Correlation between Direct Work and Productivity

*Associated with the **GREEN-TRACK** research project*

Purpose: This research targets better resource efficiency to achieve green transition in construction. Research show that resource efficiency can be increased. In this improvement a large potential for reduction of Embodied Energy and CO2 saving is present as we reduce construction duration as well as we reduce production errors.

The frontier of research is starting to correlate Productivity and efficiency. We have already established results on the macro economical level. A statistically significant relationship between DW and CLP was established. However, limited knowledge regarding the correlation on micro economical level exists. The research hypothesis is: *Value adding time measured in work sampling studies is correlated with construction labor productivity, both on a macro and micro economical level.*

Main activities: The point of departure is a statistical study of correlation between CLP and DW from Work Sampling studies on both a macro- and micro economical level. Limited knowledge regarding the correlation on micro economical level exists. WP2 will explore this both in regards to state-of-the-art and by empirical data from case study research. As statistical data is

not available on micro economical level for CLP, the state-of-the-art will be a case-based literature review. However, the main method in WP2 is simultaneously empirical measurement of CLP and DW on 3-5 real ongoing construction projects. Success criteria: A strong correlation of CLP and DW on micro project level with significant relations (P) with predictive capabilities (R2) above the limit.

- Data collection on-site (Work Sampling & Productivity)
- Data analysis and verification on both micro- and macro-economic level
- Industrial implication on project performance
- Contribution to Body of Knowledge.

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Theory: ☒☐☐ **Experimental work:** ☒☒☐ **Statistical Analysis:** ☒☐☐
Suitable project type(s): **Research & Development:** ☒ **Master thesis:** ☒