

COSIMENA & Ezz Steel Workshop

“The Gap between Theoretical Education at Egyptian Universities and the Practical Needs of the Labour Market: A Search for Solutions”



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Introduction

“Holding the event today at Al Ezz Dekheila Steel Company Alexandria represents a symbolic breaking down of the existing barrier between academia and industry, theory and practice,” Dr Carsten Walbiner, Director of DAAD Regional Office Cairo, stated in his introductory remarks to the COSIMENA & Ezz Steel Workshop, taking place between Wednesday, January 31st and Thursday, February 1st, 2024. This was emphasized, by Eng. Mohamed Fouad Emam, Ezzsteel Corporate Chief of Technical Affairs, who added: *“Research and continuous improvement are the compass that guides our journey at Ezzsteel Group. By nurturing a cooperative relationship between these two realms, we unlock the power of innovation. Together, we strive to transform knowledge into tangible solutions, shaping industries and creating a better future for all.”*

This distinctive event, organised by the DAAD Regional Office Cairo in the framework of the project “Clusters of Scientific Innovation in the Middle East and North Africa” (COSIMENA) in cooperation with Al Ezz Dekheila Steel Co.-Alexandria, brought together selected university professors and practitioners from the industry to discuss solutions to a crucial problem in Egyptian higher education: “the gap between theoretical education at Egyptian Universities

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and the practical needs of the labour market”. The great importance given to the subject by political decision makers in Egypt and Germany was highlighted in the interventions by Professor Ahmed Munib Al-Sabbagh as representative of the Egyptian minister of higher education and research, Ms Lorena Mohr, the Science Counsellor at the German Embassy representing the German Ambassador to Egypt.

Specifically, the workshop aimed to introduce the different German approaches to an expert audience from Egyptian universities and industry to find creative ways to bridge the long-lasting gap between academia and industry in Egypt. Remarkably, the workshop did not intend to blindly transfer the German model to Egypt, but it rather sought to compare some distinguished German experiences with the existing approaches in Egypt and to discuss their adaptability to the Egyptian context. In line with DAAD’s motto “Change by Exchange”, the programme of the workshop included presentations of exemplary practices from both academia and industry fields in Germany, as well as in Egypt and other countries, to exchange best practices and then discuss the most viable solutions for the Egyptian context in the final panel discussion. This format offered the unique opportunity for participants to be confronted with a variety of perspectives to unravel a subject that, as Prof. Dr Iman El-Mahallawi (Cairo University) highlighted, has long been discussed and that requires new perspectives while being followed up by concrete proposals useful for decision makers to implement the most appropriate reforms and regulations.

Such recommendations will also be the focus of a report on higher education which is currently prepared by the OECD. The preliminary findings regarding the workshop’s subject were presented by Dr Andrea-Rosalinde Hofer and Professor Maged Ghoneima of the OECD team.



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Presentations: Four Approaches to Practice-Oriented Education

On the first day, presenters from both Germany and Egypt discussed examples of the first approach, involving the development of a practice-oriented ‘classical’ teaching. Drawing from the experience of the German Universities of Applied Sciences, Professor Ansgar Meroth of Heilbronn University of Applied Sciences/German International University (GIU) and Professor Axel Sikora of Offenburg University of applied sciences highlighted key features of these peculiar programmes, including employment-related curricula, laboratories accompanying each subject, industry-related research subjects, professors with industrial backgrounds, lectures from practitioners, extra-curricular activities and long-term mandatory internships, as well as a reduced study plan to allow students to work beside their studies.

Then, the Egyptian situation was examined through an overview of existing programmes and incentives from the Ministry of Higher Education and Scientific Research that promote collaboration between academia and industry, followed by a presentation of the Erasmus+ STREAM project implemented at Nile University. These examples, accompanied by a comparative analysis of the approaches applied at some Egyptian universities, highlighted several ideas to make ‘classical’ teaching more practice-oriented. Namely, it was clarified the need to focus on teaching competencies useful in the labour market and to develop students’ soft skills, while encouraging innovative and entrepreneurial thinking through interdisciplinary curricula. In addition, Prof. Dr Hany Moustapha referred to his extensive experience at the University of Quebec in Canada, emphasising the role of additional training courses and special programmes like summer schools in equipping students with a comprehensive set of competencies and skills.

To conclude this insightful session of the first day, participants were invited to join a field visit to the central workshop of Al Ezz Dakheila Steel Company Alexandria (EZDK), followed by an animated networking dinner, where further discussions and exchange took place in a cheerful atmosphere.



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The event continued the following day with a series of presentations illustrating the second innovative approach of ‘dual studies’, analysing the successful experience of Al-Quds University (AQU) in East Jerusalem. In this context, Prof. Isam Ishaq (AQU) and Ms. Sabine Porsche (GIZ) illustrated the process of developing a dual studies programme, which alternates three months at the university with three months in the company throughout each academic year. This system has proved to be particularly effective in preparing students to enter the labour market, despite some remaining challenges to familiarise the industry and general public with this new idea. In this session also the desirability of application-oriented research projects was discussed, which according to Professor Andreas Gerdes (Karlsruhe Institute for Technology/KIT) should be standing based on positive innovation cycles boosting the local and national economy.

Subsequently, Dr Mohamed Saied (EZDK) examined a third approach involving the creation of ‘learning factories’, innovative places located either at higher education Institutions or at companies, which offer students and practitioners training with the simulation of production processes in an authentic setting. Furthermore, the ‘Campus’ approach was introduced, implying the creation of spaces where companies and universities are physically unified. Mr. Christian Kaiser illustrated the adoption of the Campus approach in the Woerth-Wiesent Technology Campus. In the second part of this session, Eng. Amgad Saied (Siemens) presented the SITRAIN digital industry academy and the role of digital twin in enhancing the practical side of the learning experience.

Finally, the discussion moved to the fourth and last approach, focussing on industrial or company academies. In this session, Mr. Carsten Weiss (SMS Group) presented the SMS TECademy (SMS group GmbH) as an internationally highly recognised state-of-the-art approach. The idea of the creation of an academy in EZDK, proposed by Dr Taher Salah Eldin of EZDK, revealed how such an academy could contribute to internationalisation, digitalisation and technology transfer and offer a comprehensive and innovative education to students and graduates entering the labour market.



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As the ideas presented during the second day were new for many participants, the debate continued during the tour of the Rod Mill Plant and the Flat Steel Plant of EZDK and the lunch break, with questions and exchange of contacts paving the way for new connections and promising future partnerships. Manifestly, the event benefited all participants not only in terms of knowledge but also in the amount of connections established. *“This two-day event offered the special opportunity to do networking, make new contacts and initiate new relations across the fields of academia and industry, which might evolve into long-lasting partnerships,”* Dr Shaimaa Kamel, ElSewedy Electric Foundation, commented at the end of the workshop.



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Panel discussion: final questions and future directions

Wrapping-up the number of insights emerging during the four successive sessions, the final panel discussion involved a lively exchange of views around a set of questions proposed by the moderator Prof. Dr Iman El-Mahallawi who was seconded in her moderation task by Dr Karim Badr of RHI Magnesita. Thus, Dr Mohamed Saied, Automation Manager of EZDK and PhD researcher at Alexandria University stated: “As a PhD researcher and industry professional, I am fortunate to embrace the distinct viewpoints that these two worlds provide. This privilege enables me to cultivate a comprehensive understanding, blending the rigor of scientific background with the practical insights gained from industry experience.”

The resulting debate reaffirmed essential ideas discussed during the two days, accentuating the need to strengthen the collaboration between partners from the academia and industry to build strong and long-lasting relationships while acknowledging the necessity to advance concrete proposals and hold follow-up events to enact the desired changes. The panel highlighted the necessity of the Egyptian industrial sector to adopt the industrial academies approach due to its role in serving as dynamic platforms for collaboration, knowledge

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exchange, and skills development. The adoption of industrial academies in the Egyptian industrial sector is not only crucial for bridging the gap with academia, but it also presents a remarkable opportunity for growth, innovation, and the development of a highly skilled workforce that contributes to the sustainable advancement of Egypt's economy.

“It is with partnerships such as the one established to organise this event that we can bridge academia and industry, foster innovation and bring about long-lasting change,” Dr Taher Salah Eldin (EZDK) stated to close this fruitful event, which requires to be followed by other meetings among experts from different fields and countries for enabling change, innovation and development.

Annex

List of participating institutions, universities, industries and projects

- German Academic Exchange Service (DAAD) Egypt: <https://www.daad.de/en/>
- Al Ezz Dekheila Steel Co. Alexandria (EZDK) <https://www.ezzsteel.com/investor-relations/al-ezz-dekheila-steel-co-alexandria-s-a-e-ezdk>
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ): <https://www.giz.de/en/aboutgiz/profile.html>
- Embassy of the Federal Republic of Germany to Cairo: <https://kairo.diplo.de/eg-ar>
- Egyptian Ministry of Higher Education and Scientific Research: <https://moheer.gov.eg/en-us/Pages/home.aspx>
- Organisation for Economic Co-operation and Development (OECD): <https://www.oecd.org/>
- Heilbronn University of Applied Sciences: <https://www.hs-heilbronn.de/en>
- German International University (GIU): <https://www.giu-uni.de/>
- Offenburg University of Applied Sciences: <https://www.hs-offenburg.de/en/>
- Nile University: <https://nu.edu.eg/>
- German University in Cairo (GUC): <https://www.guc.edu.eg/>
- Galala University (GU): <https://www.gu.edu.eg/>
- University of Quebec, Canada: <https://uqam.ca/>
- British University Egypt (BUE): <https://www.bue.edu.eg/>
- El Sewedy University of Technology: <https://sut.edu.eg/>
- Ain Shams University: <https://www.asu.edu.eg/>
- Egypt-Japan University of Science and Technology (E-JUST): <https://www.ejust.edu.eg/>
- Al-Quds University, East Jerusalem: <https://www.alquds.edu/en/>

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- Cairo University: <https://cu.edu.eg/Home>
- Karlsruhe Institute of Technology (KIT): <https://www.kit.edu/english/>
- Technology Campus Woerth-Wiesent: <https://www.th-deg.de/tc-woerth-wiesent>
- TECademy SMS: <https://www.sms-group.com/de-de/tecademy>
- SITRAIN Digital Industry Academy SIEMENS:
<https://www.siemens.com/global/en/products/services/digital-enterprise-services/training-services/sitrain.html>

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