



October 2026

ENVISIONING THE FUTURE OF LIFELONG LEARNING IN ENGINEERING

MODELS, PARTNERSHIPS, RISKS, AND OPPORTUNITIES

Symposium Report and Action Priorities

Held on 6 September 2026 as a satellite event of the SEFI 2026 Annual Conference at CTU in Prague, the [symposium](#) brought together a diverse range of stakeholders and perspectives on Continuing Engineering Education (CEE) and Lifelong Learning (LLL), including:

- **University representatives, policymakers, initiative leaders, and educators** across Europe as well as China, India, Mexico, and USA.
- **Professional engineering associations** – Engineers Europe, Engineers Ireland, and ABET.
- **International representatives** – Reflecting International Association for Continuing Engineering Education (IACEE), Chinese Association for Continuing Engineering Education (CACEE), and from India.
- **Technology and organisational perspectives** – SEFI Corporate Partners Ansys (part of Synposys), MathWorks, and LEX – The Global Learning Expedition.

Importantly, it was an opportunity to develop further the conversation around the [SEFI Position Paper on LLL](#) (published August 2025).

Designed as a highly participative event, the symposium combined short expert contributions with facilitated discussion, allowing participants to exchange perspectives on topics such as institutional strategies, quality and recognition, partnerships, artificial intelligence, and future models for lifelong learning. The discussions informed the upcoming activities of the CEE/LLL SEFI Special Interest Group and contributed to a shared vision for lifelong learning in engineering.

CONTINUING ENGINEERING EDUCATION

Overall key perspectives from presentations

The symposium reinforced that learning throughout life is increasingly important and a more strategic and ecosystem perspective is required for the highest value and potential to be achieved.

Internationally, with a shortage of engineers aligned to market needs in many countries, ongoing learning (up- and re-skilling) is vital for professional, personal, institutional, and country success. Investment in employees is now a strategic requirement, with guidance on how best to do this a necessity, building on international best practices.

Importantly, universities, employers, and organisations need to anticipate the future and partner to achieve an evidence-based decision-making process, capable of driving innovation more effectively. Currently, there is debate about who decides on which competences are relevant, with the skills planning of some organisations being 12 to 24 months. Most commercial organisations are set up to respond to those timescales, but the university system works to a different clock speed. These different timescales and organisational agility need to be addressed.

Moreover, technology has played and will continue to both disrupt and create new opportunities (e.g., microcredentials, personalised AI agents), as well as introduce new challenges around quality assurance. Clarity of what is being offered to learners, organisations, and society is vital. Finding the appropriate interactions between technology and engineers has great potential, but also ethical issues.

Interestingly, solutions and success will be contextual — to countries/states with their own laws, national priorities, and regional clusters of excellence; to institutions with their own priorities, expertise, and systems. In essence, reflecting the interconnected systems and associated drivers, resistance, and dynamics.

Agreed action areas

The symposium was an opportunity for a multi-stakeholder consideration of the LLL and CEE to help shape future collaboration and investigation, with the following areas emerging through discussions:

1. Need for consistent and precise language

The symposium highlighted that different terminology is used — Continuous Professional Development (CPD) used typically amongst Professional Engineering Organisations and amongst organisations; LLL used across universities and Professional Engineering Associations (a higher-level, general description); and CEE being used more so across universities and international representatives.

Additionally, there is confusion around education offering terminology, e.g., microcredentials, professional certificates, digital badging.

Finally, there is confusion around how skills, competency, and competencies are used in the workplace (as acknowledged in [SEFI Handbook on Teaching Transferable Competencies and Skills in Engineering](#); see chapter 1.2).

Why important? Consistent language, definitions, and understanding are often a key enabler of successful change, discussion, and diffusion of knowledge and practices. It is also important to set reference descriptions so longitudinal comparisons can be made over time.

Action: Form a working group across stakeholders to clearly define these terms for the benefit of all stakeholders.

LIFELONG LEARNING

2. Develop a systems model of CEE

Most impact will be achieved when all stakeholders make decisions consciously, and trade-offs are visible and explicit. Some work has already been undertaken by CEE/LLL Special Interest Group (SIG) members, and this should be developed further.

Additionally, considering how and where technology impacts this will help manage risks in current and future projects.

Why important? Explicit understanding of interactions between stakeholders allows pivot points and bottlenecks to be identified. It can aid in creating a shared future vision and collective engagement and accountability for future skills. Moreover, it highlights where misalignments exist and where there are potential behavioural/cultural factors that influence the value proposition for LLL and its impact.

Action: Develop further work on Systems modelling of CEE to support transition.

3. Develop business models to better understand value exchange and quality

To complement the systems view, the various business models illustrate how stakeholders see value and will assist in determining common factors and various differentiating considerations while aiming to help support change within institutions.

Importantly, this should also consider quality assurance processes to ensure confidence that offerings (such as microcredentials) are meeting user needs and expectations.

Similarly, to the systems model, it is also important to examine where technology will impact (positively and/or negatively) the business models to consider risks and innovation opportunities.

Why important? There is no one-size-fits-all model, so having different models that clearly highlight actors/personas, activities, and exchange will offer a set of possible blueprints that institutions can use to a) explore their own institutional requirements, and b) better understand the needs of partners.

Action: Create a working group to capture different business models and publish these.

4. Knowledge sharing of educational models and practices

For business models to be successful, effective learning must take place. Educational models and practices are at the heart of this — curriculum development approaches, quality assurance, and development of educators offering the courses, to name a few. The effective incorporation of technology within these models and practices also needs to be captured and examined.

Why important? We need qualified staff aware of underpinning educational concepts and practices to deliver high-quality, transformational learning.

Action: Collate a range of current educational models and practices.

5. Develop a leadership (of change) initiative to support practitioners

The above highlights that there are complex systems, contextual responses, and dynamic relationships at play. Therefore, people within our institutions who are capable of leading change in and across organisations are important.

Why important? Leaders, and change leaders, are the ones who will make this happen. Creating a Community of Practice and safe space will allow for greater sharing of practices.

Action: Create a Community of Practice for CEE Change Leaders.

ENVISIONING THE FUTURE OF LIFELONG LEARNING IN ENGINEERING - SYMPOSIUM

How this symposium impacts and relates to SEFI Position Paper on Lifelong Learning

[The symposium](#) highlights the continued role that SEFI plays as an actor within the European and International landscape of CEE along with key European partners (Engineers Europe, Engineers Ireland), as well as international organisations (ABET, IACEE, CACEE).

Specifically,

- The symposium provided an opportunity for knowledge exchange amongst key stakeholders.
- The symposium was focused on creating agreed agenda points (solution-focused workshops).
- The outcomes from the symposium provide more clarity around next steps in the “*co-creation of models of tools to support and accelerate CEE/LLL.*”
- The actions from this are relevant to the European policy level and development of CEE worldwide.

The SEFI Special Interest Group (SIG) on Continuing Engineering Education and Lifelong Learning already has projects in this area, as can be seen in the [projects section of the SIG website](#).

Copy of the symposium materials is available from the SIG Co-Chairs (details on [SEFI CEE/LLL SIG website](#)).

Attendees

George Amarantidis, MathWorks; **Solomon Bawa**, University College London; **Dirk Bochar**, Engineers Europe; **Patricia Caratozzolo**, Tecnológico de Monterrey; **Soma Chakrabarti**, International Association for Continuing Engineering Education; **Sonia Gomez-Puente**, Eindhoven University of Technology; **Hans-Ulrich Heiss**, TU Berlin Academy for Professional Education; **Aniko Kalman**, University of Nyíregyháza; **David Lopez**, Universitat Politecnica de Catalunya; **Stephanie Lunn**, Florida International University; **Michael Milligan**, ABET; **Amy Moore**, State University of New York at Buffalo; **Zhendong Niu**, Chinese Association for Continuing Engineering Education; **Bente Nørgaard**, Aalborg Universitet; **Bridget Ogwezi**, Ansys (part of Synopsys); **Dan Paulin**, Chalmers University of Technology; **Katriina Schrey-Niemenmaa**, TEK, Finland; **Ellen Sjoer**, The Hague University of Applied Sciences; **Christopher Smith**, Glasgow Caledonian University; **Keith Sunderland**, Engineers Ireland; **Matías Urenda Moris**, Uppsala University; **Abhijith Venugopal**, Birla Institute of Technology and Science; **Abboy Verkuilen**, The Hague University of Applied Sciences; **Kirsten Williamson**, LEX - The Global Learning Expedition

Edited by Christopher Smith on behalf of Organising Committee (Patricia Caratozzolo, Soma Chakrabarti, Aniko Kalman, and Michael Milligan).

