Challenge 8

Designing Success
Design quality is one of the key factors that determine overall project performance. Problems that occur in the development and communication of design can have considerable unforeseen negative consequences on cost, time and quality.

The earlier in a project that design issues can be identified, the easier and more effective it is to intervene. Likewise, the ability to understand factors that affect design allows us to incorporate these lessons into our business models, systems and processes.

Our aim is to try and determine & quantify the key factors and interrelationships that allow us to assess/flag if a project has ‘Good’ or ‘Bad’ design performance.
Problem Statements

- Performance of design process is historically complex to assess.
- Design Success criteria are qualitatively understood but not quantitatively measurable.
- It difficult to establish causality between design performance and project success.
- Each Project is fundamentally different therefore to find correlations you require an excess of data.
Client Statement

• As a Project Manager, I want to understand design quality data and how to correctly interpret it.

• As a Project Manager, I want to understand the impact of design quality on my projects.

• As a Risk Manager, I want to be able to predict potential delays or issues within my project from my design performance data.
Challenge Development

Feasibility

Data Patterns

Concept

Drawings created

Date (project percentage)

As built
Construction
Design dev

Level 2

PDACOMMUNITY
PROJECT DATA ANALYTICS

Copyright Projecting Success 2021
Not to be reproduced without permission

Classification - Public
Visual Benchmarks

RFI Completion Rate

Drawing Submissions

BIM Clash Data

Projecting Success 2021

Not to be reproduced without permission

Classification: Public
**Good/Bad v Live Projects**

**Good**

Prediction: Good Project  
Actual: Level 5 (Good)

**Live**

**Bad**

Prediction: Good Project  
Actual: Level 5 (Good)
Power BI Dashboard

RFI analysis & compare

Single Project Data

Aggregated Data

Performance

2. Bad (40%)
3. Mid Good (60%)
4. Good (80%)
5. Very Good (100%)

Project Type

CM  D&B  PFE  T
Assumptions and Constraints

- Project performance may not accurately be correlated with the data provided because for commercial sensitivity these values were approximated based on cost and programme.

- Realistic data requires cleaning. For example, for the DWG data: ‘Revision Status’ we had to assign these into 3 status’s ‘As Built’, ‘Construction’ and ‘Design Development’ as there were originally 74 misaligned categories.

- We had to infer the programme dates based on available data provided.

- All data provided was from RIBA Stage 5 where design success should be measured over the entire design lifecycle.

- To fully capture design success other key data sets should be included: Such as
  - Contractual Requirements
  - MCP
  - TIDP
  - Contractual design changes
Phased Solutions

Phase 1 – Concept

- Define the Brief
- Explore Data Patterns
- Establish Visual Benchmark
- Prove Proof of Concept

Phase 2 – Statistical Analysis

- Replace Pseudonymised Data with Project Data
- Establish Statistical Benchmarks
- Develop Power BI Dashboard
- Prove Proof of Concept Further

Phase 3 – Automation & Iterative Improvement

- Automated Data Links
- Additional Project Data to Increase Accuracy of Forecasting
Judge’s Questions

1. What would you do next/what’s the potential of this if you had more time?

2. Are the tools configured to provide you with the best data to undertake this challenge?

3. What other disciplines could contribute data to improve the accuracy of this predictive tool? And what other function would this facilitate?