Virtual CORP 9 June 2020

State-of-the-art Technologies in Urban and Spatial Planning, Architecture and Construction

Chat Recording

Hosts

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Manfred Schrenk and Clemens Beyer, CORP – Competence Center of Urban and Regional Planning, Vienna, Austria

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  The Construction Site of the Future

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Q&A, Open Discussion

Substantive comments and open discussion (public for all)

In response to Roland VAN DER HEIJDEN's presentation
Digital City Rotterdam and the Concept of Digital Twin

From Manfred Schrenk: What about underground space? Is it part of 3D-model?

Answer Roland van der Hejden: We have also an underground model, even including tree root volumes in Rotterdam. We are working also on undergound structures and we also have the problem that it gets harder and harder to find space in the underground.

From Gösta Baganz: Roland, how do you keep your data up to date?

Answer Roland van der Hejden: It is mainly real-time and sensor data. So it is the most important thing to create a network where these data can be transmitted and keep this network running.

From Manfred Schrenk : Are you using only public (governmental) data) or also data from private sector?

Answer Roland van der Hejden: We use particularly all kinds of data which are available.

From Galaxy A8 (2018): Roland, how do you convince the necessary data providers to participate?

From Tugce Ates: Could you talk about the system architecture slide?

From Fabio Bayro Kaiser: Does artificial intelligence play a role? Also in future analysis/management?

Answer Roland van der Hejden:
Yes … – Happy to receive and more questions and to answer per by e-mail.

In response to Sigrid BRELL-COKCAN's presentation
The Construction Site of the Future

From Manfred Schrenk: As you said, you are working on an "unusual scale" for urban planners, on the construction of individual buildings, and you are in close co-operation with industrial partners? So how are your experiences with working in that setting?

Answer from Sigrid Brell-Cokcan: There is a certain big lead because similar to what we experienced in the lockdown is that workers could not cross borders. The lack of people will be a big thing in construction in the future. There is a roadmap for construction 2030 to increase ICT involvement. How to improve construction is on the agenda of many governments currently. 10 or 15 years ago everybody said it's just a fancy tool and robots would leave architecture again, but now it is completely the other way round. We have to guarantee the construction in the next couple of years, and also deconstruction and refurbishment.

From Christa Reicher: You talked a lot of potentials, efficency... regarding safe space, what is your opinion towards space production?

Answer from Sigrid Brell-Cokcan: My current interests do not lie in construction on green fields. We have to densify space by preproduction, modular things... but I am more interested in how machines can react to an unforeseen environment and how can they interact with humans? This leads to true individualisation and not only changing colours and surfaces. We have seen lots of examples in history that after wars etc. industry and constrcution start from scratch and later we realise that we have to get rid of these buildings (1960s...).

From Christa Reicher: How does this kind of production influence our built environment, e. g. when you produce flats... what are the spatial consequences?
It can be one key for circular economy so that you can plan the buildings only to mount or to construct but also to deconstruct with the same technology. How is this technology chaning the way we plan, build and construct? This might also change our way of thinking in construction and also the way how construction sites are conducted. If we look into the way how the students reacted with robots during the lockdown, 30 students pressed the buttons at the same time remotely, ... we learned from that to arrange things in sequences. At the moment we are at the very beginning of understanding how all these IoT[1] platforms work together. The data platforms can be blown up to bigger scales easily.

From Manfred Schrenk: You mentioned 3D printing technologies, how do you see the evolvement of these?

From Clausse: Can large components be manufactured directly at the construction site to reduce logistics efforts? Do you as well systematically consider construction site logistics, and changing transportation flows?

From Gabriel Gruber #Business Upper Austria: Do you also think about "how artificial intelligence creates sustainability" in the field of construction?

Answer from Sigrid Brell-Cokcan
3DP has a lot of open questions which need to be tackled. Materials should flow quite rapidly but on the other hand they shoud be stabilised, otherwise you cannot print on top of each other. How to design materials that can do things like that, this is the core task in 3DP. Also important is monitoring and quality prediction of materials. A lot of interesting questions has not been dealt with yet, and it will take up to 5-10 years until this technology will play a major role in construction. Also construction building standards have to be met with these technologies.

You can 3DP in a multi-material way in one go just by changing the mixture in your process. There can be interesting future solutions and we are always interested in material-based programming, like with the examples shown with natural stones.

From Clausse
Would like to further exploit the question of Christa cooperating with Humtech in Aachen. How may the sociotechnical and sociocultural system of housing change. Living in Basel and a fan of Lucius Burkhard, who always teached us that the real aesthetics in housing comes from the many plural and non-standardised emergences of building like in medieval cities.

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[1] Internet of Things

In response to Beniamino MURGANTE's presentation
Why Italy First? Health, Geographical and Planning Aspects of the Covid-19 Outbreak

From Manfred Schrenk: We are still in a learning curve what is and will be happening with the actual spread of Covid-19, but we see that there are important outcomes into the direction of sustainable planning and to argue against economic influence. If the environmental conditions are bad, the impact will be worse, is this correct?

Answer from Beniamino Murgante: It is not easy to argue against economic development. Development of possible scenarios is a good way to act with these problems. Analysing ecosystem services etc. ... also using data coming from different sources.

From Manfred Schrenk: We will collect all questions and forward them to the authors and we will also publish the presentations on our website.

From Christa Reicher: We addressed a broad field today. It is really important to use technology as a new tool to improve our environment. but technology is not the solution itself. It can be used to strengthen efficiency and transparency.

From Claus Seibt: Unfortunately, from an agroecokogy point of view to use soil as sink for CO_2 is rather contested and the promising promises are for my colleagues in soil research sometimes similarly overstressed than cities.

Documentation and summary:
Christa Reicher, Canan Çelik, Antonia Stratmann, Manfred Schrenk and Clemens Beyer