

# IMPROVING CONSTRUCTION MANAGEMENT PRACTICE IN THE GIBRALTAR CONSTRUCTION INDUSTRY



Emmanuel Daniel  
Solent University, Southampton, United Kingdom  
Co-Author: Daniel Garcia

# Presentation Structure:

- ❑ **Issues the construction industry is facing**
- ❑ **Background of Gibraltar and Rationale for the study**
- ❑ **Research Question**
- ❑ **Research Methodology**
- ❑ **Research Findings**
- ❑ **Conclusion**

## Issues the construction

- 57% of ... on a construction project is ... (waste) Diekmann et al.

The prospect of this for the Gibraltar construction industry is yet unknown.

... at 1% every year and ... workers is about 40% ... (2013).

- Common causes of low productivity include, design errors, communication problems and inexperience of project team members (Dai et al., 2007; Naoum, 2016).
- Lean techniques used to minimise waste around the world.





## Background of Gibraltar

Gibraltar is a British overseas territory, located on the southern tip of the Iberian peninsula and is recognised worldwide for its 42m high limestone rock.

- Total Population is 34,571
- 300 years of Britain sovereignty

However, the Last Planner System (LPS) a technique within lean construction has been identified to support a smooth workflow through the development of collaborative relationship among project stakeholders.

continues to  
Gibraltar's

travel to Gibraltar on a day to day basis due to lack of employment in Spain, which has created cheap labour.

- Both physical and process waste are present in the Gibraltar construction industry.



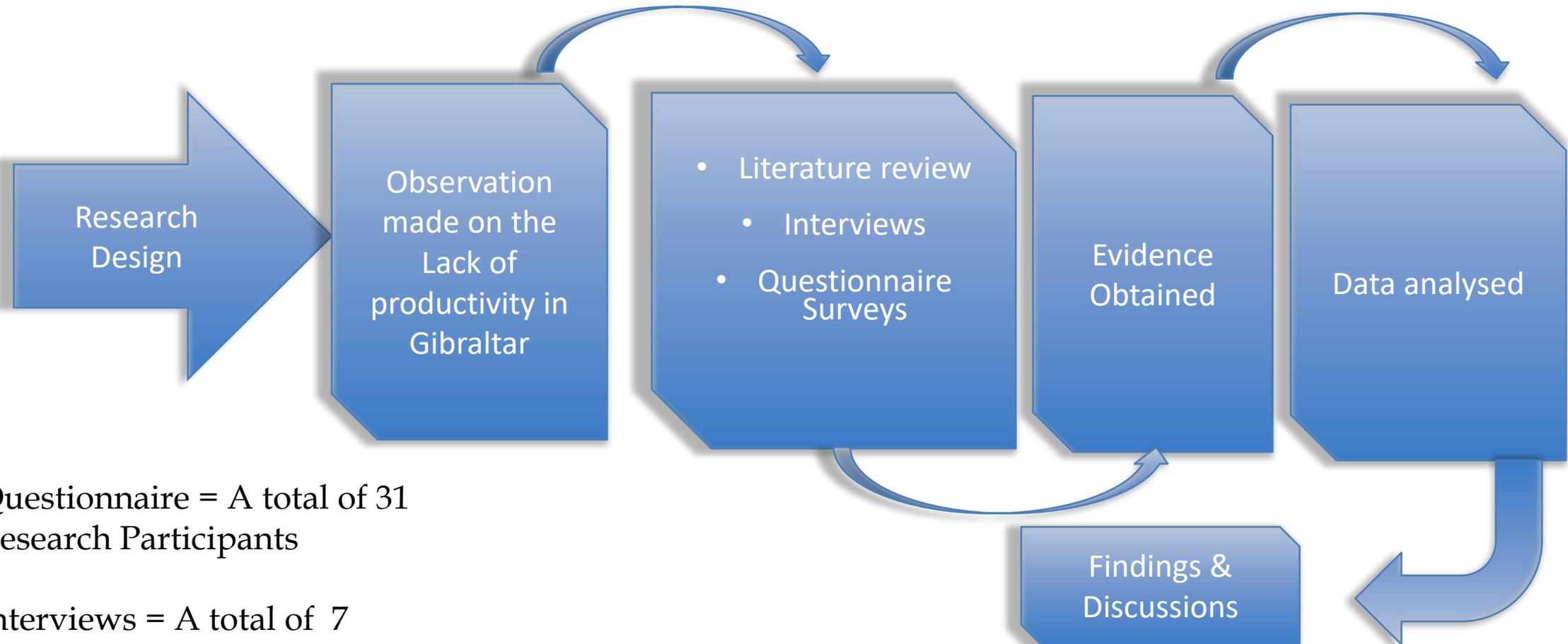
This is among the first empirical study that explores the Gibraltar construction industry.



## THE RESEARCH QUESTION

- RQ1: What are the factors that contribute to non-value adding activities (waste) in the Gibraltar construction industry?
- RQ2: How can the incidence of non-value adding activities be minimised on site in Gibraltar?
- RQ3: What are the prospect of minimising the wasteful processes in the Gibraltar's construction industry via the Last Planner System?

# Research Methodology



Questionnaire = A total of 31  
Research Participants

Interviews = A total of 7  
Interviewees

# Factors that contribute to Non-Value adding activities (Waste) within Gibraltar's construction industry

Contributing Factors to NVA	Ranking
'Unrealistic schedule'	1
'Lack of training'	2
'Delaved approval process'	3
'Work interruption due to community'	4
'Poor site layout'	5
'Miscommunication between the workforce'	6
'Disagreements between contractors subcontractors and client'	7
'Lack of resources'	8
'Lack of team work'	9
'Delay payment'	10
'Lack of flow in construction'	11

# Interview Results: Minimising Non-value Adding Activities on site in Gibraltar

Regular Meetings

Adequate Training

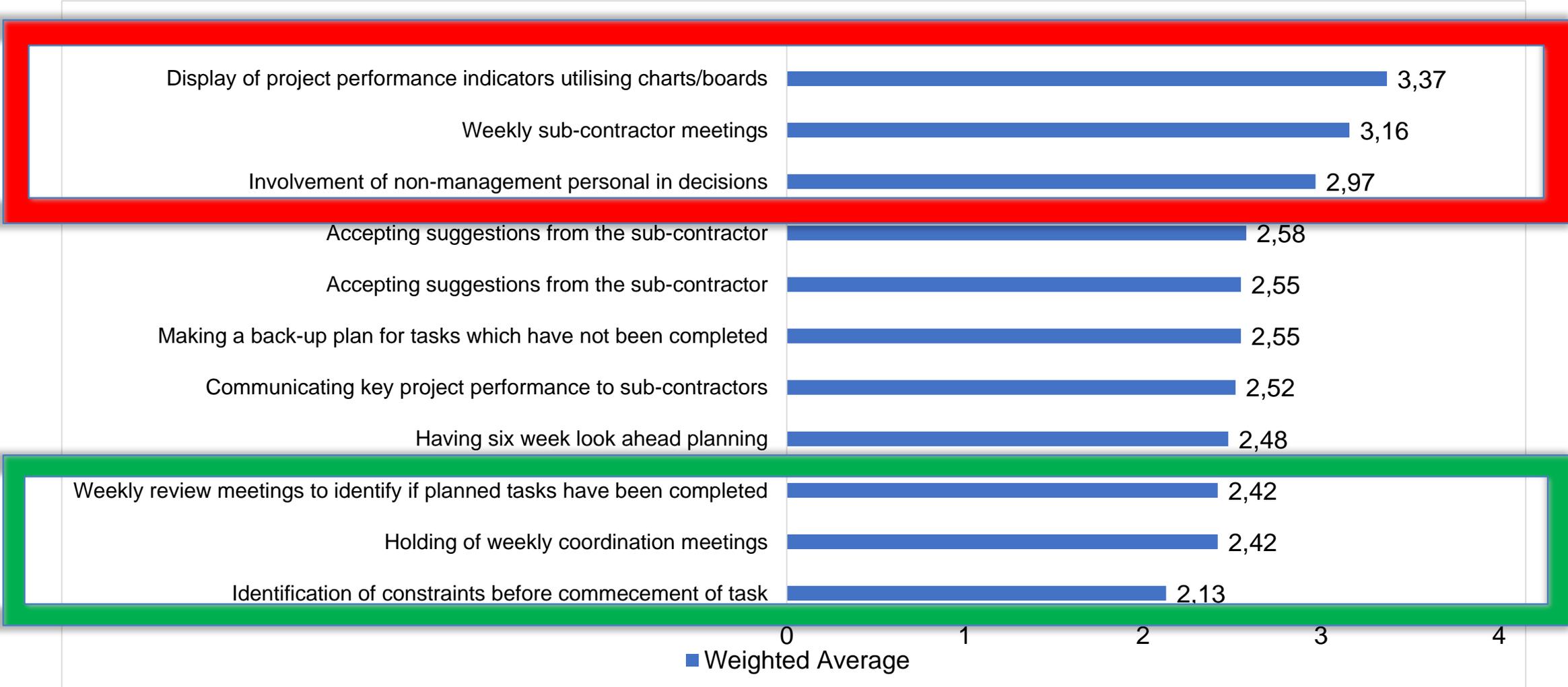
More emphasis on Pre-Planning

Implementation of a Legal framework

Communication between Parties

Effective Communication and Coordination on projects

# Last Planner Thinking in Gibraltar Construction Management Practice



# Conclusion



- ❑ Topmost factors that contribute to NVA's in the Gibraltar construction industry include the development of unrealistic schedules, lack of adequate training, delayed approval process and work interruption due to the community.
- ❑ The study revealed practices within the Gibraltar construction industry that mirror the Last Planner System thinking, though rooted in traditional approach to project management could be a starting point for LPS .
- ❑ The suggestions offered by construction professionals in the Gibraltar for minimising such, like better communication with the stakeholders and effective coordination on projects align with some LPS principles.
- ❑ The study concludes that there are potentials for the LPS in Gibraltar, but also cautioned that all future implementers of LPS in Gibraltar must manage the external stakeholders- the community effectively.

Thank you for your attention

Any questions ?

# References

- Dai, J., Goodrum, P. M., & Maloney, W. F. (2007). Analysis of craft workers' and foremen's perceptions of the factors affecting construction labour productivity. *Construction Management and Economics*, 25(11), 1139-1152.
- Diekmann, J. E, Krewedl, M., Balonick, J., Stewart, T., and Won, S. (2004) *Application of Lean Manufacturing Principles to Construction*, Construction Industry Institute, Report No.191
- Naoum, S., 2012. *Dissertation research and writing for construction students*. London: Routledge.
- Prabhu, G. P. & Ambika, D., 2013. Study on the behaviour of workers in the construction industry to improve production efficiency. *International Journal of Civil, Structural, Environmental and Infrastructure Engineering Research and Development*, 3(1), pp. 2249-6866