

Fourth phase of industrialisation

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The theme of the 2/2018 issue of the Lumen online magazine focuses on the competence needs of future labour markets, business and industry. Due to its geographical location, the strategy of Lapland University of Applied Sciences organically highlights knowledge of the Arctic environment. According to the strategy, *“knowledge of Arctic conditions refers to comprehensive management and utilisation of the conditions. ...Success and well-being in the Arctic environment requires multidisciplinary expertise and a solution-oriented and open operating culture. ...There is an increasing demand for the know-how, education, research and development produced in Lapland on account of the global interest that has turned towards the Arctic region.* (Lapland UAS Strategy ... n.d.) Lapland UAS represents the vocational higher education branch of the Lapland University Consortium, which is based on a dual model and operates in the northernmost region of Finland, while University of Lapland represents the consortium’s academic branch. Lapland UAS’s offering provides students with varied opportunities for securing the phenomena-based and real-time qualifications required on the job markets in the fourth phase of industrialisation, even from the perspective of needs regarding knowledge of the Arctic environment.

The current fourth phase of industrialisation – with its related competence demands – breaks the ties to time and place so characteristic of the first phase of industrialisation in the late 19th century. In the first phase, industrialisation was based on hydroelectric and steam power as well as narrow task-specific qualification requirements. In the fourth phase, industrialisation is increasingly based on solar power and other renewable resources, digitalisation, globalisation, robotics, cyber security and versatile competence ((Davies et al. 2011; Industrie 4.0. n.d.). The fourth phase of industrialisation is typified by the globalisation of the education and labour markets and the supply and demand of welfare services thanks to digitalisation, the need to pay more systematic attention to the requirements of sustainable development, and the reformation of employer and employee roles due to new types of qualification requirements (Zukunft der Arbeit n.d.; The 10 skills ... 2016; Framtidens arbetsmarknad och ... 2017; Kiiski ym. 2018;

Wennström n.d.). For the individual, this development enables a wider sphere of possibilities in family life, education and employment with fewer ties to any specific time and place. In addition to this, the development manifests itself as greater personal responsibility for one's own choices in life and their consequences as a result of the ever-expanding options not only in terms of education and employment but also the welfare services system with the popularisation of the welfare mix model in Finland and other countries (Klie 2011; Wohlfahrtspluralismus [Welfare Mix]; Selkälä 2013; Saari 2017). In this society of potential opportunities, citizens in the roles of students, teachers, employees and employers are required to grasp the role- and situation-specific interactive dynamics between qualifications, competence, professional skills and non-work-related expertise that define proficiency in working life (Hanhinen 2010, 16–98).

Alongside the traditional notion of clear boundaries between work and leisure, the fourth phase of industrialisation challenges the qualification requirements for workers as they expand to encompass more and more diverse qualifications related to general education and personal attributes (Davies et al. 2011). This requires employees, employers and educational organisations alike to adopt a new kind of thinking to enable continuous lifelong education in such a way that studies can be completed both during working hours at the employer's expense and during free time at the employee's expense.

I would like to thank *Tuija Ohtonen*, who wrote the column for this issue 2/2018 of the Lumen online magazine as well as the *authors of the other articles* for tackling the complexities of competence needs on the future Arctic labour markets, business and industry in the fourth phase of industrialisation.

I wish an enjoyable and beautiful autumn season to each and every author and reader of these articles!

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