

# Newsletter 2/2024

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## NEW CDIO MEMBERS

The CDIO council accepted two new universities as members of the worldwide CDIO initiative in Singapore September 2024. The new members are

- [The Royal University of Phnom Penh](#), Cambodia
- [Cebu Technological University](#), The Philippines

Earlier in the council meeting in Tunis June 2024 these three universities were accepted to CDIO:

- [Universidad Europea de Madrid](#) – Spain
- [Western Sydney University](#) – Australia
- [Moroccan School of Engineering Sciences \(EMSI\)](#) – Morocco

Read more from CDIO website: [CDIO welcomes three new universities](#)

There are also other quite new universities in CDIO community. These three joined CDIO in November 2023:

- [Ramco Institute of Technology, India](#)
- [Rajamangala University of Technology Lanna, Thailand](#)
- [University of Southeastern Philippines](#)

The CDIO community warmly welcomes all these new universities to the CDIO initiative!

## HIGHLIGHTS FROM THE ASIAN REGIONAL MEETING 2024 IN HOKKAIDO

The 11th CDIO Asian Regional Meeting (ARM) was held at Hokkaido Information University (HIU) in Japan. HIU joined the CDIO Initiative in March 2018 and is unique in being more of an IT university than a traditional engineering university. This year's theme was "Digital Innovation in Higher Education - Steering Students toward Success." We had a solid turnout with 35 participating universities and institutions, and around 90 international participants from 13 economies. Although the

numbers were slightly below our expectations, the enthusiasm of the participants more than compensated for the lower turnout.



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Some of the highlights included Helene Leong's outstanding keynote speech on the opening day, titled "Rethinking Teaching and Learning: A Case Study of Flipped Learning and the Use of Learning Analytics," which set a high standard. This was closely followed by Robert Songer's keynote on the second day, "The Paradox of AI in the Future of Engineering." A riveting Special Interest Presentation on "High Altitude Ballooning" (20 km up) captivated the audience, and the retiring co-leader Rajeev Sukumaran, along with his colleague Christhu Raj, delivered a dynamic presentation on "ICT Tools for Education." The event also featured several parallel sessions and a panel discussion.

HIU also showcased their projects, via a poster presentation session. Many projects demonstrated HIU's creative adaptation of CDIO for non-engineering programs.



Cebu Technological University (Philippines) and Royal University of Phnom Penh (Cambodia) delivered compelling presentations, advocating for their inclusion in the CDIO Initiative.

The conference pack was well-received and included a CDIO baseball cap, an SDG-friendly linen conference bag, a pen made from rice biomass, cork CDIO coasters, and DIY chopsticks. Cultural highlights included Ainu and Yosakoi dances, which saw enthusiastic audience participation. Overall, everyone appeared to have an enjoyable and educational experience.

Prepared by: Simon Thollar, Hokkaido Information University, Japan

## HIGHLIGHTS FROM THE INTERNATIONAL WORKING 2024 IN SINGAPORE

Singapore Polytechnic (SP) hosted the 2024 CDIO International Working Meeting (IWM) on 25 & 26 September 2024. The IWM was part of the International Learning Festival (ILF), organized to celebrate SP's 70th Anniversary. A total of 50 participants, including 35 from overseas, from 20 institutions and 15 countries/economic regions attended the IWM. The other ILF events included the Excellence in Education and Training Convention (EETC), the International Symposium on Advances in Technology Education (ISATE), and the Learning Express (LeX) Conference. The latter two events ran concurrently with the IWM.



The 2024 CDIO International Working Meeting Participants





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Some IWM participants attended the keynote talks which Dr. Ruth Graham, Prof. Kristina Edstrom and Dr Eric Chua presented for the ILF on the theme “Evolving T&L in the age of AI & Sustainability” on 24 & 25 Sept prior to the IWM. Dr Graham spoke on the best practices of recognized and emerging engineering education institutions while Prof Edstrom shared an integrated approach to introducing sustainability elements into courses. Dr Chua shared how AI can be used for student development in higher education. His talk focused on providing practical use cases of AI tools for coaching, such as AI-powered learning assistants and study coaches.



Dr Ruth Graham and Prof Kristina Edstrom giving the keynotes at the International Learning Festival on 24 Sept

The IWM sessions on 25 & 26 Sept featured working group discussions on topics such as the Standards of the Future, Reform of the Introduction to CDIO Programme, Lifelong Learning for Engineers, the Technician Network, and New Formats for CDIO Events. Participants also had the option of hands-on activities at SP’s FabLab and Learning Journeys to the Centre of Excellence in Maritime Safety (CEMS) and the Singapore Maritime Academy’s Integrated Simulation Centre (ISC). CEMS works with both industry and research communities to develop innovative technological solutions and training systems aimed at reducing or mitigating maritime incidents. The ISC features a range of simulators offering realistic scenarios for training ship officers and crew in a risk-free environment.



Participants in discussion



Participants tried out Fab Lab activities and equipment

A combined dinner for all the International Learning Festival (ILF) attendees was held at the Furama Riverfront on 25 Sept where participants had the opportunity to mingle and exchange ideas with fellow educators from around the world.



The combined IFL dinner held at Furama Riverfront Hotel on 25 Sept.

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The IWM concluded with a hybrid council meeting on 26 Sept, during which updates and decisions regarding CDIO activity plans were discussed.

Some attendees extended their stay and joined the ISATE learning journeys and workshops on 27 Sept. These included visits to SP's Advanced Manufacturing Centre and the 5G and Industry Internet of Things Centre, as well as two local universities. Other participants attended workshops hosted by various polytechnics across Singapore, covering topics such as game-based learning and creating educational apps or chatbots.



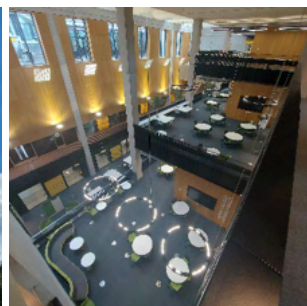
IWM participants joined the learning journeys on 27 Sept

## HIGHLIGHTS FROM THE UK&IRELAND REGIONAL MEETING 2024 IN SEPTEMBER

UK & Ireland Regional Meeting was hosted by Manchester Metropolitan University on 10 September 2024

37 delegates from 12 institutions attended for two parallel tracks that included introductory workshops, shared experiences of accreditation visits against the new Engineering Council's AHEP4 criteria, a discussion forum on AI in engineering education and assessment, and presentations of successful industry partnerships.

Activities also included a tour of Manchester Metropolitan University's new state-of-the-art Dalton Building for Science and Engineering which provides world-class laboratories, teaching spaces and research hubs. This was just completed in June 2024 and offers excellent facilities for active learning as well as impressive social spaces.





# 2024 CDIO CONFERENCE HIGHLIGHTS



The 20<sup>th</sup> CDIO International Conference was held in **Tunis, Tunisia**, from **June 10–13, 2024**, hosted by École Supérieure Privée d'Ingénierie et de Technologies (ESPRIT). The conference was convened for the first time in both Africa and Tunisia, bringing together **194 registered participants** from **61 educational institutions** across **30 countries** and **six continents**. It highlights the expanding global reach and influence of the CDIO Initiative in engineering education. The theme of this year's conference was "**Engineering Education in the Era of AI**" guiding the contributions throughout the conference, shaping keynote presentations, paper sessions, roundtables, workshops, working groups, and culminating in a final panel debate.

## Keynote speakers were



**Prof. Edward F. Crawley:** Ford Professor of Engineering at MIT, founder of CDIO Initiative and head of the Systems Architecture group. His talk focused on "The Origin of the CDIO Initiative and How It Is Reshaping the Field of Engineering Education."

**Prof. Minjuan Wang:** Chair Professor of Emerging Tech and Future Education, the Education University of Hong Kong; Editor-in-Chief, IEEE-TLT. She presented on "The Application of AI Tools and AI-Generated Content in Education and Training."

**Prof. Arnold Pears:** Chair of the Department of Learning in Engineering Sciences at KTH Royal Institute of Technology, Sweden. His keynote addressed "Educating for Future Engineering Professions: What Will It Take?"

**Prof. Fawzi Ben Messaoud:** AI Program Director at the Luddy School of Informatics, Computing, and Engineering, USA. He discussed "Infinite Learning from Deep Learning to Human Learning: Intelligence Begets More Intelligence."

## Networking

The conference provided ample opportunities for networking, collaboration, and the exchange of innovative ideas among engineering educators and professionals from around the globe.

The event culminated with the presentation of working group reports, the announcement of election results, and a closing ceremony.



## Social Events Highlight

- Participants enjoyed a **Welcome Reception** at a historic palace, set against the backdrop of ancient Carthage, experiencing traditional Tunisian architecture and music.
- The Conference Dinner** offered exquisite local dishes and entertainment.

## Proceedings and Publications

The proceedings will be available electronically and are SCOPUS-indexed.



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## FUTURE MEETINGS

The CDIO council decided that 22<sup>nd</sup> CDIO conference will be held hosted by the University of Liverpool in 2026. Following future CDIO meetings have been agreed too. List of future meetings is available at the CDIO Website as well. Calls for hosts for international CDIO conference 2027 and for international working meeting 2026 will be opened early next year. We already encourage you to consider your university's possibilities to host either of the meetings. Please note that 2027 conference will be fully online. You can inquire more information from the CDIO co-directors.

Meeting	Place	Date
<b>2025 CDIO European and UK&amp;Ireland Regional Meeting</b>	ISEP Porto, Portugal	January 13 – January 14, 2025
<b>2025 CDIO International Working Meeting</b>	Linköping University, Sweden	October 22, 2025 - October 23, 2025
<b>The 21<sup>st</sup> International CDIO conference</b>	Melbourne, Australia	June 3 – June 6, 2025
<b>The 22<sup>nd</sup> International CDIO conference</b>	Liverpool, UK	June 22 – June 26, 2026

## WELCOME TO THE EUROPE, UK & IRELAND REGIONAL MEETING IN PORTO

The 2025 CDIO European and UK & Ireland regional meeting will be hosted by Instituto Superior de Engenharia do Porto, Portugal. The meeting will take place between the 13th and 14th of January 2025.

The main theme will be CDIO contribution to sustainability in engineering education, including sustainable learning processes, sustainable institutions, and widening the student pool in a challenging demographic context. There will be a strong focus on attracting female students to engineering and to life-long learning.

## WELCOME TO THE 21<sup>ST</sup> CDIO CONFERENCE IN MELBOURNE

Welcome to the 21st International CDIO Conference in Melbourne, Australia at Monash University on 2<sup>nd</sup> – 5<sup>th</sup> June 2025. We are thrilled to host this prestigious gathering of educators and researchers from around the world. The CDIO approach has long been recognized as a pioneering educational framework, shaping the engineers of tomorrow by grounding them in the fundamentals of engineering through real-world systems, products, processes, and services. As we come together this year under the theme “Forging Connections: Synergies for a Sustainable Future,” we invite you to explore the transformative power of collaboration in engineering education.

At this conference, we will discuss critical issues such as sustainability, diversity, equity, inclusion, and the ethical responsibilities that come with shaping the future of our profession. Through a rich program of podium presentations, workshops, working groups, and roundtable discussions, we will exchange ideas, share innovations, and refine our approaches to the challenges and opportunities that lie ahead.

Melbourne, with its vibrant culture and strong commitment to innovation, provides the perfect backdrop for this year's conference. We are excited to see the contributions you will bring and the new connections that will be forged as we work together to advance the CDIO approach and the broader field of engineering education.

Thank you for joining us, and we look forward to a productive and inspiring conference!

### Please note: the CDIO conference submission process has changed!

For the 2025 CDIO Conference, we are moving to a single-phase submission process, eliminating the previous two-phase (abstracts and full papers) review system.

DL for submissions is 15<sup>th</sup> January 2025. Note also that the paper template has been updated!

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## WHAT ARE WORKING GROUPS IN CDIO?

CDIO is about collaboration and sharing experiences. One method to do so, is suggesting or participating in a working group. Working groups are 5-10 CDIO members working together on a given topic. Examples of previous working groups include “Curriculum agility”, Learning from failure” and “Lifelong learning”. Working groups are “connected” to the international conference, but participants work together electronically before the start of the conference and meet physically the day before the conference. The working groups present their preliminary results to conference attendees at a special working group presentation session on the last day of the conference and can optionally submit a state-of-the-art paper after the conference concludes. An alternative is to continue working and submit an article for the next CDIO conference or another publication channel.

If you are interested in suggesting a working group, you have to submit a proposal for the CDIO international conference. You will find the details on the conference website. After the selection of the working groups by the program committee, the working group will be presented on the conference website, and you can ask the working group leader – (one of) the person(s) suggesting the working group - if you can participate. Details on how to do this will be found on the conference website.

## CDIO ACTIVITY PLAN FOR 2025

The CDIO council agrees annual activity plan for promoting CDIO activities. The activity plan has two parts:

- CDIO as Framework, Community – related activities
- On-going activities in CDIO.

The activities are worked typically during the CDIO meetings as round tables, workshops, working groups and paper presentations. The international working meeting in Singapore focused on some of the activities too.

The activity plan for 2025 was finalized during the international working meeting in Singapore. Some of the activities and their status is listed below:

- Standards of the future
  - CDIO standards and optional standards are key resources of CDIO framework. This activity will work on the overall standards composition and focus. A workshop was organized at Tunis 2024 conference where strengths and weaknesses were discussed. As the participants were mostly new, we repeated the workshop on strengths and weaknesses, but discussed CDIO community possibilities improving the CDIO standards too. A group of experienced CDIO collaborators will continue the work to formulate development process for CDIO standards, discuss about wordings and needed modifications.
- Introductory/refresh workshops and sessions for newcomers
  - During the last years the introductory workshops and sessions have varied a lot. There has been a standard plan what we want to provide as introductory. This activity will create a proposal of standard structure and content including learning outcomes and activities. First run with new introductory materials and format will happen at Melbourne 2025 conference. A team was set up to continue planning of the introductory workshops.
- Conference and events development
  - We have a general handbook for CDIO events that helps the hosts to plan the events. This activity discuss about the conference & events formats and ideas altogether. Especially issues around sustainability should be addressed and solved. In Singapore we agreed that from 2027 onwards online and onsite conferences alternate. Furthermore, we agreed that the role of regional meetings is strengthened and introduction to CDIO workshops are provided in the program. In the future international working meetings are even more working meetings where topical CDIO issues are worked on.
  - We will update the handbook in 2025 according the discussions.



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Totally new themes that were added to the CDIO as Framework, Community – related activities were Faculty development and Assessment.

Three ongoing activities are currently listed in the activity plan: Peer-to-peer support, Curriculum Agility and CDIO Technician Network. The first two were introduced in our February newsletter and since then they have continued their work further. Technician network have had several workshops in UK and Singapore. It has developed a competence framework for Technicians teaching and learning skillsets. In addition, training roadmap for Technicians has been developed. The working group was introduced/worked on at the leaders meeting on 29.2.2024 too. The technician network had a session in the international working meeting as well and the work continues.

Theme “Continuous education for Engineers” was worked on Singapore meeting and it was also added to the CDIO activity list for 2025. A working group will be proposed to next year’s conference on this topic.

### **CDIO LEADERS ONLINE MEETINGS IN SPRING 2025**

The CDIO leaders (CDIO contacts persons from each member university) have online meetings to discuss current topics in CDIO community/organization. The following dates were agreed for Spring 2025 with preliminary topics listed:

- 8.1. Elections, Conference update, Newsletter, Call for hosts, Regional reports
- 20.2. Newsletter, Porto meeting reflections, **Activity**
- 2.4. Conference update, Action plan reflection, Regional reports
- 13.5. Pre-conference **activity** (working groups)

### **CDIO COUNCIL COMPOSITION**

The CDIO Initiative is supervised by the CDIO Council formed by the regional leaders (one vote/region), 6 Members-at-Large and 2 Co-directors. An individual may hold a CDIO Council post for a maximum of three periods (i.e., three, three-year terms) with an overlap between periods to ensure continuity. Co-director posts may be held for a maximum of three periods. Co-directors should be from different geographic regions.

The open CDIO Council positions are filled via elections at the CDIO Annual conference. In Tunis conference 2 members at large positions for 2024 – 2027, 1 members at large positions for 2024 – 2025 and 1 Co-director for 2024-2026 were elected. The current composition of the CDIO council is shown in the table below and elected people are marked in red.

The Council welcomes Juha, Jens, Joanne and Lisa to their (re)newed positions and expresses its’ heartfelt thanks to the outgoing Council members: Jason Power, Angkee Sripakagorn, and Anne Nortcliffe. The council also welcomes new Asian regional co-leader Aileen!



Category	Name	
<b>Co-directors</b>	<b>Helene Leong</b> , Singapore Polytechnic (2018-2020, extended to 2023, 2023-2025) <b>Juha Kontio</b> , Turku University of Applied Sciences (2022 – 2024, 2024-2026)	
<b>Regional leaders</b>	<b>Africa</b>	<b>Lamjed Bettaieb</b> , ESPRIT
	<b>Asia</b>	<b>Sin Moh Cheah</b> Singapore Polytechnic (2022-2026), <b>Tan Nhat TRAN</b> Duy Tan University (2023-2025), <b>Aileen Amora-Sieras</b> University of Science and Technology of Southern Philippines (2024-2027)
	<b>Australia &amp; New Zealand</b>	<b>Nicoleta Maynard</b> , Monash University
	<b>Europe</b>	<b>Angelo Martins</b> , ISEP Porto, <b>Reidar Lyng</b> , NTNU Trondheim, <b>Suzanne Brink</b> , Umeå University
	<b>Latin America</b>	<b>Patricio Cea Echeverría</b> , Universidad Católica de la Santísima Concepción, <b>Messias Borges Silva</b> , Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP
	<b>North America</b>	<b>Sami Ammar</b> , Polytechnique Montreal, <b>Ron Hugo</b> , University of Calgary
	<b>UK &amp; Ireland</b>	<b>Paul Hermon</b> , Queen’s U Belfast (2024), <b>Thomas Baker</b> , Hertfordshire University (2025), <b>Tony Topping</b> , Liverpool University (2026)
<b>Members-at-large</b>	<b>Kristina Edström</b> , KTH, Sweden (2022-2025) <b>Lisa Gommer</b> , University of Twente (2024-2025) <b>Matt Murphy</b> , Liverpool University, UK (2016-2019; 2019-2023, 2023-2026) <b>Vairavel Gurusamy</b> , SRM IST, (2023-2026) <b>Jens Bennedsen</b> , Aarhus University (2024-2027) <b>Joanne Tanner</b> , Monash University (2024-2027)	