PROJECT DATA ANALYTICS

Challenge 8

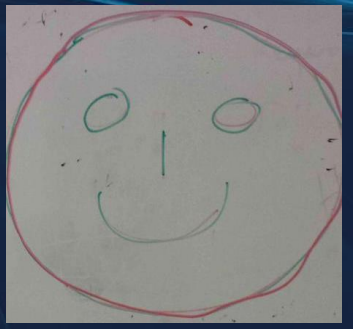
Designing Success

Classification - Public

Challenge 8 Team: Designing Success

Ryan Thomas

Dillon Johnston



Derek Jones

Imogen Hawksbee

Zeshan Wassim

Mo Luk

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Challenge Overview

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.

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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.

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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.

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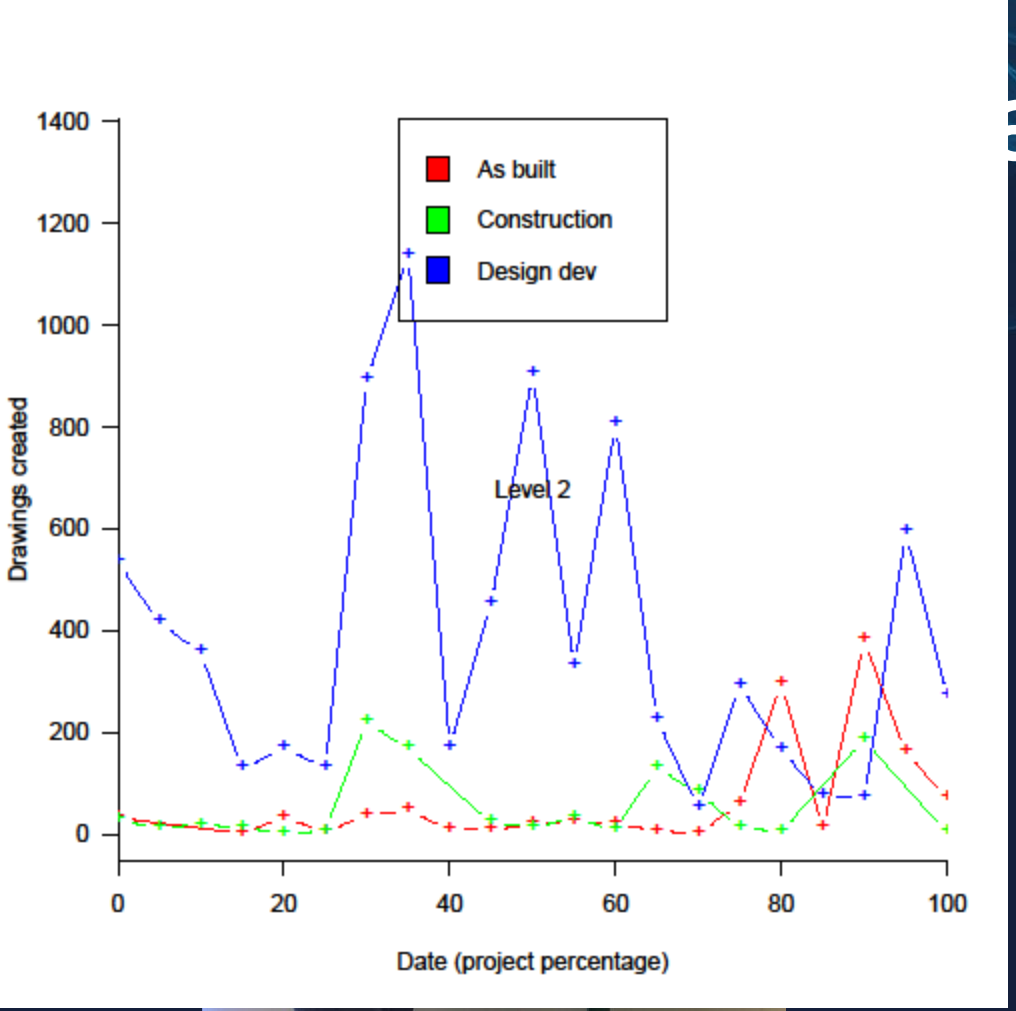
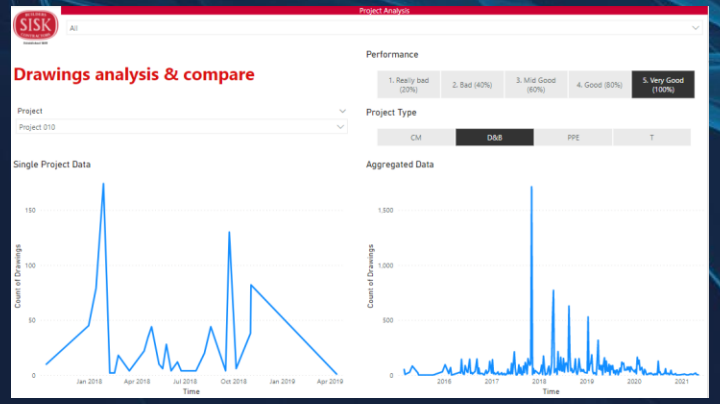
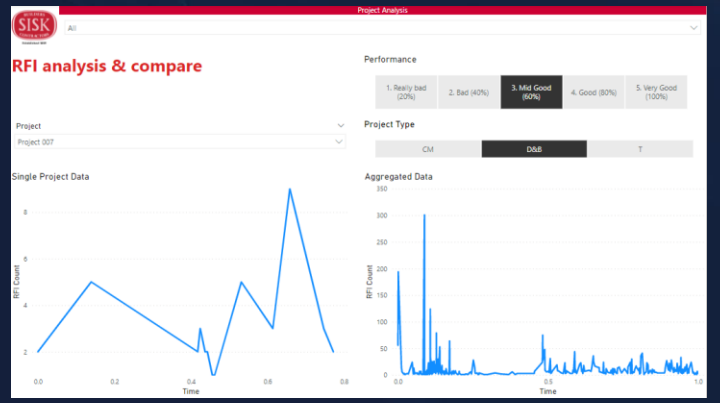
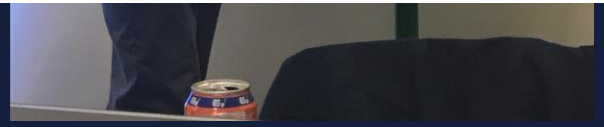
allenge Development









Feasibility

Data Patterns

Concept

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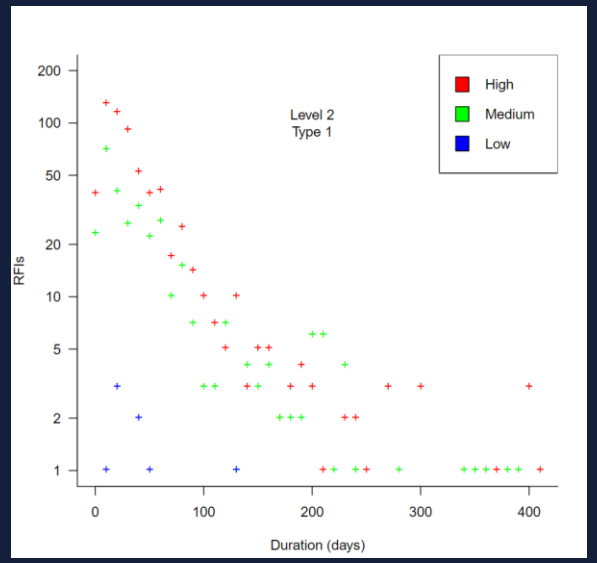
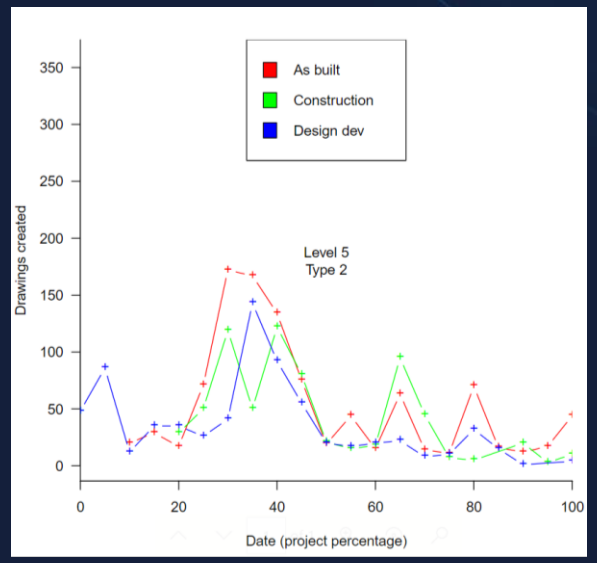
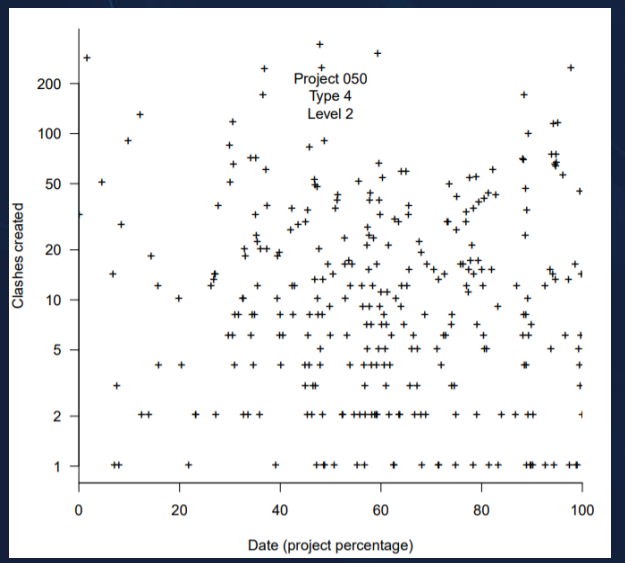
Visual Benchmarks



RFI Completion Rate



Drawing Submissions



BIM Clash Data

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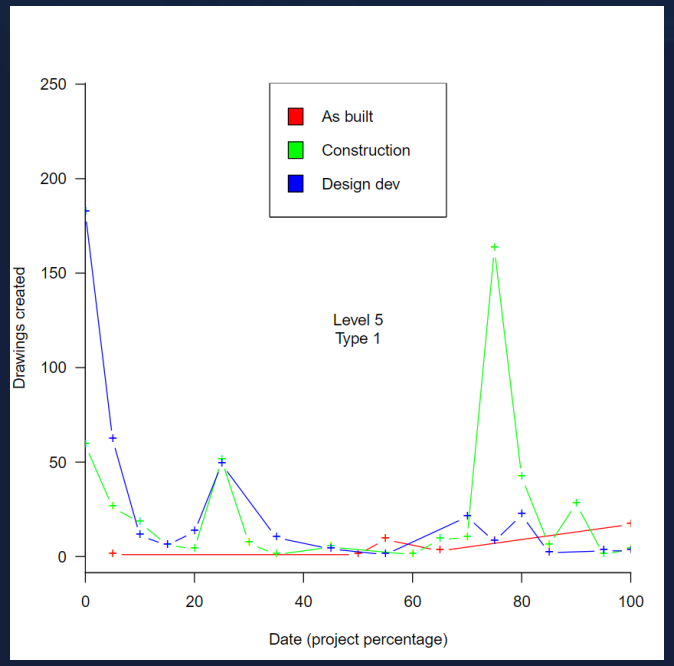
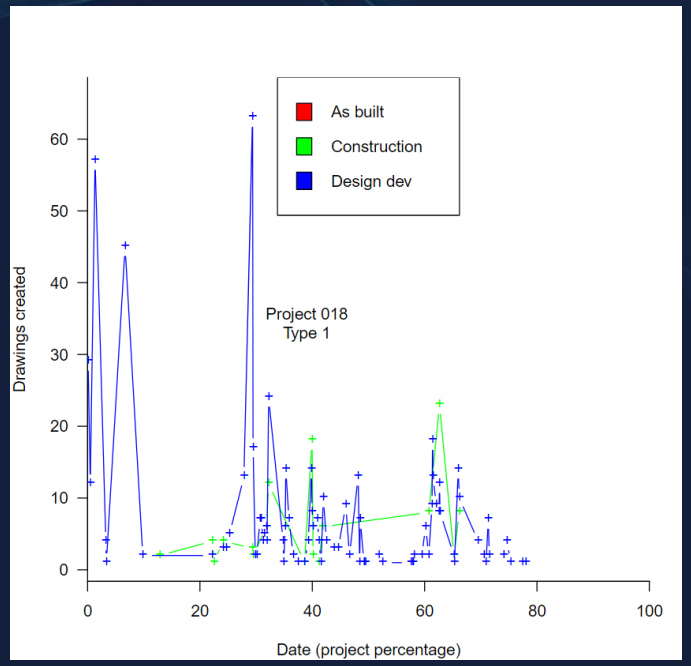
Good/Bad v Live Projects

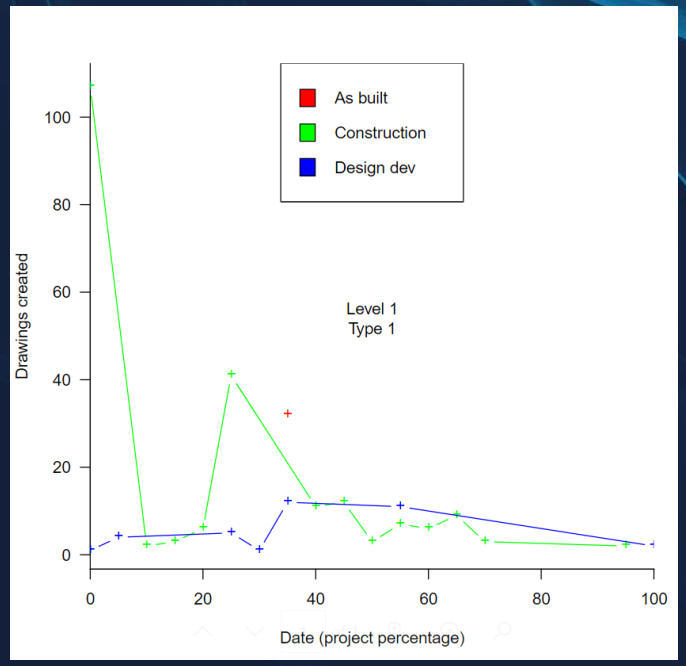
Good



Live



Bad



Prediction: Good Project
Actual: Level 5 (Good)

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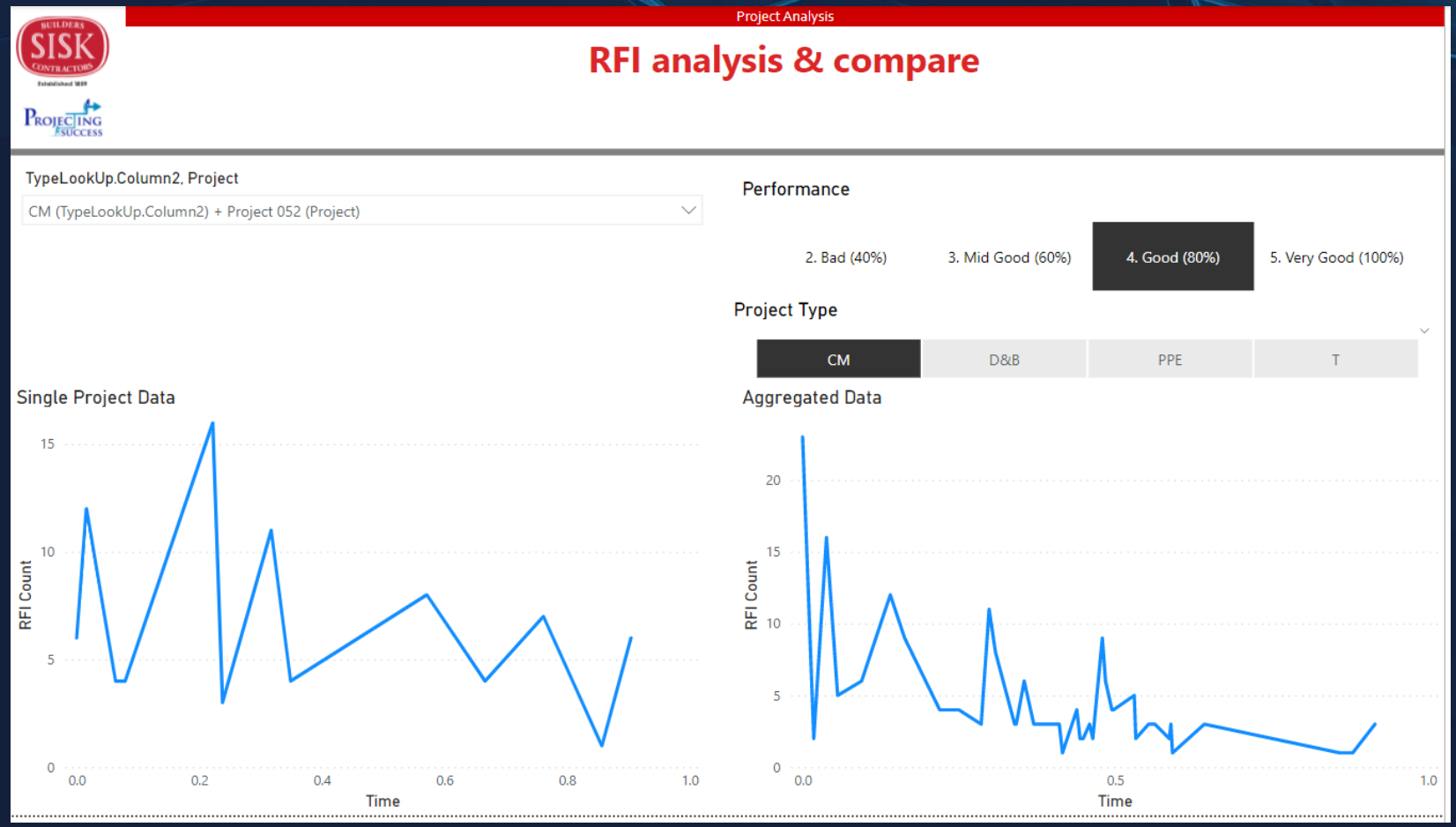
Power BI Dashboard



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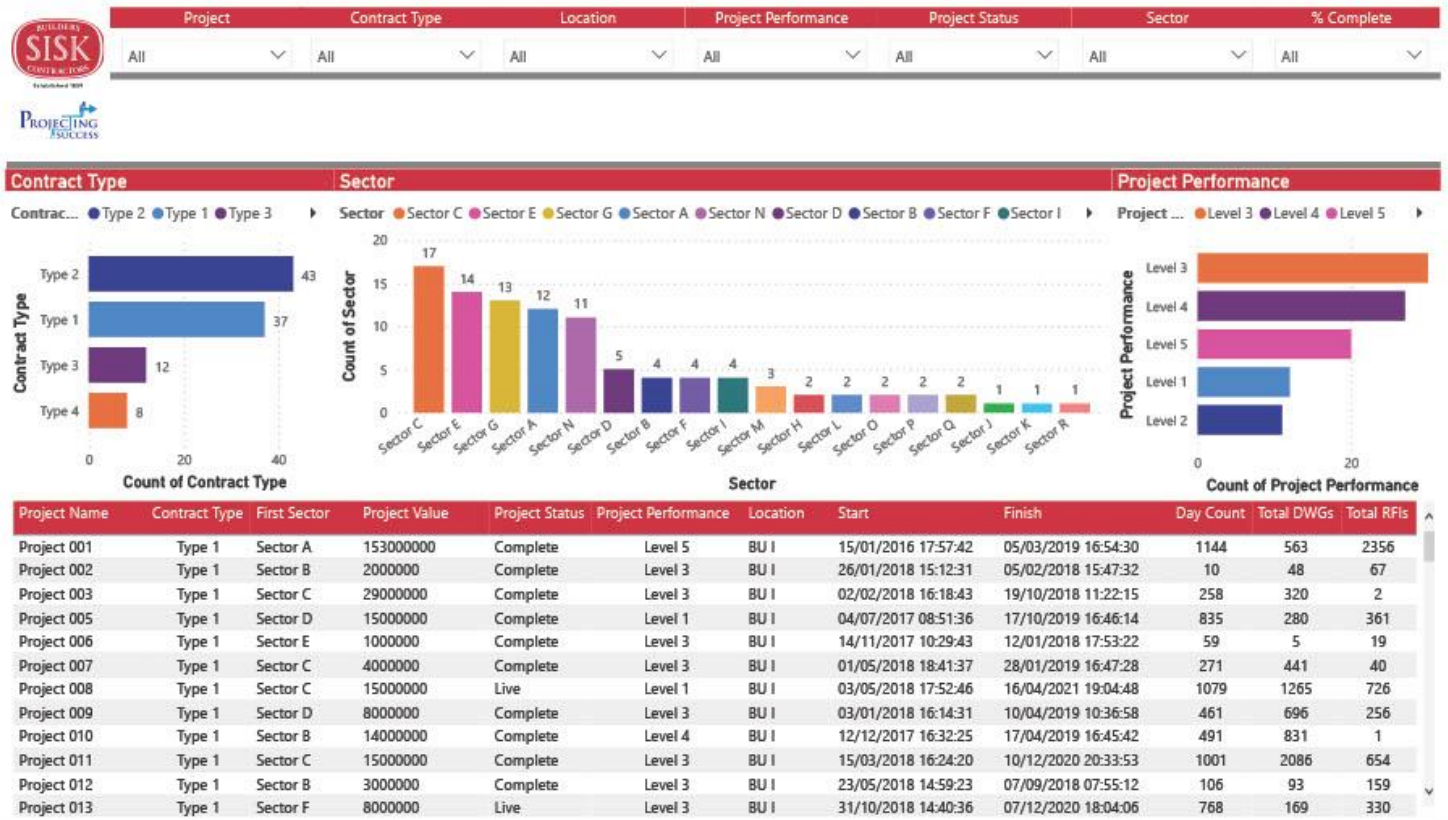
PROJECT DATA ANALYTICS

PowerBI Dashboard – Project Wide



Project Name	Contract Type	First Sector	Project Value	Project Status	Project Performance	Location	Start	Finish	Day Count	Total DWGs	Total RFIs
Project 001	Type 1	Sector A	153000000	Complete	Level 5	BU I	15/01/2016 17:57:42	05/03/2019 16:54:30	1144	563	2356
Project 002	Type 1	Sector B	2000000	Complete	Level 3	BU I	26/01/2018 15:12:31	05/02/2018 15:47:32	10	48	67
Project 003	Type 1	Sector C	29000000	Complete	Level 3	BU I	02/02/2018 16:18:43	19/10/2018 11:22:15	258	320	2
Project 005	Type 1	Sector D	15000000	Complete	Level 1	BU I	04/07/2017 08:51:36	17/10/2019 16:46:14	835	280	361
Project 006	Type 1	Sector E	1000000	Complete	Level 3	BU I	14/11/2017 10:29:43	12/01/2018 17:53:22	59	5	19
Project 007	Type 1	Sector C	4000000	Complete	Level 3	BU I	01/05/2018 18:41:37	28/01/2019 16:47:28	271	441	40
Project 008	Type 1	Sector C	15000000	Live	Level 1	BU I	03/05/2018 17:52:46	16/04/2021 19:04:48	1079	1265	726
Project 009	Type 1	Sector D	8000000	Complete	Level 3	BU I	03/01/2018 16:14:31	10/04/2019 10:36:58	461	696	256
Project 010	Type 1	Sector B	14000000	Complete	Level 4	BU I	12/12/2017 16:32:25	17/04/2019 16:45:42	491	831	1
Project 011	Type 1	Sector C	15000000	Complete	Level 3	BU I	15/03/2018 16:24:20	10/12/2020 20:33:53	1001	2086	654
Project 012	Type 1	Sector B	3000000	Complete	Level 3	BU I	23/05/2018 14:59:23	07/09/2018 07:55:12	106	93	159
Project 013	Type 1	Sector F	8000000	Live	Level 3	BU I	31/10/2018 14:40:36	07/12/2020 18:04:06	768	169	330

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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
  - MDP
  - TIDP
  - Contractual design changes

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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

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PROJECT DATA ANALYTICS

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?

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Thank You!

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