



**Position paper:**

## **Digitalisation in Architectural Education**

Architectural Council of Switzerland

August 12<sup>th</sup>, 2019

## Context

The building industry is currently responsible for global consumption of over 40% of natural resources, 40% of energy use and 50% of landfill waste<sup>1</sup>. Resource scarcity, climate change, demography and migration, as well as the increasing number of stakeholders and parameters in the design and construction process, pose additional challenges for architects and engineers. Architects play a pivotal role in conceptualising the built environment, and they have a responsibility to identify appropriate methods and tools for addressing and confronting these challenges.

The history of architecture shows how closely related technological progress and material sciences are to architectural and urban development. The design and construction industry has always benefited from the application of modern technology. Today, the potential of digitalisation ranges from the use of leaner materials to climate-driven urban design based on big data analysis and processing.

## Mission

In our digital societies, the pervasiveness of data, technology and artificial intelligence provides new opportunities to address the challenges of contemporary architecture. The Architectural Council of Switzerland firmly believes that the tools provided by digitalisation will enable architects to steer design and construction and contribute to developing a sustainable built environment that meets the spatial, social, environmental and economic requirements of future generations. We are convinced that architects must rethink their way of approaching design and construction processes and refine their decision-making by applying the multiplicity of environmental and material parameters in an integrated manner. It is therefore imperative that we train the next generation of architects to be aware of the challenges our societies face as a whole<sup>2</sup>. We must also equip architects with the corresponding skills for tackling these challenges effectively and creatively without compromising their aesthetic competence and responsibilities.

## The Architectural Council of Switzerland asserts that:

- Architectural education must provide students with strong **disciplinary skills** and knowledge as a priority. It must motivate students to explore and experiment using both analogue and digital design and fabrication tools and processes.

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<sup>1</sup> (Federal Office for the Environment FOEN 2018)

<sup>2</sup> (International Union of Architects (UIA) 2017)

- Architecture students must be given the opportunity to explore the potential of state-of-the-art digital design, fabrication, and evaluation tools and processes such as digital fabrication, computational design and assessment. But students must also have access to **emerging technologies** such as artificial intelligence, augmented and virtual reality, machine learning and big data.
- Digital tools enable us to deal with complexity, work seamlessly and in dialogue with a growing number of specialists, and help us fulfil our mandate as architects. Digitalisation aids architects in working across disciplines more effectively and addressing a multitude of criteria simultaneously throughout the design and building process. As such, digitalisation provides an opportunity for architects to reclaim their **pivotal position** in the building industry and in society.
- An **interdisciplinary culture** in education triggers innovative approaches and redefines the meaning and impact of digitalisation. Actively engaging contemporary technologies as a medium of cross-disciplinary and strategic thinking allows students to critically question their contribution to architecture and the building process.
- Digitalisation in architectural education and in the building industry must serve to continue and improve Switzerland's strong and distinctive culture of architecture, and contributes to achieving **our society's most critical goals**: minimising resource consumption, using land economically and efficiently, and providing safer and better living and working conditions<sup>3</sup>.
- It is not plausible to expect that architectural education can deliver both disciplinary aspects and exploration of wide and rapidly changing tools and methods within a five-year curriculum. Swiss architecture schools must provide further **lifelong learning** opportunities for practicing architects to build on their existing knowledge, gain new skills and perspectives, and specialise as experts in the various fields of their profession.
- Digitalisation requires schools of architecture to offer a diverse set of didactics which includes expertise, knowledge and state-of-the-art infrastructure. A **strong and active network** between technical universities and universities of applied sciences will offer students a relevant and diverse curriculum and help to further develop the specific qualities of Swiss architecture.

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<sup>3</sup> (Federal Office for the Environment FOEN 2018)

## Conclusion

Digitalisation is changing the building process. Swiss schools of architecture must integrate digitalisation within academic education and research without abandoning the profession's primary competence: the responsibility for shaping the qualitative and intellectual aspects of space. The Architectural Council of Switzerland recognises the responsibility of architectural education in actively adapting architects' professional profiles to the paradigm shift created by digital infrastructure. Swiss architecture schools are ideally placed to tackle the immense challenges ahead for us and for future generations.

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