

# Causality between construction worker movement and their efficiency

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 focus on applying construction workers' movement as an indicator (predictor variable) for their efficiency (Direct Work as criterion variable). 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: *Construction worker movement (walking and transportation) has a causal connection with construction worker efficiency (value adding time) and, moreover, the effect is correlated*



**Main activities:** Based on the mentioned theoretical foundation of movement and transportation as predictor variable for the criterion variable Direct Work (efficiency), WP1 will collect and analyse a number of datasets with simultaneously data for both the predictor and the criterion variable. Success criteria: A verified regression model with effect size, R, above 0,3 and a statistically significant confidence level.

- Data collection (Work Sampling) from as many trades/cases as possible
- Data analysis by correlation methods, and causality checking
- Contribution to Body of Knowledge.

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**Theory:** ☐☐☐ **Experimental work:** ☒☒☐ **Statistical Analysis:** ☒☐☐

**Suitable project type(s):** **Research & Development:** ☒ **Master thesis:** ☒