

PROJECT LENGTH DETERMINATION: ONE ROOT CAUSE OF CONSTRUCTION'S DYSFUNCTIONS

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CITC GLOBAL
Construction in the 21st Century



Introduction & Background (1)

- Construction Project Schedules are the most significant leverage point for improving social and economic outcomes for the industry.
- Project Owners do not have a process and algorithm to determine a socially and economically responsible construction timeline.
- The current academic research on this topic is sparse
- This resulting arbitrariness, which relies on experience, input process times and economic motivation, does not serve Australia's social and economic goals.

Introduction & Background (2)

These outputs are consistently lagging all Australian Industries:

- Labour Shortage
- Lost Last Job employment measure
- Mental Health
- Safety
- Cost
- Quality
- Cashflow
- Multifactor Productivity (KLEMS)
- Stakeholder Relationships

Aim and Objectives

Aim: To analyse the effects of project length – a deadline set by the construction service buyer – on social and economic issues.

Objectives:

- To capture construction contracting professional's perception of project length effects
- Seek to understand the interrelationship between project schedule length and
 - Safety
 - Quality
 - Cost
- Propose a starting process and algorithmic factors
- Potential use of A.I.

Research Design and Methodology

- Mixed method of:
 - Scoping review
 - Industry survey

Results (1)

Q13 - For comparable projects that are 20% longer than your career average, have you experienced or observed any of these benefits?

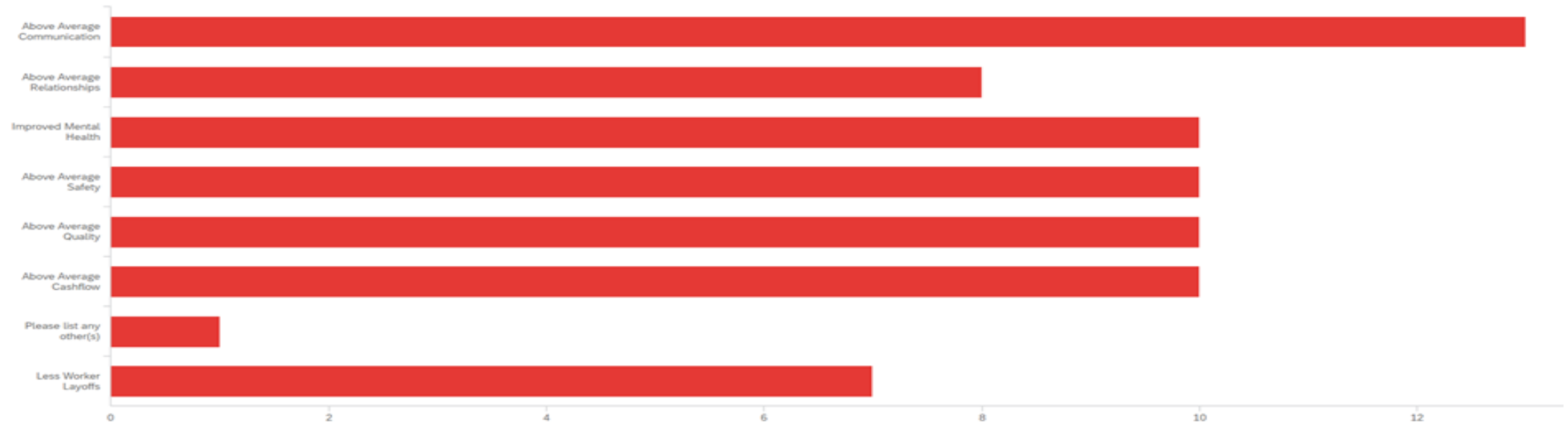


Figure 1. Preliminary Results of Theorised Longer than Average Schedule Effects

Results (2)

Q10 - For comparable projects that are 20% shorter or more than your career average, have you experienced or observed any of these problems?

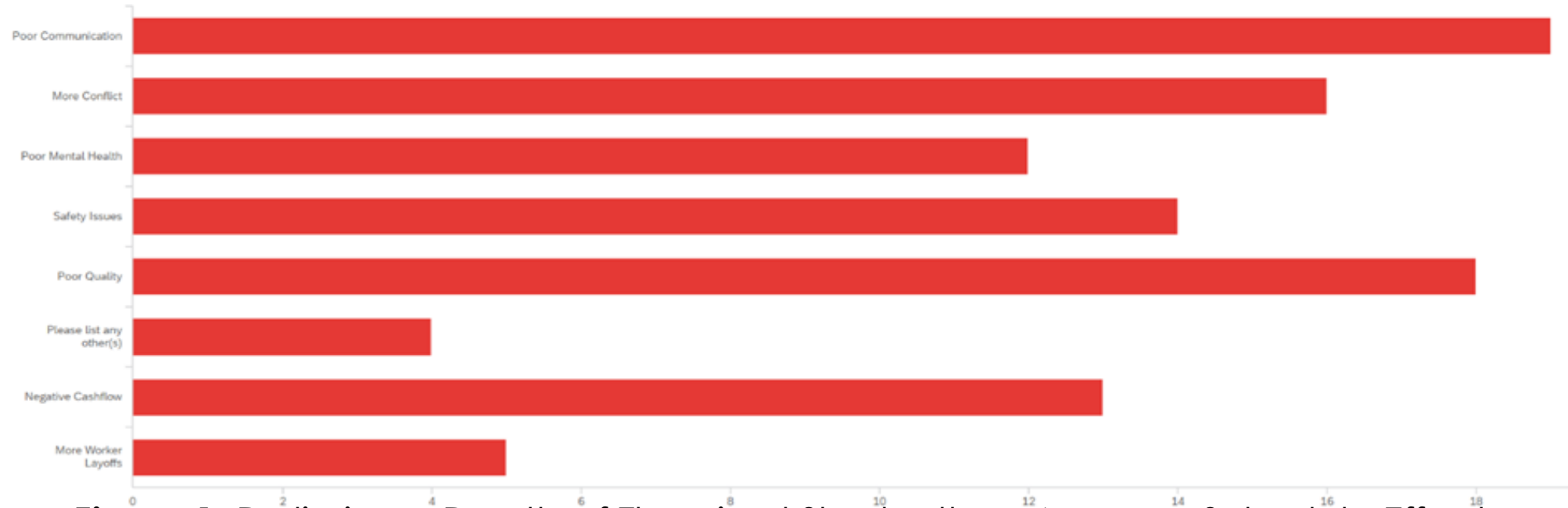


Figure 1. Preliminary Results of Theorised Shorter than Average Schedule Effects

Results (3) based on academic papers reviewed.

Topic Focus	Keywords and Search Phrases	Result
Project Owner's Contract Schedule or Setting of Project Timespan	initial OR beginning AND construction AND project OR contract OR owner AND schedul*	245
Scheduling Construction Projects – Starting and Ongoing	construction AND project OR builder AND schedul*	13,683
Construction Project Schedule Setting and Social Responsibility	social* AND responsibl* AND construction AND schedul*	9

Discussions, Conclusions & Recommendations (1)

- Rushing any human-centric work – erodes quality in relation to craft, use of equipment and management – causes mistakes.
- The focus should be on the time span from the construction mobilisation to practical completion—not letting delays in approval(s), design(s), etc. compress the kinetics of construction.
- Approximately 20% of project tasks are on the critical path; therefore, an algorithm of successive tasks' overlapping is important to the research
- A commercially available guide should be used to establish task time
- Of course, the project schedule should be based on a 5-day workweek
- Contract language should support the above.
- A structured schedule review and assessment process should be part of the business case for any proposed project.

Further Research

The researchers have opened a schedule survey for four years. They have furthered this enquiry with a baseline schedule process and algorithm collaboration with Western Sydney University School of Computing, Mathematics and Data Science and North Dakota State University Data Science Department. Input from the industry stakeholders and our research partners will be crucial to effectively address social and economic issues emanating from project timelines.

This is still a work in progress.

Thank You

Questions?

