DIGITAL DIPLOMAS
TRACKING YOUR KNOWLEDGE DEVELOPMENT

An accredited proof of up-to-date knowledge without having to return to the classroom. A driving force behind the introduction of microcredentials at DSPE, Hans Krikhaar shares his view on the opportunities this offers.

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Hans Krikhaar experienced it himself: after seven years in construction engineering, returning to his original field of study – mechanical engineering – proved quite challenging. Companies wanted verifiable knowledge in this field and were unwilling to allow him to demonstrate his skills and knowledge on the job. In the end, he got that opportunity from Philips Lighting, as he had demonstrable experience with computer-aided design that the Eindhoven-based company was investing in. Had he been able to prove his up-to-date knowledge in mechanical engineering through microcredentials, his career might have turned out very differently.

For professionals who start working full-time after graduation, it is important to continue to develop their knowledge. Unfortunately, a long-term education programme is hard to maintain next to a job, both in terms of time and costs. Workers can, however, benefit greatly from shorter training programmes as they can immediately apply the knowledge gained. For their market position, formal recognition of this knowledge is very important.

This is where microcredentials come in: recognised digital diplomas or certificates linked to compact, validated courses. Professionals can use them to prove their specifically acquired knowledge or skills without the need to complete a full degree programme.

From Philips to education

Krikhaar studied Mechanical Engineering at the University of Twente. In the 1980s, he came into contact with computer-aided design while working at Comprimo, a company that developed oil refineries and chemical plants. At the time, construction drawings were still made by hand, and computers were just starting to support this process. However, when he wanted to return to mechanical engineering after seven years in construction engineering, companies were reluctant to hire him. “A system such as microcredentials can help people in similar situations demonstrate their current knowledge, which makes them more attractive for companies,” Krikhaar explains.

Eventually, Krikhaar obtained his PhD at Philips Lighting, on computer-aided design and manufacturing within mechanical engineering, which allowed him to continue his career in that field. He later worked at Calumatic, Philishave, ASML and as an independent consultant, before becoming a professor of Smart Manufacturing & Integrated Systems Engineering at Fontys Engineering University of Applied Sciences in 2018.

The request to set up microcredentials came during the Covid-19 pandemic, when ASML wanted a course on manufacturing excellence. “In the spirit of lifelong learning, management wanted microcredentials to be awarded to that course,” Krikhaar recalls. “That’s when I started exploring this form of course validation.”

DSPE, for which Krikhaar was already active at the time, has had a certification programme for post-academic training since 2008, stemming from Philips’ former Center for Technical Training. Courses that DSPE evaluates are assessed by professionals from the field for both quality and societal relevance. “DSPE doesn’t teach courses, we only certify them,” Krikhaar clarifies. “That independence makes our certification particularly valuable, since we’re not judging our own work.”

To keep up with the times, Krikhaar had long believed DSPE should digitise its diplomas and certificates. He connected with Wilfred Rubens, an expert in micro-credentials. With his knowledge, Krikhaar is now digitising and transforming the certificates of DSPE-accredited courses.

AUTHOR’S NOTE

Marleen Dolman is a freelance journalist writing for the Bits&Chips and High-Tech Systems magazines, which are published by Techwatch.
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DSPE President Hans Krikhaar: "A system such as microcredentials can help people demonstrate their current knowledge, which makes them more attractive for companies." (Photo: Bas Gijselhart)

The value of microcredentials

To harbour the quality of microcredentials, DSPE considers four core values when awarding them. Firstly, it critically evaluates the course's learning outcomes: what is the added value for the professional? Secondly, the course level is taken into account. Courses range from vocational to master's level, and this is reflected in the microcredential. The third factor is workload: how many days or sessions does the course take? Finally, the assessment method is important. A diploma is awarded when the participant has demonstrated mastery of the learning outcomes. If there is no individual assessment, a certificate of participation is issued instead.

By taking courses needed for current projects, professionals build a portfolio of competencies. They can access and download the microcredentials from these courses through a secure system. The credentials can also be linked to their Linkedin profile, which can benefit their career.

To date, DSPE has awarded microcredentials to over 60 courses. Participants who completed one of these in 2023 or 2024 received digital recognition retroactively. Krikhaar ultimately hopes to see microcredentials attached to over 200 courses.

"This way of certifying needs to gain traction. We aim to achieve this by defining 'learning pathways': sets of courses that, once you've completed them all, show that you've gained specific knowledge. For example, after a vocational course in milling and turning, you could follow the specified pathway to become an instrument maker at the Leidse instrumentmakers School. As soon as you've completed all the relevant courses, you're officially certified as an instrument maker."

Microcredentials and the future

Although Krikhaar has reached retirement age, he remains active in precision engineering about three days a week. For example, he organises the Dutch Precision Week around the Precision Fair in November. Why is he so invested in microcredentials? "Precision engineering is developing incredibly fast. It's important for people in the field to keep their knowledge up-to-date. In addition to what I've said about how microcredentials work, the system can also help colleagues in HR, who often lack technical training, in guiding employees toward the right development paths. The way DSPE works enables them to better support these engineers. I think that's a great development."

Krikhaar hopes that DSPE's microcredentials will eventually be recognised as professional qualifications and intends to keep working towards that goal. The organisation has been around since 1954 and is run entirely by professionals, for professionals, which helps safeguard the quality of the certifications. To maintain independence and not compete with the providers it assesses, DSPE intends to stay away from offering courses itself (with rare exceptions). When asked whether he will roll out microcredentials across Europe, perhaps through euspen, Krikhaar is brief: "That's not something I'll take on, but if someone else wants to do this, that would be fine."

DSPE's microcredentials initiative

DSPE has offered its certification programme for post-academic courses since 2008. This successful programme (which from 2015 has been run in collaboration with euspen in the ECP^2 programme) is continually well attended, stimulating and guiding education for a large number of professionals. Last year, DSPE decided to update the programme by introducing microcredentials: digital diplomas and certificates that are stored in an individual's own secure diploma safe and last a lifetime.

DSPE plans to extend the number of certified courses substantially to different NLQF (Dutch National Qualifications Framework) levels (7 = master; 6 = bachelor; 5 = associate degree; 4 = secondary vocational; and 3 = primary vocational). Also, DSPE will introduce learning pathways, offering advice and guidance to professionals on lifelong learning in their field. In order to support the DSPE educational programme, an Industrial Board has been established with representatives from leading companies in the industry.

At the time of writing (early June), over 60 courses were listed on the Microcredentials page on the DSPE website. These course are provided by High Tech Institute (with content partner Mechatronics Academy), Mikrocentrum, Holland Innovative, Inventas, LiS Academy, TU Delft and DSPE.

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