



EUA Energy Clustering Event

World Café Method: Delivering new and innovative research and education programmes

General rapporteur: Dr Douglas Halliday, Durham University

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General recommendations

- Importance of **innovation and new methods of learning and teaching**, including the use of digital and blended approaches.
- **What does multidisciplinary mean in practice?** How do you collaborate across subject boundaries in a meaningful way? The importance of addressing organisational and structural boundaries in making this a success. This also applies across different institutions and sectors.
- Recognition and **accreditation for new programmes and new modes of delivery** including online. The importance of establishing widespread recognition by all stakeholders for new programmes. This also applies for credit for short courses.
- The importance of **developing skills as well as knowledge** (communication, team working ,enterprise, problem solving...)
- The need to include **challenge and problem based approaches** to develop wider perspectives and skills. Challenge based includes cross-sector working (industry, society, policy etc.) The need for effective means of assessing and evidencing achievements (portfolios, presentations ...)
- The need for a **common terminology for all stakeholders** from professors to students to those attending short courses to external stakeholders. This requires clearly stated aims, objectives, learning outcomes etc. This common framework will enable everyone to support the work.





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Working Group 1

*Moderator: Dr Wim Melis, Greenwich University
Rapporteur: Mr Joan-Marc Joval, InnoEnergy*



Part 1) Frameworks and barriers for the development of education and research programmes

	Institutional barriers	Institutional opportunities	Suggested actions (<i>optional</i>)
Innovative education programmes	<ul style="list-style-type: none"> • Innovate the teacher's ways of teaching: how to collaborate with other disciplines; how to embrace digital/blended learning; how to increase their interest in becoming facilitators of learning; • Creation of multidisciplinary programmes: where to find the right experts that are ready to collaborate? How to do it? Who "owns" the programme? Who accredits? • Challenge to accreditate multidisciplinary programmes: accreditation is still along lines of traditional disciplines; • Bureaucracy (e.g. rectorate, ministry) can be a challenge for the creation of a new programme; • Sharing finance between universities: who (university, department) should be responsible for the programme? • Finance for mobility; 	<ul style="list-style-type: none"> • Identifying best practices across Europe • Why change in accreditation? <ul style="list-style-type: none"> ✓ Recognition / reputation ✓ Press ✓ Economic attention (attractiveness for investment; "innovative institution"); 	<ul style="list-style-type: none"> • Portfolio-based accreditation. But: Lack of consistency? Too individual? How universities accreditate this? Need of quality criteria; • How professional bodies participate in evaluating and accrediting? • Financial incentives for professors if they make efforts in multidisciplinary programme development;
Innovative research programmes	<ul style="list-style-type: none"> • Multidisciplinarity can be a problem in some PhD programmes where the separation of topics is very strong; 		<ul style="list-style-type: none"> • A-shaped model: problem, who's is the supervisor. Who is going to hire a PhD that has not focused strongly only in one subject?

Part 2) Tools and mechanisms to deliver innovative education and research programmes

	Interdisciplinary case-based/challenge-based modules	Interdisciplinary short university programmes	Accreditation – good practice	New forms of collaboration between different sectors (university and non-university)
Innovative education and research programmes	<ul style="list-style-type: none"> • What are the obtained skills? • Combination of different types of challenges to get a rounded individual; • Professors test the challenges to see if they are appropriate to provide the skills the students require; 	<ul style="list-style-type: none"> • Need of business cases; • Block delivery; • Need for unification of terminology / certification / degrees between universities and companies; 		



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Working Group 2

Moderator: Prof. Fabrice Lemoine, Energies for the future, Lorraine Université d'Excellence

Rapporteur: Dr Andrzej Adamski, Jagiellonian University



Part 1) Frameworks and barriers for the development of education and research programmes

	Institutional barriers	Institutional opportunities	Suggested actions <i>(optional)</i>
Innovative education programmes	<ul style="list-style-type: none"> • Formal and administrative limitations and lack of appropriate ideas; • Strict accreditation rules; 	<ul style="list-style-type: none"> • Flexible, goal-oriented structure; • Good collaboration with external stakeholders; 	<ul style="list-style-type: none"> • Training in IP rights; • Long-life learning; • Fully integrated research and education; • Special incentives for professors;
Innovative research programmes	<ul style="list-style-type: none"> • Challenge to have competent staff and/or interested students; • In existing programmes and modules, different approaches from research and industry, e.g. various time-scales to integrate new solution in industry and universities; 	<ul style="list-style-type: none"> • Framework-structured training; • Good communication between research teams and inter-faculty collaboration; • Communication- and cooperation-agreed objectives; 	<ul style="list-style-type: none"> • Development of entrepreneurial skills and practical approach; • Long term collaboration with industry, joint projects; • Organisation of the units by challenges and not by disciplines;

Part 2) Tools and mechanisms to deliver innovative education and research programmes

	Interdisciplinary case-based/challenge-based modules	Interdisciplinary short university programmes	Accreditation – good practice	New forms of collaboration between different sectors (university and non-university)
Innovative education programmes	<ul style="list-style-type: none"> • Joint projects and courses involving engineering, business, science and art; as well as collaboration driven courses; 	<ul style="list-style-type: none"> • Availability of specialized teachers able to teach in multidisciplinary teams; • New financial opportunities; • Team project modules; 	<ul style="list-style-type: none"> • Positive recommendations and incentives are key; 	<ul style="list-style-type: none"> • Consultation with external stakeholders prior to opening new programmes; • Multi-disciplinary studies; energy as strategic field for universities;
Innovative research programmes	<ul style="list-style-type: none"> • Topic-oriented brain-storm and discussion-based applications; • Dedicated doctoral research projects concerning well defined goals; 	<ul style="list-style-type: none"> • Problem of time for preparing programmes longer than the need of new solutions; • New types of projects available; 	<ul style="list-style-type: none"> • Communication and dissemination events – presentation of particularly vital topics to the broader audience; 	<ul style="list-style-type: none"> • Inter-faculty and multi-disciplinary project teams; • Challenge-oriented teams instead of discipline-oriented teams; e.g. research programme on H₂ or creation of Energy Institute;



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Working Group 3

Moderator: Prof. Mihaela Albu, Politehnica University of Bucharest
Rapporteur: Ms Borana Taraj, EUA



Part 1) Frameworks and barriers for the development of education and research programmes

	Institutional barriers	Institutional opportunities	Suggested actions <i>(optional)</i>
Innovative education programmes	<ul style="list-style-type: none"> • Burocracy for teaching staff: the creation of new courses sometimes implies disengaging in existing ones; • The recognition of professors in `traditional model` universities is linked to their physical presence during the lectures; 	<ul style="list-style-type: none"> • Technology incubator lab housed at university: interdisciplinary; partnership with industry; • Build the network: involvement of social actors such as cities; • Business models: who are content providers and who can issue certificate s; 	<ul style="list-style-type: none"> • Invest in the development of individuals not certificates • Challenge the current business model of classes with numerous students; adapt the university offer to different student needs; • Master programmes co-designed and delivered in several universities;
Innovative research programmes		<ul style="list-style-type: none"> • What balance between financial constraints and social engagement of universities; 	

Part 2) Tools and mechanisms to deliver innovative education and research programmes

	Interdisciplinary case-based/challenge-based modules	Interdisciplinary short university programmes	New forms of collaboration between different sectors (university and non-university)
Innovative education and research programmes	<ul style="list-style-type: none"> • Opportunities of international-recognised certificates; • Short modules need to be adapted to the needs of the student (e.g. Master/PhD or professional); • Challenge-base projects: flexibility in frequency and duration depends on learning outcome needs; • Innovative projects to be devised as part of the life-long training; 	<ul style="list-style-type: none"> • Consider that a percentage (e.g. 5-10%) of the offer is thought for professionals; • Out of the box thinking for newest and up to date knowledge about technological and societal implications; • Targeted training based on the needs of students or professionals; • Professors also need re-training about innovative methodologies and pedagogies; 	<ul style="list-style-type: none"> • University-industry collaboration: <ul style="list-style-type: none"> ✓ students acquire field experience in industry on specific case studies; ✓ industry can be re-trained by universities on newest and up to date knowledge;



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Working Group 4

*Moderator: Dr Lidia Borrell-Damian, European University Association
Rapporteur: Dr Lucian Toma, Politehnica University of Bucharest*



Part 1) Frameworks and barriers for the development of education and research programmes

	Institutional barriers	Institutional opportunities	Suggested actions (<i>optional</i>)
Innovative education and research programmes	<ul style="list-style-type: none"> • Diploma should specify the qualification and transferable credits; • Flexibility of the programme duration; • Existence of a company policy for training the employees, for their careers progress or professional satisfaction; • Incentives for academic staff, recognition of their activity; • The quality of the programme is important for high participation; • Funding barriers; ad-hoc programmes may require special funds; • Agreements for logistics between partners; 	<ul style="list-style-type: none"> • E-learning resources within study programmes; the best professors are selected for specific topics; • Erasmus summer schools; • EU funded study (master) programmes; 	

Part 2) Tools and mechanisms to deliver innovative education and research programmes

	Interdisciplinary case-based/challenge-based modules	Interdisciplinary short university programmes	New forms of collaboration between different sectors (university and non-university)
Innovative education and research programmes	<ul style="list-style-type: none"> • E-learning platforms requires IT systems + repository (all shared among partners); • Physical platforms / laboratory; • Industry sites for visits (factory, power plant, substation, etc.); • Support for mobility (logistics and funding); 	<ul style="list-style-type: none"> • Planning the programme by participation of all potential partners in order to make it useful and attractive; • Regulated tax subsidies / exemptions for the costs incurred in organizing short courses; • Organizing on-site visits, in both sides (from university to industry and from industry to university); • Enabling conditions (human resources, maintenance, administration, design); • Agreements for accessing the infrastructure 	<ul style="list-style-type: none"> • Partnership agreements university-university and university-industry; • Industry initiatives; short programmes can be part of the company policy on a regular basis or the company can ask a university to organize a course; • Large companies have their dedicated department for training the personnel, having company people specialized to provide trainings; in case that a certain topic cannot be provided by the company specialists, collaboration with universities are initiated; • Legislation related to life-long learning; • Stimulations from universities addressed to companies to send employees for participating in twinning/educational programmes; • Dedicated programmes for professional requirements, e.g. for renewing the engineers type of accreditation;



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Working Group 5

*Moderator: Prof Josep Bordonau, Polytechnical University of Catalunya; InnoEnergy
Rapporteur: Ms Kamila Kozirog, European University Association*



Part 1) Frameworks and barriers for the development of education and research programmes

	Institutional barriers	Institutional opportunities	Suggested actions (<i>optional</i>)
Innovative education and research programmes	<ul style="list-style-type: none"> • Administrative burdens in designing and implementing new programmes and modules; • New innovative modules (e.g. online courses) are difficult to put into practice and combine with existing programmes; • In online courses, traditional teacher-student relationship cannot be replaced; • Limited time of doctoral students to follow courses in other fields; • Inter-institutional and inter-department relations can be a challenge in providing joint programmes; • Need to carry marketing research to assess the interest of potential students in new innovative modules; • No accreditation system for online courses; • Cost of accreditation by external agencies; • Introducing changes is time-consuming; • Lack of motivation; 	<ul style="list-style-type: none"> • Added-value for the attendee; • Online courses can be strong in quality; • Tailored-made courses with business professionals; • Modular approach at different levels of (master, executive master, doctoral, lifelong learning, massive open online courses); 	<ul style="list-style-type: none"> • Define appropriate audience; • Quality label for short programmes and modules • Directory of modules and short programmes (including assessment);

Part 2) Tools and mechanisms to deliver innovative education and research programmes

	Interdisciplinary case-based/challenge-based modules and interdisciplinary short university programmes	Accreditation of short programmes and modules	New forms of collaboration between different sectors (university and non-university)
Innovative education and research programmes	<ul style="list-style-type: none"> • Challenge-based modules on energy system at University of Lisbon - no formal classes, students are grouped in small teams around various challenges (imaginary situations) in order to come up with different scenarios; no simulation system is allowed for this exercise; the module lasts a semester; • Challenge-based module at Polytechnic University of Catalonia with experts from companies; students teams come up with ideas and answer questions of the experts; project is divided into different phases; • Module at University of Lorraine in which teachers are not involved, supervision of engineers from companies; students work in small teams and the module lasts one semester; • Case-based module at University of Madrid - group of students and teachers in the project on sustainable house (architectures, engineers, etc.) – interdisciplinary approach; 	<ul style="list-style-type: none"> • Can these programmes be included in the curricula (credits for modules)? • Administrative barriers of accreditation; • Cost of accreditation by external agencies; 	<ul style="list-style-type: none"> • See examples of challenge-based modules and short university programmes; • Short-term competitions; • A week of flexible inter-institutional activities across Europe;



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Working Group 6

Moderator: Prof Torbjorn Digernes, NTNU
Rapporteur: Prof Xavier Gimenez, University of Barcelona



Part 1) Frameworks and barriers for the development of education and research programmes

	Institutional barriers	Institutional opportunities	Suggested actions (optional)
Innovative education programmes	<ul style="list-style-type: none"> • Organisation in disciplines, with a rigid culture inside; • Bureaucratic burden; • Politicians lack knowledge about the role of universities; • Difficulties with accreditation, very different among countries; 	<ul style="list-style-type: none"> • Need to face the real problems that the society is facing! 	<ul style="list-style-type: none"> • Collaborate with industry in deciding Master content; • Communication & link between High Tech and Social Scientists; • Team up with all partners, including energy users; • Regular lunch meetings, joined by private partners.
Innovative research programmes	<ul style="list-style-type: none"> • Research groups & researchers insufficiently funded; 	<ul style="list-style-type: none"> • A local industrial setting ready for collaboration; • Convergence with other neighbouring settings; 	<ul style="list-style-type: none"> • Create specialised research institutes;

Part 2) Tools and mechanisms to deliver innovative education and research programmes

	Interdisciplinary case-based/challenge-based modules	Interdisciplinary short university programmes	Accreditation – good practice	New forms of collaboration between different sectors (university and non-university)
Innovative education programmes	<ul style="list-style-type: none"> • Work directly with specific modules, instead of disciplines; • Mix lifelong learners with traditional students; 	<ul style="list-style-type: none"> • Solve private–public funding problems; • Design interdisciplinary and bilingual degrees; 	<ul style="list-style-type: none"> • Accreditation for academic positions requiring soft skills, much beyond just publishing; • Devote more resources in education and research; 	<ul style="list-style-type: none"> • Adapt master and research programmes according to future needs of industry; • Establish industrial research programmes; • Professional doctoral programmes.
Innovative research programmes		<ul style="list-style-type: none"> • Listen to industrial partners to identify multidisciplinary content; • Contact small, research-based companies; • Establish problem–based short courses; 	<ul style="list-style-type: none"> • Foster mobility among research groups; • Facilitate multidisciplinary networking; • Incorporate supervisors from industry; • Industrial PhD; 	



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Thank you for your attention!

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