A way to higher productivity in construction
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professional interests
VDC | IPD | BIM | processes | automation | energy | “lean”

active in associations
GNI | SIA | Die Planer. | CEN | ISO | buildingSMART International

Working groups
SIA MB 2051 | SIA D0270 ff | CEN/TC 442 | ISO

Private
married | 2 kids | photographer | ski tours | hiking

Source: Peter Scherer, FHNW
University of Architecture, Construction and Geomatics
international collaboration Stanford University – University of Oslo
What do we really know about productivity?

production objectives          project objectives             client objectives

buildable

design and construction        handover                      operation

time

cost

quality

security

useable

operable

sustainable

Source: Peter Scherer, FHNW according to Prof. Dr. Martin Fischer, CIFE
Do we have a strategy to improve?
What do we know about processes in design and construction?

Results from over 40 similar workshop experiments with 500 different persons from design, construction and operation:

- there is almost no time spent on organizing the work
- tasks are always underestimated, until just before the work should be completed
- results are not checked before they are delivered
- Blaming each other is the explanation for the bad result
Reflection

Source: Peter Scherer, FHNW
silos

Of course I'd like to help but it's not my end that's sinking!
rethink design and construction
drywall frames prefabrication increases productivity of 25 %

Source: DPR Construction
example of self-optimization from practice

Source: Fischer, Ashcraft, Reed, Khanzode, 2017
What is really valuable for the client?
Virtual design and construction, VDC

- Client objectives
- Project objectives
- Collaboration
- Digital information models e.g. BIM
- Production process

Source: Peter Scherer, FHNW according to Prof. Dr. Martin Fischer, CIFE
Integrated Project Delivery, IPD

“Collaboration and information sharing is a cultural attitude and not a contractual agreement.”

Source: Peter Scherer, FHNW according to Prof. Dr. Martin Fischer, CIFE
How can productivity be increased?
Fundamental changes are necessary

Source: Peter Scherer, FHNW, according to (Everett, 2003)
design and construction is complex and not simply complicated

Uber as a system is complicated but not complex

Solution: primarily technological

Source: System Uber, 2018

Design and construction as a system is complex

Solution: primarily procedural

Source: https://www.ingkh.de/recht/mediation-im-bauwesen/
Dealing with complex systems

Diagram showing the relationship between complexity (simple, complicated, complex) and agreement (high, low) in the context of what is being discussed (objectives) and how it is realized.
Dealing with complex systems
Productivity

Source: McKinsey Global Institut, 2017
Chaning project delivery towards industrialisazion

Source: Journal of the construction devision, 1976
“If you digitize a fu**ing process, then you will have fu**ing digital process”

translated from German, original quote by Thorsten Dirks, CEO Telefonica Deutschland AG
«Culture eats strategy for breakfast»

Peter Ferdinand Drucker, Pioneer of modern management theory