

# FUTURE OF CDIO – WORKING TOWARDS 4.0

## TOPIC/PROBLEM/QUESTION

The CDIO initiative has been around for a quarter century. During this time the community has grown from four original collaborators to a community of around 200 universities and institutes. At the same time the CDIO standards have gone through three updates as well as an addition of optional standards. Similarly, we currently have CDIO syllabus version 3.0. The purpose of these revisions has been to respond to recognized external developments in engineering education to make the CDIO framework future-proof. There are papers such as the value of CDIO (Kontio & Leong, 2024) , Why universities join CDIO (Kontio, 2017), and Can we continue the way we are? (Kamp, 2021) that discuss the CDIO strengths, attractiveness and future challenges. Furthermore, there are papers describing the effects of CDIO on the quality of education (Malmqvist, Bankel, Enelund, Gustafsson, & Wedel, 2010; Malmqvist, Hugo, & Kjellberg, 2015). In 2024 and beginning of 2025, we arranged workshops at the international conference in Tunis, at the International Working Meeting in Singapore, and the Europe an UK & Ireland regional meeting addressing the future of CDIO. Several aspects, from information about the nature of the CDIO Initiative to the design and extent of the CDIO Standards were put forward by participants in these workshops. The work is on-going and has now reached the point where it is desirable to set up a working group that can be tasked with the work of discussing the future path of CDIO as well as updating the CDIO Standards and the CDIO Syllabus to the next version.

## LEADERS

### **Suzanne Brink**

*Umeå University*

[suzanne.brink@umu.se](mailto:suzanne.brink@umu.se)

### **Juha Kontio**

*Turku University of Applied Sciences*

[juha.kontio@turkuamk.fi](mailto:juha.kontio@turkuamk.fi)

### **Reidar Lyng**

*NTNU Norwegian University of Science and Technology*

[reidar.lyng@ntnu.no](mailto:reidar.lyng@ntnu.no)

## PRE-CONFERENCE WORK

The participants will familiarize with materials selected by the working group leaders. The materials will consist of relevant papers, summaries and presentations on CDIO current state and future.

Part of the CDIO Leaders online meeting on 13<sup>th</sup> May will be used to facilitate discussion on this working group.

## **THINGS TO DO OR CAN BE DONE DURING THE PHYSICAL CONFERENCE**

### **Phase 1. Current state of CDIO**

This activity summarizes the key strengths and weaknesses of the CDIO initiative based on the literature, earlier workshops and roundtables. Based on this activity we have identified the elements of CDIO that are like signatures of CDIO and should be maintained and further highlighted. Similarly after this activity, we have identified the key elements of CDIO that should be improved, clarified and developed.

### **Phase 2. Identifying possible futures of CDIO**

The second phase of the working group will continue from the phase 1 results and will create concrete proposals and activities for the CDIO community and CDIO council.

### **Phase 3. What next?**

The final part of the session will discuss how the work continues and defines clear steps and timeline for the development work.

## **HOW WILL THE FINALIZATION OF THE STATE OF THE ART PAPER BE ORGANIZED?**

Shortly after the working group has met during the conference, we will submit a state-of-the-art paper for inclusion in the proceedings. The follow-up meetings will be held by the end of September and the results will be further worked at the International Working meeting at Linköping.

## **OTHER RELEVANT INFORMATION**

Some of the relevant references for pre-materials are

- Kamp, A. (2021, June 21-23). *CDIO. Can we continue the way we are?* Paper presented at the 17th International CDIO Conference [online], Bangkok, Thailand.
- Kontio, J. (2017, 18.-22.6.2017). *Why Universities want to join CDIO?* Paper presented at the 13th International CDIO Conference, Calgary, Canada.
- Kontio, J., & Leong, H. (2024). *Current and future value of being in CDIO - CDIO community ideas.* Paper presented at the 20th International CDIO Conference, Tunis, Tunisia.
- Malmqvist, J., Bankel, J., Enelund, M., Gustafsson, G., & Wedel, M. (2010, June 15-18). *Ten Years of CDIO: Experiences from a Long-Term Education Development.* Paper presented at the 6th International CDIO Conference, Montreal, Canada.
- Malmqvist, J., Hugo, R., & Kjellberg, M. (2015, June 8-11). *A Survey of CDIO Implementation Globally – Effects on Educational Quality.* Paper presented at the 11th International CDIO Conference, Chengdu, Sichuan, P.R. China.

To broaden the scope of this work we acknowledge the need for also arranging round tables to open the discussion on CDIO future to a broader conference audience and collect more viewpoints on challenges and opportunities facing the CDIO Initiative. Thus a round table proposal will be submitted too.