

# Innovating Education of Talents in Chemistry for Business Success in SMEs' Innovations InnoChem

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## European Summary Report of the Road Maps

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This European summary report is based on the three road maps as accessible in English. These have been produced by each national team from Czech Republic, Greece, and Slovakia.

This activity was part of the Innochem Project WP4 that mentioned the drafting “*of road maps for enhancing the tertiary education to include the sets of competencies identified in the status quo analysis, including cooperation of companies in practical art of the study, use of new innovative methods of teaching, cooperation of university teaching staff with industry experts and measures to be adopted to overcome barriers identified in the status quo analysis*”.

This European Summary includes the following sections:

- A. The making of the road maps
- B. Key strategy elements from the road maps, their overview and supporting objectives adopted in the road maps
- C. Overview of the measures for their delivery

## A. THE MAKING OF THE ROAD MAPS

Further to the finalization of each status quo analysis, the national teams started the work leading to the drafting and finalization of their respective road maps.

On the content they started by looking at the results of their respective status quo analysis, in particular the defined skills for future engineers and scientists (business / personal / scientific and technical skills) to overcome the “innovation gap” and allow them when starting working to be able to have market driven attitudes suitable in particular for SMEs.



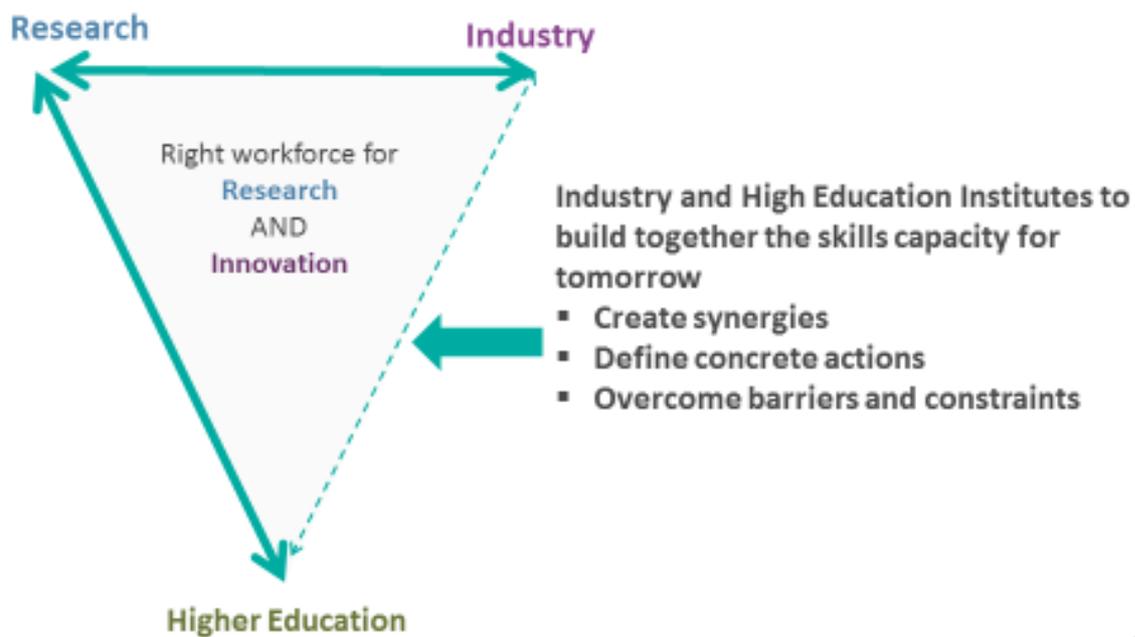
Source: High Level Group on Key Enabling Technologies  
Final report: KETs: Time to Act! - 24 June 2015  
[https://ec.europa.eu/industry/files/2015/06/kets\\_time\\_to\\_act.pdf](https://ec.europa.eu/industry/files/2015/06/kets_time_to_act.pdf)

On the way to do it each national team ensured to talk and proactively involve all needed interlocutors.

If Research and Industry are often in contact as well as High Education and Research, the last segment of the triangle here below is not often achieved. Rarely Industry has direct contact with High Education to work together in this field.

This Project was aimed to overcome this weakness. Each road map has demonstrated in concrete terms that closing the gap could be achieved and was achieved.

## Way to proceed



29

## B. KEY STRATEGY ELEMENTS FROM THE ROAD MAPS, THEIR OVERVIEW AND SUPPORTING OBJECTIVES ADOPTED IN THE ROADMAPS

The following key strategy elements have been identified and are present in the respective road maps; these are crucial to support the declared objectives:

- ✓ Take as starting point the concrete results of the status quo analysis;
- ✓ Integrate the realities of innovations and markets in each country;
- ✓ Focus primarily on SMEs;
- ✓ Look into a wide spectrum of parameters at the beginning (e.g. existing curricula, timing to change);
- ✓ Use of a very dynamic methodology and approach (e.g. talking to many interlocutors, at different levels, from a wide variety of horizons, including to former graduates and young workers);
- ✓ Exploring innovative ways of education and communication (e.g. web pages, faculty facebook);
- ✓ Dive into the details of each relevant curriculum (e.g. timing, subjects, number of hours dedicated to each subject, type of education: lecture/seminar/laboratory...);
- ✓ Look into the graduate profiles and scope of the graduates;
- ✓ Evaluate the strong points and weaknesses of each curriculum in order to make a better relationship with the results of the status quo analysis. This analysis includes also the opportunities and threats;
- ✓ Look into the parameters for completion of the studies and flexibility, more choice / increase choice of options and new ways of teaching could be integrated;
- ✓ Brainstorm on how creative solution “out of the box”, and implemented (e.g. using computer models, simulation exercises);
- ✓ Have a precise definition of the barrier and look into how these that can be realistically overcome;
- ✓ Have objectives defined on the short term and the long term;
- ✓ Ensure the engagement of Industry in the process as well as all relevant interlocutors;
- ✓ Establish new closer relationship between Industry and High Education, possibly not just as a one off but on the long term as well. The aim being to create win-win solutions;
- ✓ Make straightforward and concrete recommendations for changes, including deeper conversion of curriculum if needed;
- ✓ Propose “mobility” measures for students;

- ✓ Propose the inclusion of increase practice and training in partnership with Industry;
- ✓ Go beyond the requirements of the Projects e.g. in looking on how to render the studies more attractive for your people to be willing to be engaged, questioning the title of the faculty. Proposals were also included to motivate students and underpin talented students within future professional circles.

### C. OVERVIEW OF THE MEASURES FOR THEIR DELIVERY

Firstly, the timing included in the INNOCHEM Project for the status quo analysis and the road map was respected by each team. This is certainly an important element to help into the positive the delivery and achievement of the evolutions in tertiary education that are proposed in each road map.

Each road map is drafted in a way that is adapted for concrete delivery taking into account of the specificities in the relevant country. This is tailor-made; there is no "fit for all" approach. This is of course very positive.

There may be measures to be adopted and objectives for the short or the long term. For example, the Greek road map included measures to adapt positively a curriculum that will be implemented already in September 2017 as when they approach High Education it was the perfect timing for changing such curriculum. This only occurs at given timing to be fully exploited. Each national team identified these windows of opportunities and make sure not to miss them.

Detailed actions plan as included in the three road maps are a plus point, even if certain actions are to be conducted by all interlocutors in the medium or long-term. The same for concrete recommendations on the curriculum and time tables.

The exchange of best practices between the three teams was also very valuable. This include the sharing in English of a new curriculum for future REACH Manager in Czech Republic.

The new dynamic approach that was started is also a plus point for achieving the defined objectives and optimizing their delivery. This includes business contribution to curriculum development that is highly appreciated by High Education and Research.

Events at national level and communication are key to the delivery of the contemplated measures. This includes also to have external stakeholders associated to these activities.

The European Conference on preparing young talents for innovation in chemical sector organized by the Slovakian team in Bratislava on 6/7 April 2017 represented an excellent kick off for these follow-on and implementation and dissemination activities.

