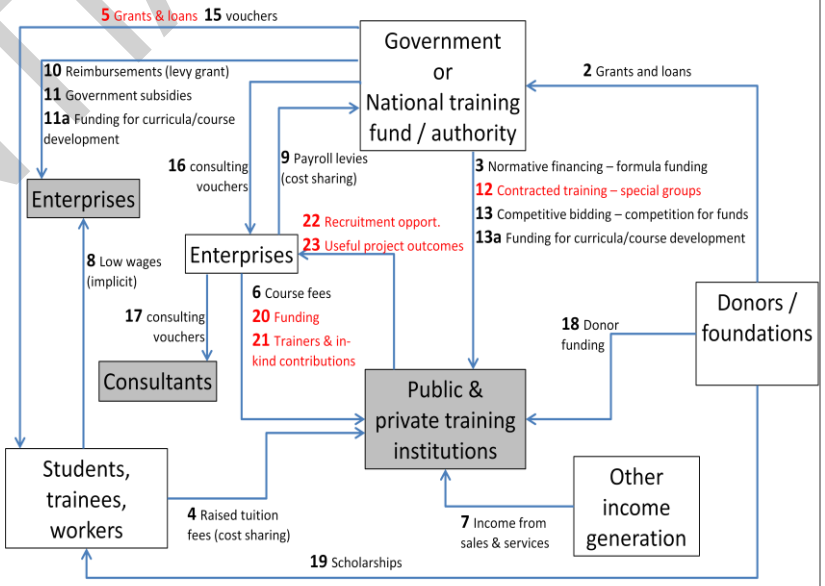


Software Campus (DE)
<u>Programme type:</u> PPP for high-tech skills development, developing and offering tailor-made programmes to create future industry leaders (elite programmes)

Note: blue arrows represent funding flows; training providers are indicated by shaded boxes; red texts highlight the relevant funding flows in the case.
</td></tr>
<tr><td>Bottom line and recommendations</td><td></td><td colspan="4">The programmes reach the target groups, have successfully mobilised the relevant stakeholders (industry and universities) and had and have an impact since the PhD candidates develop industry-relevant high-tech skills, cooperation between research institutions and private companies is seen as leading to innovation and exchange of perspectives and the programmes are creating a larger pool of high-tech talents with most of them becoming candidates for top-level leadership positions in industry or starting their own business.</td></tr>
</table>

EXCELLENCE					
Title:	Excellence schemes with top universities and high tech industry funded by governments to draw more academic top talent towards industry careers				
Programme type	**Ref. no.**	**Description of funding / support mechanisms (financing flows)**	**Identified programmes**	**Effectiveness**	**Efficiency**
		Provision of funding works very well. Evaluation reports (where these exist) show a high level of satisfaction among all stakeholders. The programmes require a reasonable investment and can be seen as good value for money if the majority of candidates further pursue a career in industry or in their own start-ups and are likely to become top level industry leaders in the future. With the present shared funding model the programmes can considered to be highly sustainable.			

4 Annex: Workshop programme and participants

High-Tech Skills for Europe

National Policies and Funding Programmes for Skills Development

Second Expert Workshop

Learning from Best Practices for Scaling up and Re-focusing Policies and Funding Programmes

16th May 2018, 10:00 – 16:00 h

EU Liaison Office of the German Research Organisations (KoWi),
Rue du Trône 98, 1050 Bruxelles, Belgium (8th floor)

Background

The digitisation of the economy and key enabling technologies are drastically and fundamentally disrupting the way enterprises operate. This is posing new demands in terms of knowledge, skills and competences towards the economy and workforce. Demand for high-tech skills is increasing fast which is resulting in significant shortages at all levels in organisations: technical, professional, management and strategic leadership level.

Member States and EU policies and initiatives need to take these disruptions into consideration and further develop and adapt their programmes and incentives to better anticipate and cope with change and allow individuals and organisations to acquire and/or update these specialised skills and provide the economy with a large talent pool and the high-tech skills and competences needed. Education and training systems in Europe need also to react on these new demands and develop appropriate training offers.

empirica and PwC will analyse the situation at national level and EU level[5] and the synergies between the different instruments with a view to identify successful ones, i.e. best practices. These may be scaled up to become even more successful and sustainable and they may also serve as a guide for re-focusing and improving existing funding programmes and incentives.

For the 2020+ funding period changes are currently under discussion. Without interfering in the political process, our work will bring a contribution by analysing and documenting best practices and identifying scalable and sustainable mechanisms to support policy makers and stakeholders in improving the effectiveness and efficiency of their funding programmes and incentives.

This activity is undertaken as part of the service contract 'High-Tech Skills for Europe launched by the Commission (DG GROW). Results from an investigation of existing policies and funding programmes will be presented at this 2nd workshop.

Several experts have been invited to this workshop to present promising practices of national policies and funding programmes with the aim of critically reviewing and learning from these for scaling up and re-focusing but also supporting improving the effectiveness and efficiency of their funding programmes and incentives.

[5] At EU level funding opportunities for skills development include: the European Structural and Investment Funds: European Social Fund; European Regional Development Fund; Youth Employment Initiative; European Agricultural Fund for Rural Development; European Maritime and Fisheries Fund; Erasmus+; Horizon2020; European Fund for Strategic Investment; EU Programme for Employment and Social innovation; European Investment Bank's "Skills and Jobs' loan programme"; COSME – Europe's Programme for SMEs; European Globalisation Fund ; and the LIFE Programme. Source: European Commission: Staff Working Document: Analytical underpinning for a New Skills Agenda for Europe Accompanying the Communication from the European Commission "A New Skills Agenda for Europe: Working together to strengthen human capital, employability and competitiveness" {COM(2016) 381 final}, Brussels 10.6.2016, p. 76

https://ec.europa.eu/info/funding-tenders/european-structural-and-investment-funds_en

DRAFT Agenda

10:00 - 10:15	**Welcome and Introduction** • European Commission Policy Background • Latest developments	*André Richier, European Commission DG GROW*
10:15 - 10:45	**Progress of work: national funding policies and programmes for high-tech skills development – status report**	*Werner B. Korte, empirica*
10:45 – 12:45	**Promising Practices of National Policies and Funding Programmes – Presentations & Discussion I** • Education and further education in business 4.0 - funding line of the JOBSTARTER plus programme (Germany): *Katharina Kanschat, Head of programme unit JOBSTARTER, Bundesinstitut für Berufsbildung (BIBB)* < confirmed > • Digital manufacturing processes - Additional qualification for the future career in Industry 4.0! A JOBSTARTER plus project (Germany): *Christian Wiegmann, Nachwuchsstiftung Maschinenbau* < confirmed > • ACE Automotive Center of Expertise (The Netherlands) *Kees Slingerland, CEO, ACE Automotive Center of Expertise* < confirmed >	
12:45 – 13:45	**LUNCH**	
13:45 – 15:15	**Promising Practices of National Policies and Funding Programmes – Presentations & Discussion II** • Alliance Industrie du Futur (France): *Thierry David, Chargé de mission enseignement supérieur et développement des enterprises, Ministère de l'économie et des finances, Direction Générale des Entreprises – Service de l'action territoriale, européenne et internationale* < confirmed > • Make IT Work - Retrain for IT position at higher professional education level (The Netherlands): *Ronald Kleijn, Project Manager Make IT Work, University of Applied Sciences Amsterdam* < confirmed > • IT for She – the best action for women in IT in Europe 2017 (Poland): *Małgorzata Szyszko, Fundacja Edukacyjna Perspektywy* < confirmed >	
15:15 – 15:45	**Lessons Learned and Proposals for Scaling up and Re-focussing – Expert Discussion** • Lessons learned • Innovation • Scalability • Sustainability: financing and funding models • Proposals for scaling up and re-focussing	*Werner B. Korte, empirica*
15:45 – 16:00	**Wrap-up, Conclusions and Next steps**	*André Richier, European Commission DG GROW* *Werner B. Korte, empirica*

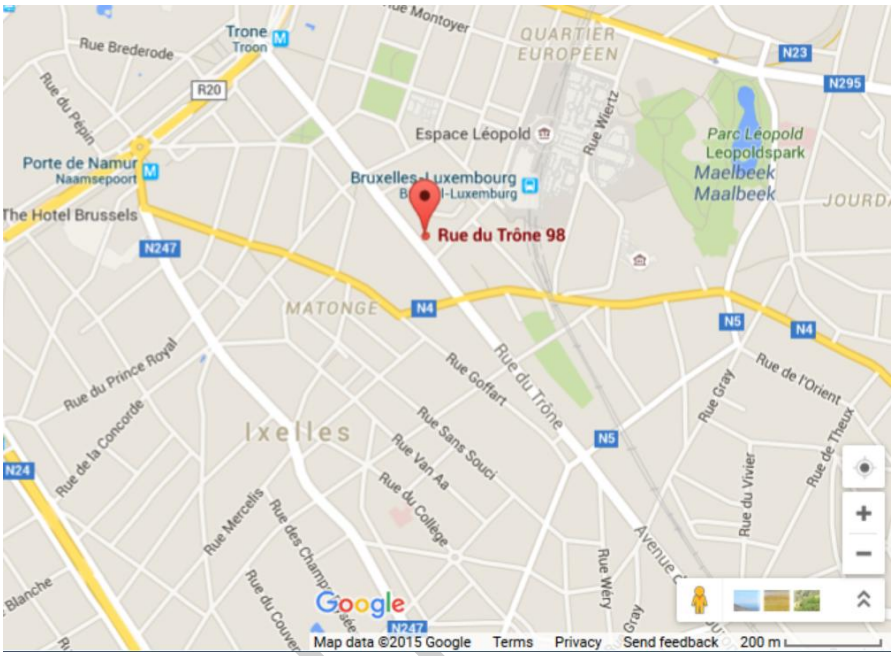
Workshop venue and location

EU Liaison Office of the German Research Organisations

(KoWi),

Rue du Trône 98

1050 Bruxelles



Contact in case of problems and questions

Jza Abbas: jza.abbas@empirica.com, Tobias Hüsing: tobias.huesing@empirica.com or Werner B. Korte: werner.korte@empirica.com, tel.: +49 228 98530-0

List of registered participants (Status: 8 May 2018)

*) = presenters of best practice candidate programmes

First name	Last name	Organisation	Position within the organisation	
Mehmet	Aksit	University of Twente	professor, chair software engineering	NL
Geert	Asselbergs	PBT (Dutch National STEM platform) / EU STEM Coalition (EU wide network of national STEM platforms)	Project lead internationalisation / coordinator EU STEM Coalition	NL
Silvia	Barbieri	Assinter Italia	Head of Institutional Affairs	IT
Francis	Behr	Syntec numérique	Chargé de mission	FR
Bernd	Boeckenhoff	Academy Cube gGmbH	CEO	DE
Thierry	David *)	Ministère de l'économie et des finances Direction Générale des Entreprises – Service de l'action territoriale, européenne et internationale	Chargé de mission enseignement supérieur et développement des entreprises	FR
Sjoerd	de Vries	University of Twente / EIT Digital	Program manager Quality Assurance Digital Education	NL
Alejandro	Debendet	ITWNET INTERNATIONAL	MD	NL
Rocco	Defina	Fondazione Politecnico di Milano		IT
Heinz Martin	Esser	Fabmatics GmbH	Managing Director	DE
Fiona	Fanning	Pearson VUE	Director EU Affairs	BE
Marco	Ferretti	C.I.N.I. - University of Pavia	Professor - Lab CFC Director	IT
Fatima	Gallo	ISDI	Head of Talent & Research	ES
Danny	Gooris	Oracle	Senior Manager EMEA	BE
Sandy	Grom	Dept for Digital, Culture, Media and Sport - UK Government	Assistant Director - Digital Skills	UK
Erisa	Gruda	PwC	Consultant	NL
Hans-Ulrich	Heiss	TU Berlin	Vice President	DE
Greet	Heylen	Flanders Make	HR manager	BE
Tobias	Hüsing	Senior Research Consultant	empirica GmbH	DE
Renata Anna	Jaksa	ICEG European Center	Director	HU
Katharina	Kanschat *)	BIBB Bundesinstitut für Berufsbildung	Head of programme unit JOBSTARTER	DE
Ronald	Kleijn *)	Hogeschool van Amsterdam	Project Coordinator	NL
Werner B.	Korte	empirica GmbH	Director	DE
Silvia	Leal	RTVE - Spanish Public Television	Expert	ES
Stefano	Menon	Fondazione Politecnico di Milano	Digital learning and collaboration manager	IT
Richard	Narine	Randstad	Senior Vice President	NL
Pantelis	Nikolaidis	Ministry of Administrative Reconstruction	European and International Relations	EL

First name	Last name	Organisation	Position within the organisation	
Andrea	Parola	EeSA	Gneral Manager	BE
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