

## ORGANISATIONAL AND CULTURAL PRECONDITIONS FOR EXTENDING THE USE OF TAKT-TIME PLANNING

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ISSUE: What are the underlying causes that inhibit extended use of TTP in construction processes?

Theory: Complexity theory combining phenomenology and philosophy of materiality.  
«Material Systemic approach (MSa)»

Research method: Theory-guided process tracing

Empirical data: two Norwegian building projects using TTP. Non-repetitive work

Research project KSS: Contract strategies and expert collaboration in building projects

# Analysis

Timeline sequences forward.  
Chosen methods: step 0-4

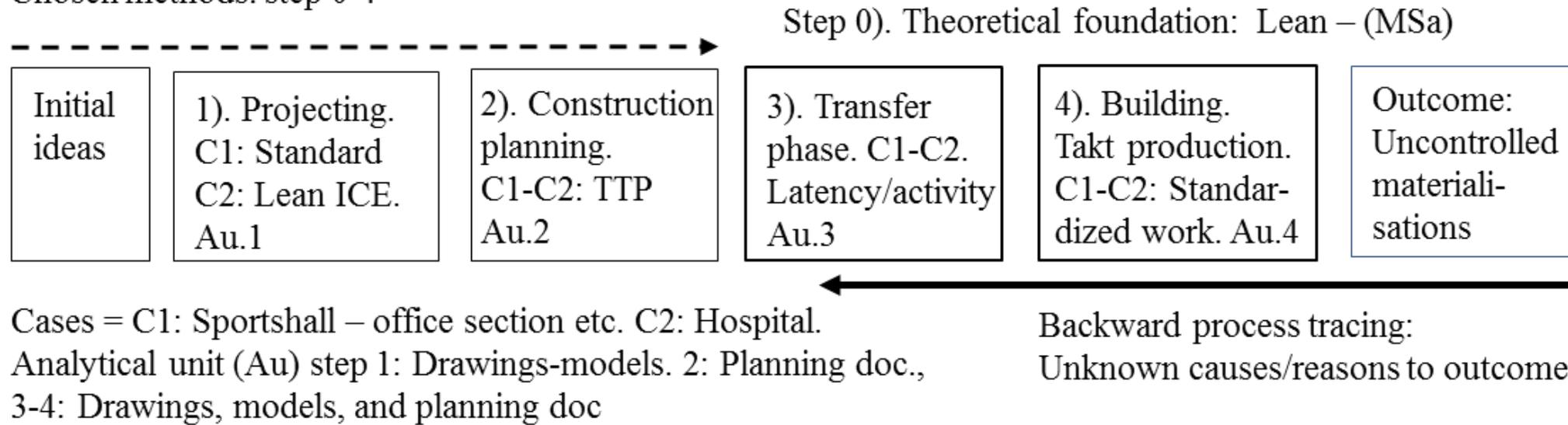


Figure 1. Causal diagram. Building project. Theory-building process tracing

Outcome: Immediate problems (failures) in both cases:  
To low precision - models/ drawings/purchasing.  
Dominant problem: Structuring materials - carpentry

Problem understanding ...  
**counterfactuals** ...  
problem-solutions

## Theory-guided process tracing. Findings

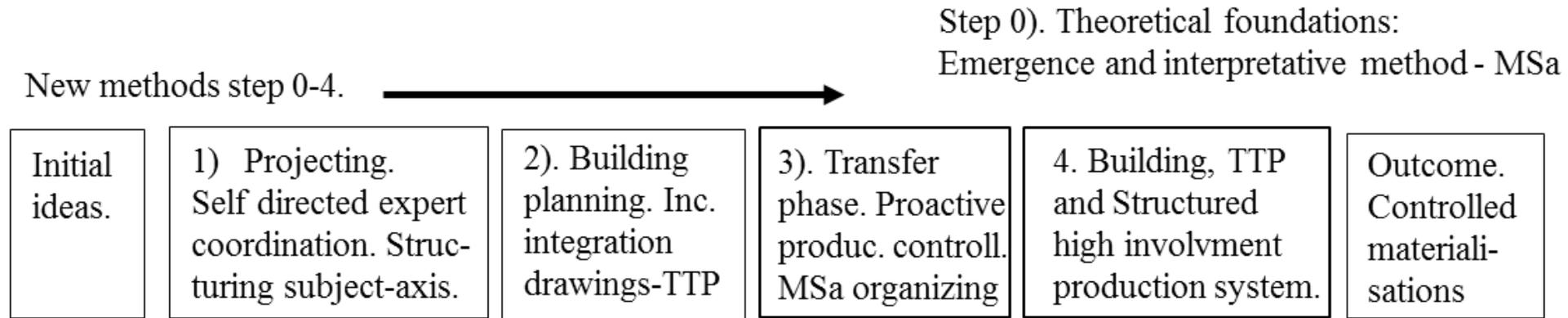


Figure 2. Building project. Methodes to use in projecting and building based on counterfactuals

Organisational preconditions for extended use of TTP:

A: Counterfactuals step 1 og 2: 1). Increased emphasis on **process** management is necessary. Structuring subjects: Architects and building subject as coordinating-core and decision makers in the projecting phase. 2) Increased integration of the projecting process and creation of the Takt-time building plan

B: Counterfactuals step 3 and 4: High focus on proactive production control is necessary – and a kind of organizing that makes it possible continuously to develop plans and drawings to mirror emergence in production. Intensive obstacle analysis. Involvement of craftsmen and crewleaders in a continuous planning process

## Theory-guided process tracing. Findings

Step 0). Theoretical foundations:  
Emergence and interpretative method - MSa

New methods step 0-4.

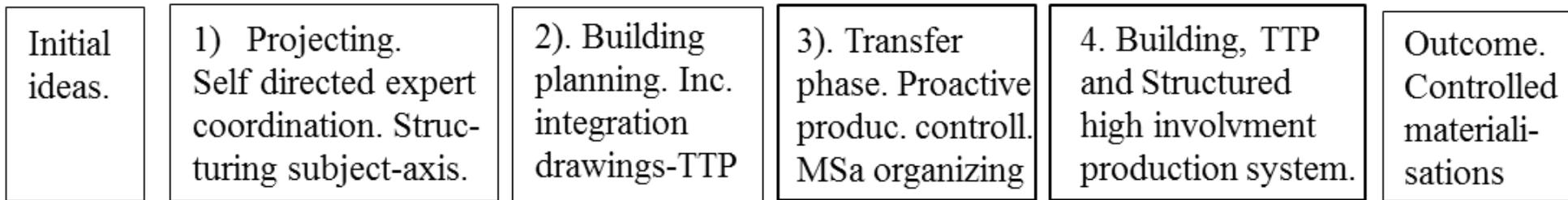


Figure 2. Building project. Methodes based on counterfactuals

Cultural peconditions for exteded use of TTP:

C: Counterfactuals step 0 and 3 and 4 (and 1 and 2). The process tracing supports the fact that an interpretive open and involving culture on construction site expand the possibilities of using TTP and Takt-production. The interpretive culture means e.g. that the actors in production continuously improve, adapt and interpret plans and standards (and drawings/models) to the real world in the physical production. Opposite: If Takt production is integrated into a culture where the actors only passively follow detailed standards, a predetermined perfect plan or a "perfect production system", then the utility of TTP and Takt production is narrowed down.