HOW DOES TAKT PRODUCTION CONTRIBUTE TO TRADE FLOW IN CONSTRUCTION?

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Background: Positive effects of takt production

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- During the last 5 years a multiple takt production implementation cases has been conducted
- Positive effects on increasing flow of construction production by decreasing various types of waste

Research gap: The affect on the flow of trades

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- Takt production focuses on improving the flow of processes – how it affects the flow of trades?
- The evidence on how takt production actually affects the flow of trades has been contradictory

- The study aims to answer the following question: *How does implementing takt production impact trade flow?*

Formulation of propositions

- Propositions were formed based on literature review
- The propositions were then evaluated in light of a case study

Propositions
P1: Takt production decreases unnecessary movement
P2: Takt production decreases inefficient work
P3: Takt production decreases waiting time
P4: Takt production decreases overproduction
P5: Takt production reduces defects
P6: Takt production decreases making-do waste

Research method

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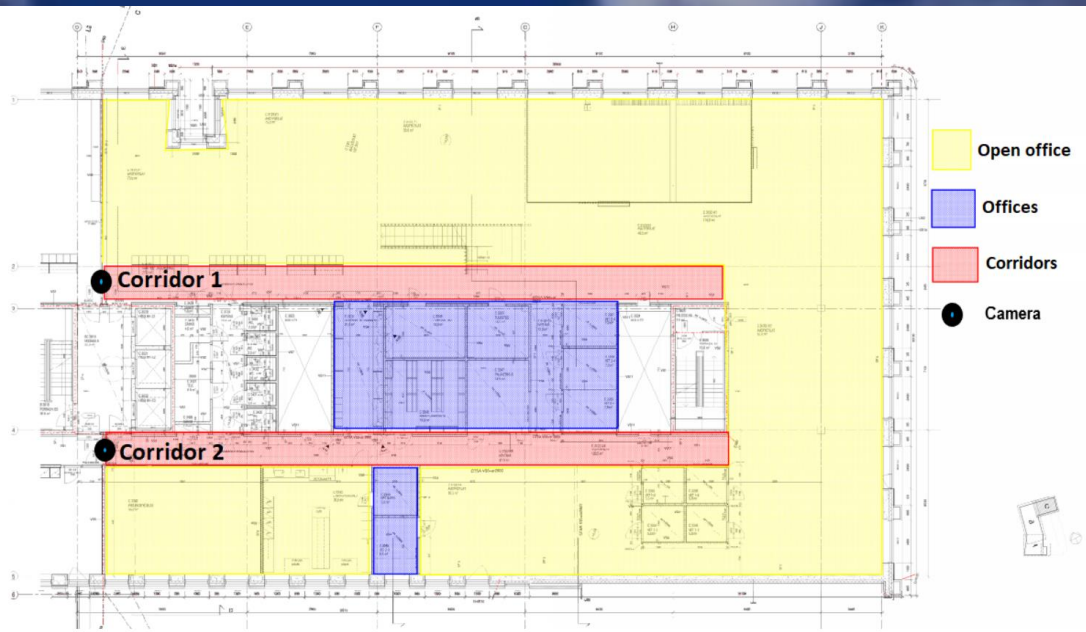
- A single case study
  - The case project was a 40,000 square-meter, multi-story office building in Helsinki, Finland
- Data collection:
  - Site observation with continuous video camera documentation
  - Observations of project documents
  - Nine semi-structured interviews



- 650 hours of video material from one takt area over a period of six weeks

Results and analysis

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- In the beginning of the video recordings a multiple interruptions were detected
- Later on the interruptions decreased as the production stabilized

Interruption	Number of occasions
Another trade in the way	10
Material in the way	15
Wrong trade sequence	2

Interruption	Percentage of interruptions during the first 3 weeks
Another trade in the way	80%
Material in the way	73%
Wrong trade sequence	0%

Results and analysis

- Overproduction was noticed in the beginning when a couple of trades producted more than planned
- Overproduction decreased during time
- As the production stabilized and the interruptions and overproduction decreased a positive effect on making do was noticed

Discussion

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- The support for propositions 1 through 4 were apparent
- Support for Proposition 5 was never determined
- The possibility of decreasing the making-do waste with takt production was strongly supported by the observation results of spaces being overcrowded in the beginning
  - This kind of behavior can be controlled with takt production, supporting proposition P6

Propositions	Results
P1: Takt production decreases unnecessary movement	Supports
P2: Takt production decreases inefficient work	Supports
P3: Takt production decreases waiting time	Supports
P4: Takt production decreases overproduction	Supports
P5: Takt production reduces defects	No support
P6: Takt production decreases making-do waste	Strongly supports

Conclusion and future research

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- Support was found for the positive effect on trade flow through the use of takt production.
- It also seems that even though takt production fundamentally focuses on increasing the flow of processes, it also contributes positively to the flow of the trades.

- There is a need for a more comprehensive study regarding the effects of takt production on trade flow.
- We see that a comparison between the trades flow on takt production and traditional construction projects would be beneficial.

Thank you!