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Good practices from Europe and other parts of the world

Vision and Sectoral Pilot on Skills for Key Enabling Technologies

**European Conference on Skills for Key Enabling
Technologies and Digital Economy**

Brussels, 1 June 2015



*EUROPEAN
COMMISSION,
Directorate General for
Internal Market,
Industry,
Entrepreneurship and
SMEs*

*Unit GROW-F3 KETs,
Digital Manufacturing
and Interoperability*



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Key question

What good practices can be found in Europe and other parts of the world?

General answer

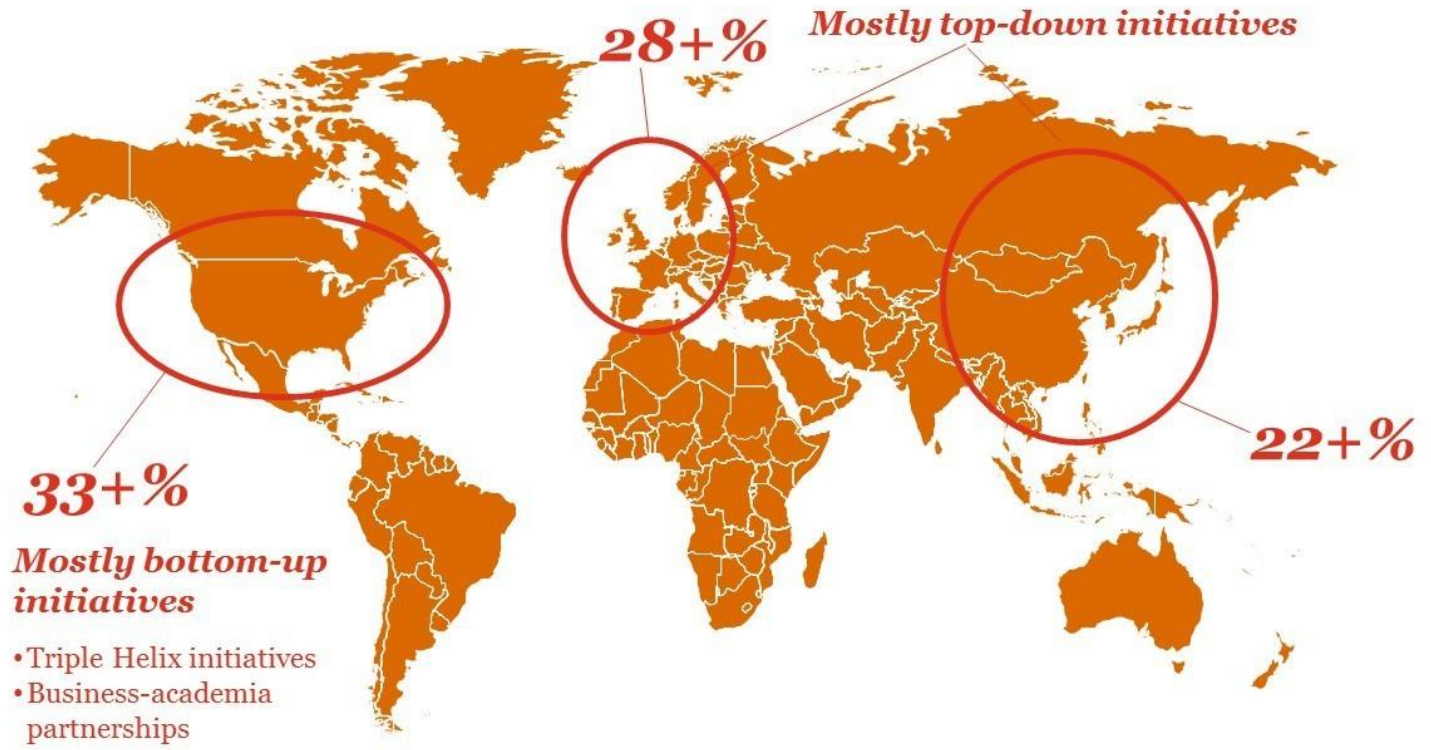
Key good practices:

- Are typically found in Western Europe, East Asia, and the United States;
- Focus either on multi-KETs, nanotechnology, or photonics;
- Demonstrate a clear difference in focus areas across world regions;
- Have clear underlying mechanisms which can be learned from.

Good practices from Europe and across the world

General insights on key good practices in KETs skills

- Most initiatives focus either on **multi-KETs, nanotechnology, or photonics**, are implemented in **North America, East Asia or Western Europe**, and more often than not follow a **top-down approach**



Good practices from Europe and across the world

General insights on key good practices in KETs skills

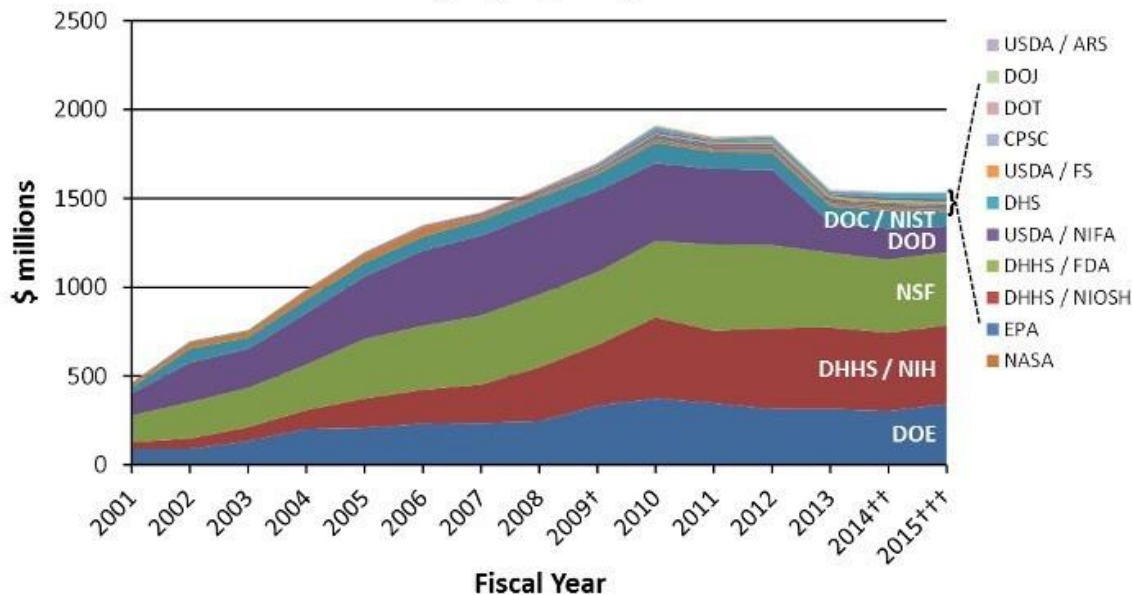
- Attention is paid especially to challenges that relate to the need for regular re-training of current employees, to educational programmes not being fully aligned with industry needs, and to the limited opportunities to study KETs.
- Challenges related to the fact that a major part of the current staff will soon retire, and that KETs careers are not perceived as being attractive and prestigious, are less often addressed by KETs skills initiatives.
- The analysed ***world regions demonstrate a clear difference in focus areas*** when it comes to tackling specific challenges.

Good practices from Europe and across the world

Key good practices in the United States

- Key KETS skills initiatives in the United States typically **are heavily funded at the Federal level**, or feature **capital intensive research and education facilities that are managed by university networks** or industry-academia partnerships.

NNI Funding by Agency, 2001-2015



† FY '09 does not include American Recovery and Reinvestment Act funds for DOE (\$293 M), NIH (\$73 M), NSF (\$101 M), and NIST (\$43 M)

†† FY '14 estimate based on 2014 enacted levels; may change as operating plans are finalized

††† FY '15 request

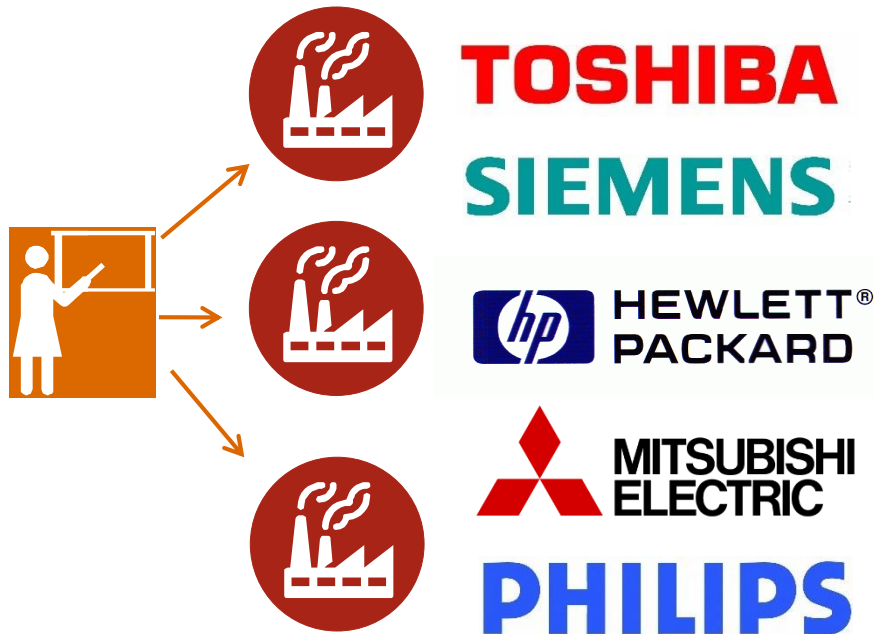
	1. Nanotechnology Signature Initiatives (NSIs)	Nanotechnology for Solar Energy Collection and Conversion	Sustainable Nanomanufacturing	Nanoelectronics for 2010 and Beyond	Nanotechnology Knowledge Infrastructure	Nanotechnology for Sensors and Sensors for Nanotechnology	2. Foundational Research	3. Nanotechnology-Enabled Applications, Devices, and Systems	4. Research Infrastructure and Instrumentation	5. Environment, Health, and Safety
CPSC	♦				○	○	○	•	•	•
DHHS	♦		•			•	•	•	•	•
DHS	♦			•		•	•	•	•	•
DOC	♦	•	•	•	•	○	•	•	•	•
DOD	♦	•	•	•	•	•	•	•	○	○
DOEd							•	•		○
DOE	♦	•	○	○	○		•	•	•	
DOI							•	•		
DOJ								•		
DOL							•	○		•
DOS							•	○	○	•
DOT							•	•		○
DOTreas	♦	○	•	○	•	•		•		○
EPA	♦		○		•	•	○	○	•	•
IC	♦	•	•	•	•	•		○		
NASA	♦	•	•	•	•	•	•	•	○	
NRC								•		
NSF	♦	•	•	•	•	•	•	•	•	•
USDA	♦	•	•		•	•	•	○	•	•
USITC	♦	•	•			•		•		

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Good practices from Europe and across the world

Key good practices in East Asia

- Key good practices in East Asia typically focus on **upskilling the national KETs labour force**, either through sourcing talent from abroad or, more common, investing heavily in KETs skills amongst domestic workers.



SIMTech's Knowledge Transfer Office (KTO) has been established to provide **case study-based training on advanced manufacturing technology for a broad target audience**, including advanced manufacturing specialists, engineers, managers, as well as other industry professionals and executives

Its success is highlighted by the extensive client list of industry partners. **220+ industrial partners make use of the programme** to train their employees.

Good practices from Europe and across the world

Key good practices in Europe

- ***Key initiatives in Europe are typically propelled by government***, and implemented in collaboration with educational institutions. These initiatives most often target higher education students and PhD students, and focus on increasing both the possibilities and the appeal of studying KETs, and on aligning educational tracks with industry needs.



Good practices from Europe and across the world

Mechanisms apparent in these key good practices

- The mechanisms of ***how to make the these good practices of KETs skills initiatives a widespread reality*** in Europe include:
 - ***Making financial means available*** on a scale that corresponds to the method through which these means are allocated and implemented;
 - Establishing and leveraging ***large-scale facilities with state-of-the-art equipment***;
 - ***Connecting with local educational institutions and creating networks*** of universities and teachers;
 - ***Bringing academia and industry together***;

Good practices from Europe and across the world

Mechanisms apparent in these key good practices

- The mechanisms of ***how to make the these good practices of KETs skills initiatives a widespread reality*** in Europe include :
 - ***Attracting young researchers*** by offering them autonomy and state-of-the-art facilities;
 - ***Stimulating the role of local government*** and their engagement in bottom-up approaches; *and*
 - ***Recognising the role of highly visible leaders*** with experience both in academia and in industry.

Thanks a lot for your attention!

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