RESULTS IT

Parallel Sessions - IT

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The IT session was marked by some overarching concepts and insights that spread across all presentations. The results from the discussions are thus presented in a joint format focusing on four questions: What opportunities may technology create for real estate companies? What role does information play in real estate management? What competencies do young professionals need? What can education do to support the next generation of professionals in the best way?

What opportunities may technology create for real estate companies?

Digitalization is often perceived as an external transformation that brings about a decisive competitive advantage through the introduction of new IT structures. The focus is rather on technology and associated costs than on the digital skills of employees. After the introduction of IT, it is often recognized that a digital cultural change must begin from within in order to achieve successful digitalization. It is important to find digitally savvy people who can take the entire team to a new level. The challenge is to create a sustainable corporate culture and identify developments trends in good time.

The majority of presentations in the IT track commonly emphasize that digitalization does have a tremendous impact on our environment and the real estate industry. Digital innovations like data-driven business models with AI or virtual and augmented reality (VR/AR) are spreading rapidly and in some cases replacing traditional business models and companies. New market players are successively conquering the real estate industry with innovative technologies.

We are experiencing a development from pure **software products to platform economies**. As an example, Airbnb largely benefits from the network effect. Within only ten years, Airbnb has managed to create more rooms in more countries than Hilton Hotels (founded in 1919). The discussion found that the traditional Hilton business model – asset heavy and capital intensive – is very inflexible compared to the Airbnb business model – asset light and information intensive. Airbnb is one of the best-known technology start-ups in the field of platform economy in real estate and beyond. Airbnb has achieved this by focusing much more closely on the needs (clean accommodation at fair prices) of its customers than any previous companies. In doing so, it has comparatively very few personnel and a low cost base. Due to the continuous improvement of the platform, other services have also developed like additional information about cultural amenities and food offerings. Through this, a range of **experiences are created**. Eventually, Hilton Hotels could also benefit from IT and adapt some of the features of the digital Airbnb business model.

What many platform concepts have in common is that they collect a lot of data and make use of it to improve processes and/or sales. Through **smart data analytics**, companies can predict the wishes and needs of customers faster than their competitors.

Real estate may generate enormous amounts of data, but it does not yet make full use of these. For the future, the infrastructure of data storage and data management is important as the amount of data continues to increase.

Technology start-ups face a particular challenge regarding technical terms, processes and a distinct real estate business culture. Pure technical companies usually lack a domain. Since **real estate is a domain** the connection between the two can be very profitable. Generally, real estate experts have limited knowledge about (information) technology or how to make use of it sensibly. For this reason, technology is often not used efficiently or software developments fail in practical application.

Companies that are unable to implement digital technologies internally should cooperate and use the AI of partners. However, substantial issues of data protection and data security still need to be resolved.

What role does information play in real estate management?

The meaning of Information for conducting business has considerably changed over the past 20 years. At the same time, the amount of information has grown immensely. In this regard, T.S. Eliot posed two serious questions already back in 1933: Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?

Information is data, which has a meaning and a purpose. The usage of information creates knowledge which in turn is dominated by wisdom: the sensible application of knowledge not only directed towards creating utility but sense.

To derive meaning and purpose from data, data need to be interoperable. Otherwise, inadequate **interoperability** causes economic damages. In particular, missing data lead to

- repeated data collection,
- poor basis for decision making,
- lack of efficiency,
- lack of comparability,
- economic damage (as well as too much information).

Data within a company are still not collected and processed in a targeted manner (even though they may be available). There is still a **lack of communication** even within companies. Different IT systems, procedures or views of different departments within one company make communication even more difficult.

In real estate, a huge amount of data/information is lost when moving from one lifecycle phase to the other, especially between design/construction and operation/use phase. **Building information modelling (BIM)** might be used as a means to cross phases and interfaces. However, clients (i.e. real estate professionals) have to be capable of defining their BIM requirements when tendering design and construction works. Clients need to ask the right questions in regard to information for BIM. Therefore, a **widespread (basic) knowledge** of BIM and other **key methods** is of great importance.

Organizing data and information is a new and overly important field of work for real estate professionals. Due to the nature of the data this calls for interdisciplinary ways of thinking and working. Data manager may become a new function or even business model in real estate. Relevant competencies should be included in real estate education.

The University of Stuttgart (Stoy/ Uhlenbruch) is doing research on generating a data model for planning, conception, construction and operation in cooperation with corporate partners (BASF, BMW, BOSCH). The aim of the project is to present a structured catalogue with objects and attributes (for example door etc.) that may be filtered BIM-based by use cases and phases.

What competencies do young professionals need?

What is the primary motivation to study real estate or facility management? In the student impulse dialogue, it was found that the students' knowledge of the real estate domain before (and even after) their studies differs greatly. During their studies, students today think and act much more strategically than in the past. In many cases, they seek to receive credits efficiently. Some of the students simply regard their studies and grades as a means to get a job, not to broaden their knowledge and improve their skills.

In one session, job advertisements in the area of digitalization were analyzed. It was found that many requirements aimed at the corporate culture and adaptability of employees. Technological skills are sometimes described very unspecifically. The majority is aimed at financial modeling and the use of MS Office, especially MS Excel, as well as data analytics. In the discussion, the participants highlighted the following **future-oriented skills**:

Entrepreneurial mindsets: With a growing number of start-ups or self-employed people working flexibly, students should also be taught the basics of entrepreneurship. For example, the ability to develop a vision requires creativity - the development of creative competence does not take place sufficiently in current education systems.

Communication skills: Communication skills will become more and more important in distinguishing people from machines and AI. It is essential that students do learn and master the professional real estate language. Where appropriate, the language used must be informal so that people from different disciplines can understand each other. Sometimes even professionals are not able to ask the right question or give precise answers. This can be trained in lectures through elevator pitches or presentations. Lectures do not have to be fun events, as we heard in the student impulse, although the young generation is often accused of seeking entertainment. Rather, lectures need to be useful and interesting.

Networking skills: Education systems must promote the networking skills of students. However, the institutions should not use the term "networking" too much. They should rather mention "experiences".

The development of student **T-profiles** was also discussed. The participants came to the conclusion that education should provide a basis for students to build up individual T-profiles. This includes a) a broad general knowledge with soft skills such as communication and the ability to work in teams and b) a deep special knowledge in one certain area. Students should have the ability to apply knowledge in different situations and to break with old habits. A T-shaped young professional should combine both the strengths of a generalist and a specialist. In the UK, generalists are generally more valuable for companies. They should have the ability to change if a workspace becomes obsolete. However, students are often afraid of change and seek stability and reliability.

Therefore, academics must lead the way and courageously face change themselves. Moreover, they need to help students set their individual goals in a way that these are specific, measurable, realistic, achievable and time-bound. In real estate, there are only a few very specialized positions for graduates. It was argued that, to think deeply, students need to be educated universally and transdisciplinary. Examples for useful combinations could be Real Estate Planning and Civil Law or Real Estate Planning and Civil Engineering. Students could achieve this by adjusting their field of studies between B.Sc. and M.Sc. Education institutions should provide such opportunities, although no general recommendation could be made. Professors should advice students on reasonable combinations.

Lecturers and students have to face digitalization with curiosity and critical questions. This includes at least a rough understanding of software and developing an idea of how programming languages work. If real estate professionals do not understand how algorithms work, they run the risk of becoming dependent or even helpless. They need to realize the meaning of data and data analysis. This again calls for at least a basic technical understanding.

What can education do to support the next generation of professionals in the best way?

Based on the previous results, several aspects and ideas for new teaching formats/ contents were discussed:

Digital skills often come down to knowledge about the use of software. Education needs to give students access to common software solutions, e.g. MS Office, BIM, CAFM or DCF applications. All participants agreed that tutorials (e.g. in E-learning courses) can be helpful for the applied knowledge of software tools, at least discretionary.

Bringing VR into the real estate classroom. Today VR in real estate is mainly used for marketing purposes. The range of possibilities and advantages of using VR in the classroom are compelling: In particular, students gain a better understanding of the physical property. With VR (and AR), they can experience places which they could not see otherwise (due to privacy, health or security requirements).

The audience came to the conclusion, that technologies like VR and AR have great potential to transform education through an active learning approach. At the University of Auckland, VR is used in the first semester of the real estate program. Although no long-term results can yet be analyzed, students seem to score better in their exams. An easy entry is to use Google cardboard (< 3 USD each) in large classes for virtual property tours. In addition, a 360-degree camera (helmet-mounted) and software that puts it all together are needed. The VR approach is not yet interactive and may not entirely substitute field trips. However, it promotes further knowledge with a new (digital) method. In future, it will be possible to combine VR with E-learning modules. The audience proposed to first have a VR-session, then a discussion with explanations and after that another VR-session. In the beginning, students may be intimidated, hence promoters and supporting agents who assist the students are needed. After an intensive discussion, the opinions of participants were entirely positive, although it was found that education should be careful putting too much content online. The personal interaction between lecturers and students remains indispensable.

Feasibility analysis: It is considered very useful for students to prepare a feasibility study, which is already part of most real estate programs. Ideally, they work in interdisciplinary teams of civil engineers, architects and real estate and facilities managers. This encourages creativity and entrepreneurship. Students can improve their communication and presentation skills with an elevator pitch and a final presentation.

Role play as part of a lecture: Students slip into various stakeholder roles with the aim of achieving the best possible results for their own interests in e.g. a property development. As developers or investors they need to convince stakeholders of their project idea.

Workshop Entrepreneurial Thinking with e.g. the founders of a property management company or a PropTech company. The students learn what steps are needed to found a company and get insight into real business plans.

Seminar idea: Scrum. Scrum encourages self-responsible and self-organized action and supports the development of problem-solving as well as social skills..

Seminar idea: Design Thinking. Design thinking fosters innovative and creative thinking. Moreover, it promotes team work and the joint development of an idea.

Industry challenge: In an industry challenge students work out a case study and final presentation of a real case. The final presentation is held in front of academic teachers and real company representatives.

One result and impression of the participants was that **millennials get bored** with easy tasks and applications concerning digitalization. **Gamification** could be a way of training the students to cooperate in teams as a form of active learning. It might promote creative uses of technology and knowledge transfer between individuals.

The education system today needs to **rethink teaching**, both in undergraduate and master degrees. Students have to **think outside the box** already in their undergraduate studies. Education must teach people to think independently. Universities educate a wide range of young people with different skills. Some of these skills will become automatized, e.g. parts of data analytics. In some European countries there is a tendency towards a reversed pyramid structure in the academic system.

This means that the relative amount of professors grows in comparison to academic staff and students. This is due to the fact that students can get attractive jobs even before graduation and sometimes do not even complete their studies. Given that the real estate industry is becoming more and more globally networked **English lectures** should be integrated in education at least to some extent. In addition, contents have to be put into context. Students remain ignorant of the big picture if they are faced with too specific exercises. It is important to promote that students orient themselves. One approach to this could be that master students work together with bachelor students in special lectures or in tutorials.

Educational institutions have to be more than just a place for the transfer of knowledge.
Through inspiration and taking a different point of view, education can foster creativity in students. Professors have a major responsibility since they impose the basic restriction to the knowledge of students, also with regard to digitalization. In addition, the readiness to teach technology skills depends on the abilities of the academic staff. Education has to pioneer the way and create the necessary environment to make students fit for the work world of the future. There was full consent to one thing by all: Real estate professionals have to learn for a lifetime. Education forms the basis for personal development and career. Post-graduate studies are another key to this.