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How to Optimize Project, Design & Risk Management with Forge

CS502226

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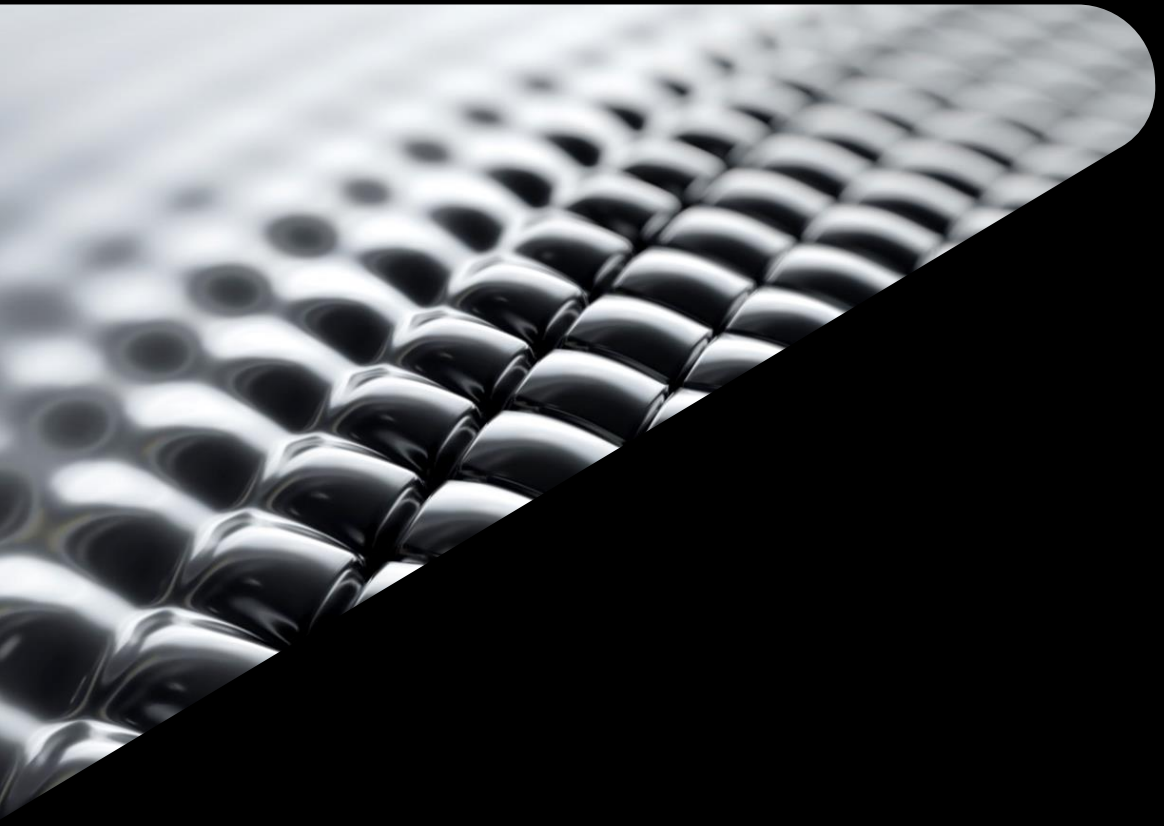
My Introduction

Anna Roig Escolano

- Architect & Structural Engineer
- ≈10 years of experience in VDC and DD for the AEC industry
- Senior Specialist – Digital Delivery (DD), Mott MacDonald

Acknowledgments

- Rene Chicas
- Cory Dippold



Introduction

Class Description

Would you like to optimize project and design management?

In this class, we'll go through workflows and automated processes that enable us to track deliverables' development progress and compare with schedule and budget more efficiently and accurately. We'll work within the ISO 19650 framework and use some of the standards' metrics in a set of dashboards to provide an overview of the sample project's development. To analyze the data, it first gets exported from BIM 360 software and Revit files using Autodesk Forge software. All exported data, with schedule and budget, is imported into Microsoft Power BI. For contextualization, we also embed the Autodesk Forge Viewer into Microsoft Power BI, enabling us to dynamically switch between the project's models and sheets corresponding to the data displayed on the dashboards. This approach to data and project management allows us to improve collaboration, enhance quality of deliverables, and reduce cost and risk. Throughout the course of two years, we predict saving $190,000 in one project alone.

Learning Objectives

- **Learning Objective 1**
  - Learn about how Autodesk Forge is a powerful tool to manage your projects and access data.
- **Learning Objective 2**
  - Learn how to apply automated processes that increase productivity and quality, reducing costs.
- **Learning Objective 3**
  - Learn about adopting standardized processes and methods that allow for scalability and a higher ROI.
- **Learning Objective 4**
  - Learn about implementing workflows using standard formats and automated processes to satisfy your needs and improve your outcomes.

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Case Study

Restoration of Major Linear Infrastructure

- **92 miles long or 148 km**
- **Over 100 years old**
- Serves one of the biggest cities in the world

MOTT MACDONALD

- Condition Assessment
- Detailed Design
- Facility Planning
- Design Services During Construction

Case Study

Digital Maturity

- High level of maturity
- Common Data Environment (CDE)
- Master Information Delivery Plan (MIDP)

Size

- Multi-year
- Multi-discipline
- Big quantity of models
- High amount of deliverables
- 16 sub-contractors

Standardized

- Scalability
- ISO 19650

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Problem

Project Management/Design Management

Sample blank slide — subtitle (sentence case)

1

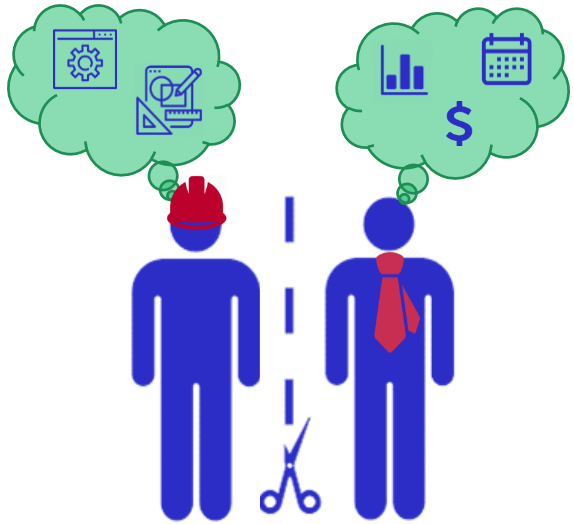
Design Managers are **missing** detailed break down of **Project Management metrics**.

2

Project Managers **don’t regularly check on design progress**.

3

There is a **disconnect** between PM and DM.

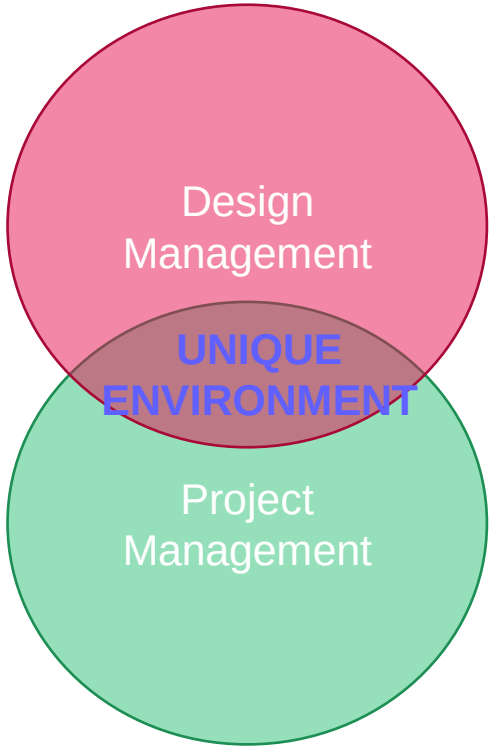


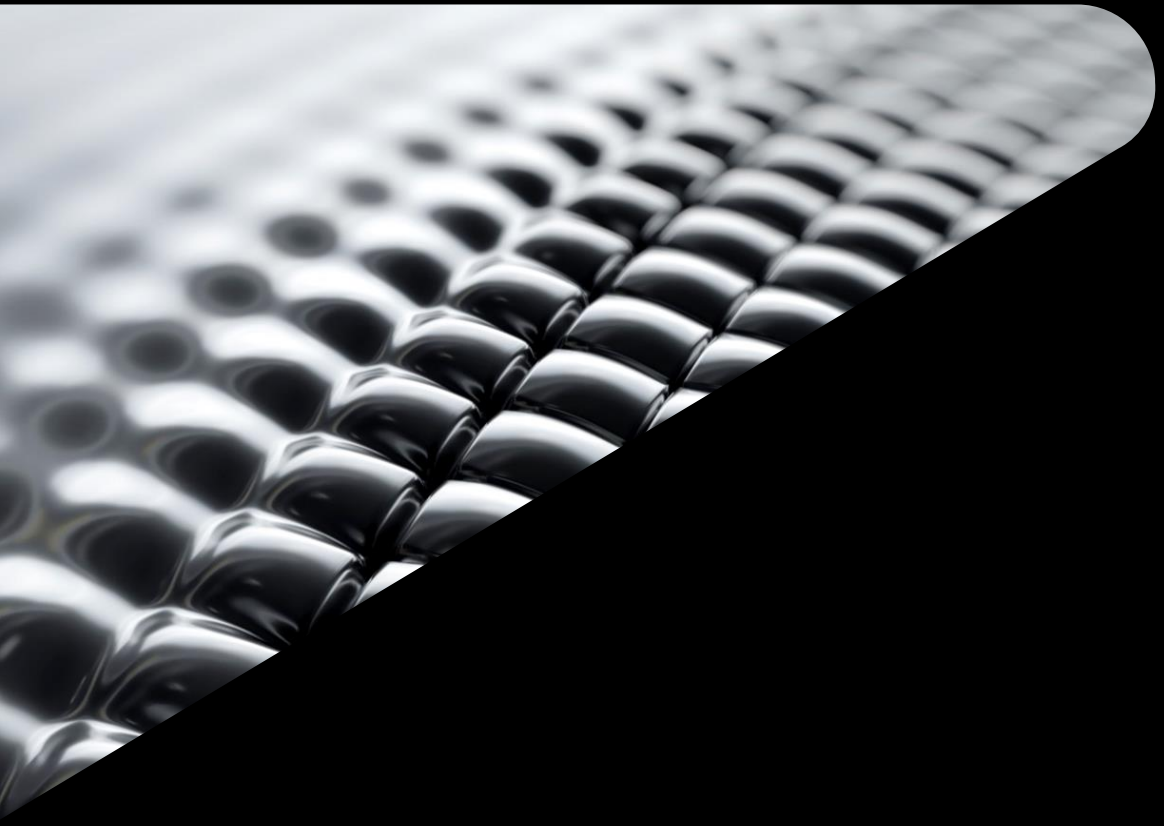
Solution

Goal

Unique Environment

- Complete and relevant data for all
- Commercial data accessible to designers
- Models & drawings accessible to managers
- Easy and intuitive



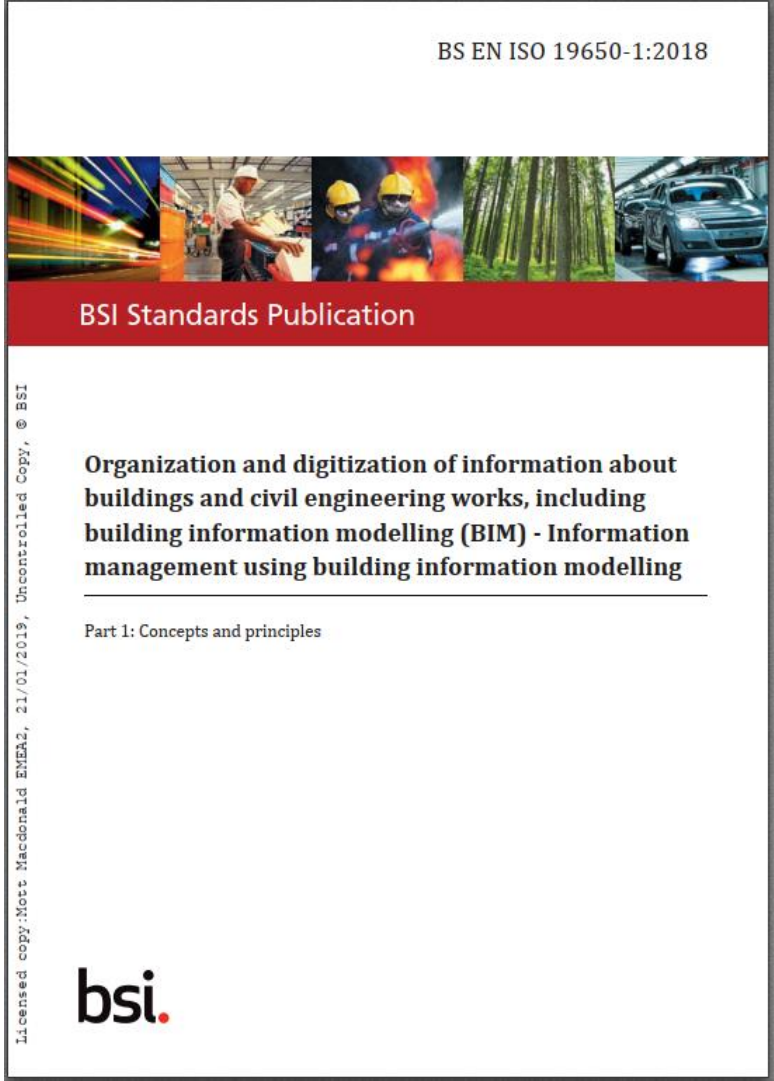


How?

Framework: ISO 19650

Benefits

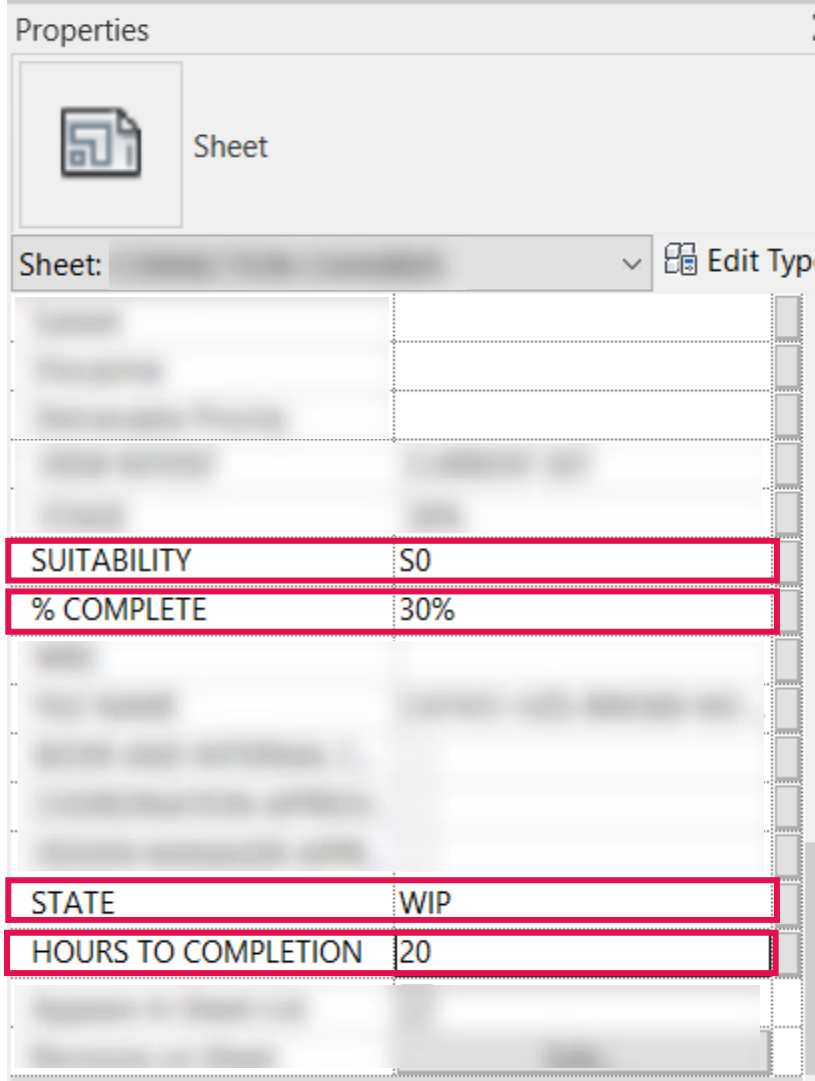
- 16 different sub-contractors
- Control and manage information effectively
- Obligate all parties to manage data the same way



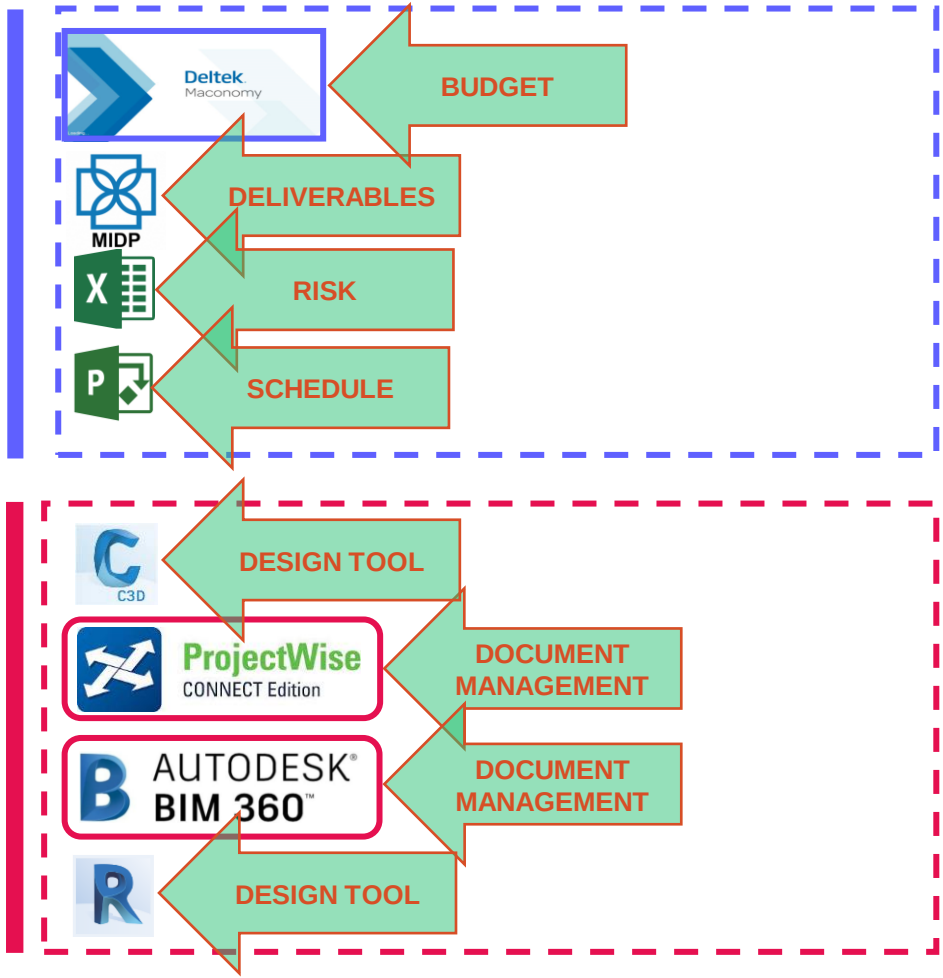
Framework: ISO 19650

Key Parameters

- Suitability codes: understanding of data maturity
- State: transparency in the status of a file
- Folder Structure & Naming Convention: uniform approach towards information and data management
- Percent complete & Hours to completion: quantifiable metadata to measure design progress



Mott MacDonald Digital Delivery Architecture



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Moata

Moata Solutions

https://home.moata.com

MOATA

Home Marketplace

AR Roig Escolano, Ann

New to Moata

Interacting with BIM data just got easier with the launch of 3D Repo on the Moata Marketplace.

Discover 3D Repo

All Projects

Search projects

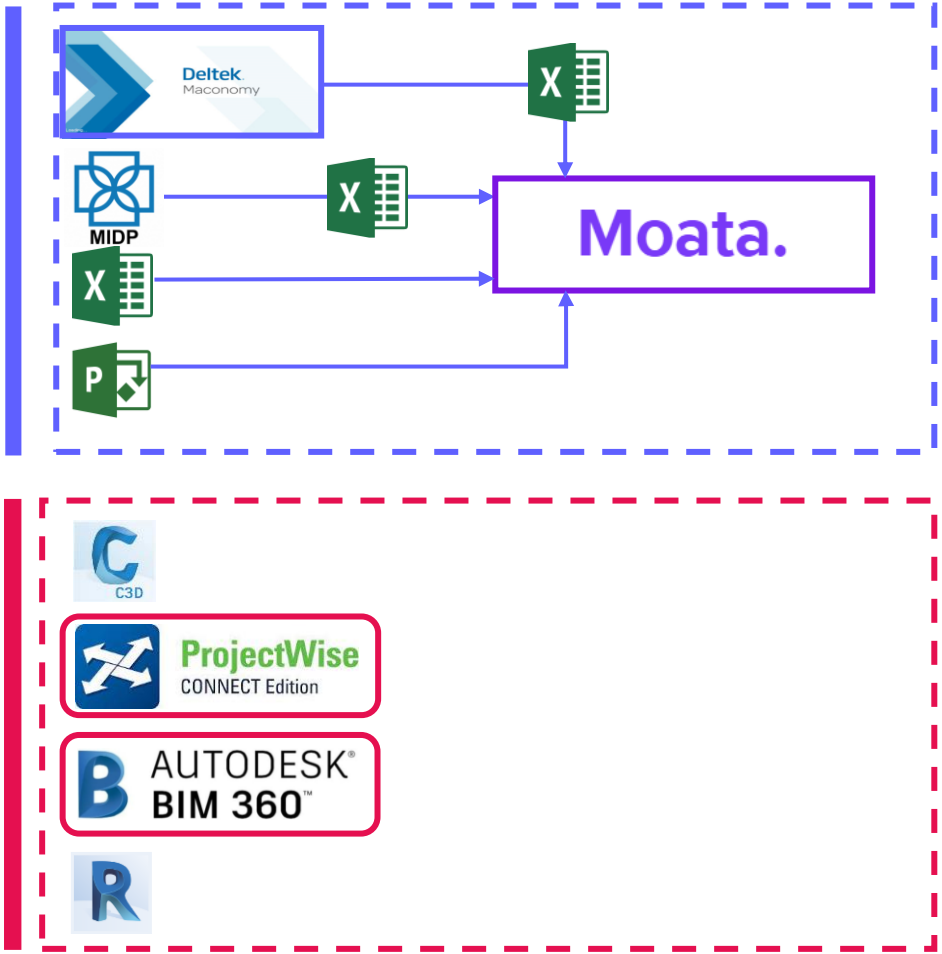
IS **Starfield Energy**
Opened 16 minutes ago

IS **EISCOM Insights**
Opened 2 hours ago

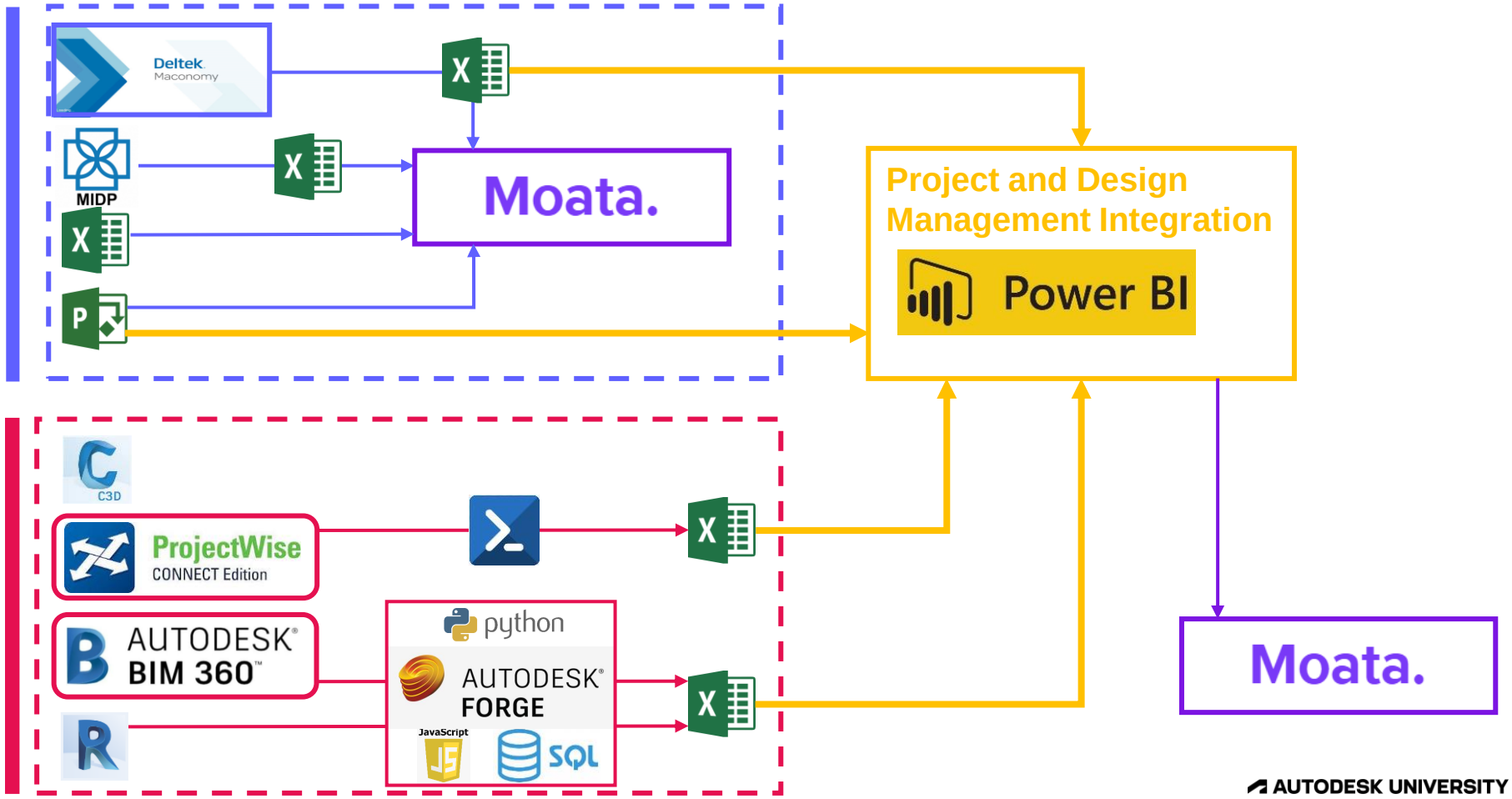
GO **EISCOM Geospatial**
Opened a day ago

IP **EISCOM Inspect**
Opened a day ago

Mott MacDonald Digital Delivery Architecture



Mott MacDonald Digital Delivery Architecture



BIM360 to Power BI with Forge

Used Tools

- Standard Reporting
- Known Across Projects
- Easy to Compile Data
- Build into Moata Insights

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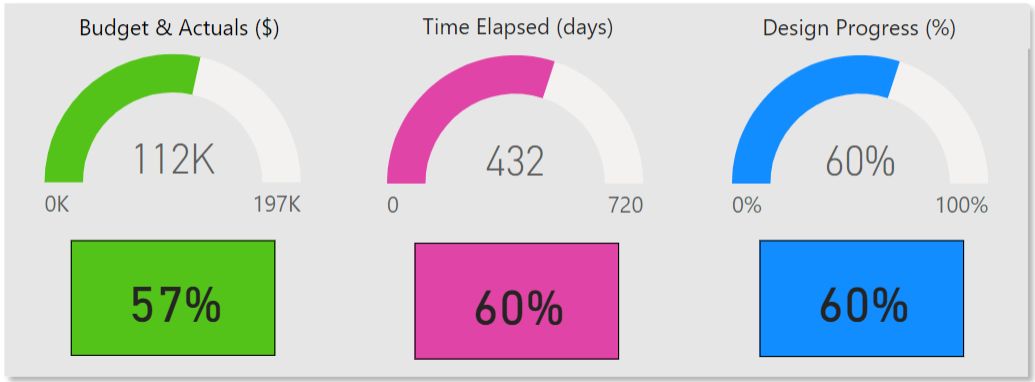
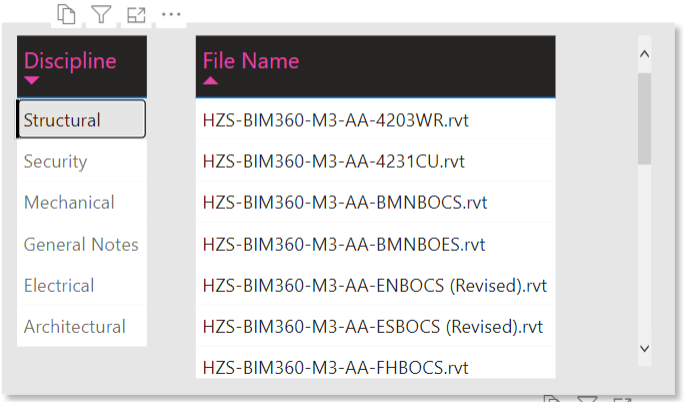
Built Integration

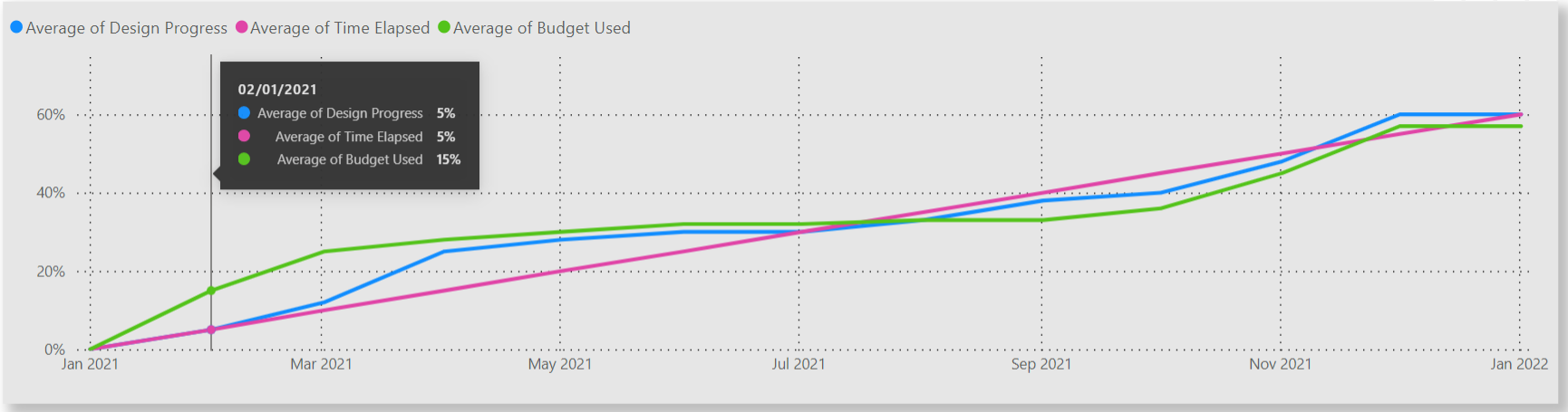
Revit Deliverables vs. Schedule & Budget

Progress Report

Revit Deliverables vs. Schedule & Budget







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Built Integration

Models & Contract Dwgs.: Visuals & Status

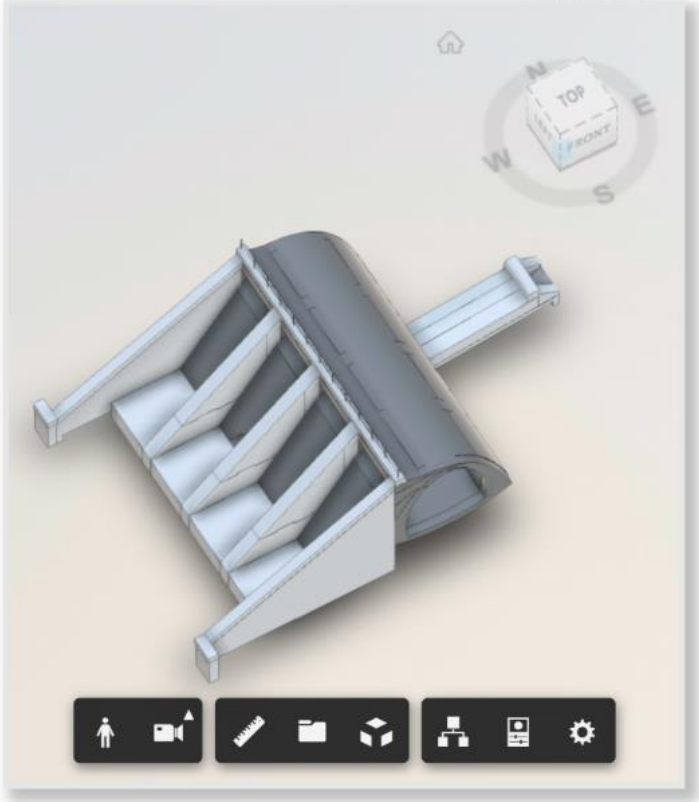
Progress Report

Models & Contract Dwgs.: Visuals & Status

Multi-4203WT	Stru-ESSCsuper	Stru-FSSCsuper
Multi-4231CU	Stru-PA	Stru-BMNCsuper
Stru-ENSCsuper	Stru-FNSCsuper	Stru-BM
Stru-ES	Stru-FH	Stru-BMCC

Approved	60%	S5
State	Design Progress	Suitability

Sheet Number	Sheet Name
S1-011	EASTVIEW OVERFLOW WEIR - PLANS
S1-021	EASTVIEW OVERFLOW WEIR - SECTIONS



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Benefits

Benefits

Investment:

- 1 FTE x 13 weeks = **520 hours**
- 520 hrs. x $110/hr. = **$57,200**

Benefits

Estimated time savings

(design management meetings):

- 20 people x 0.5 hours/week = **10 hours/week**
- 10 hrs./week x $237/hr. = **$2,370/week**

Benefits

ROI:

- $57,200 (investment) / $2,370/week = **24 weeks**

Benefits

Long term savings (1 project):

- Life of design phase = 2 years = 104 weeks
- $2,370/week x (104 – **24**) weeks = **$189,600**

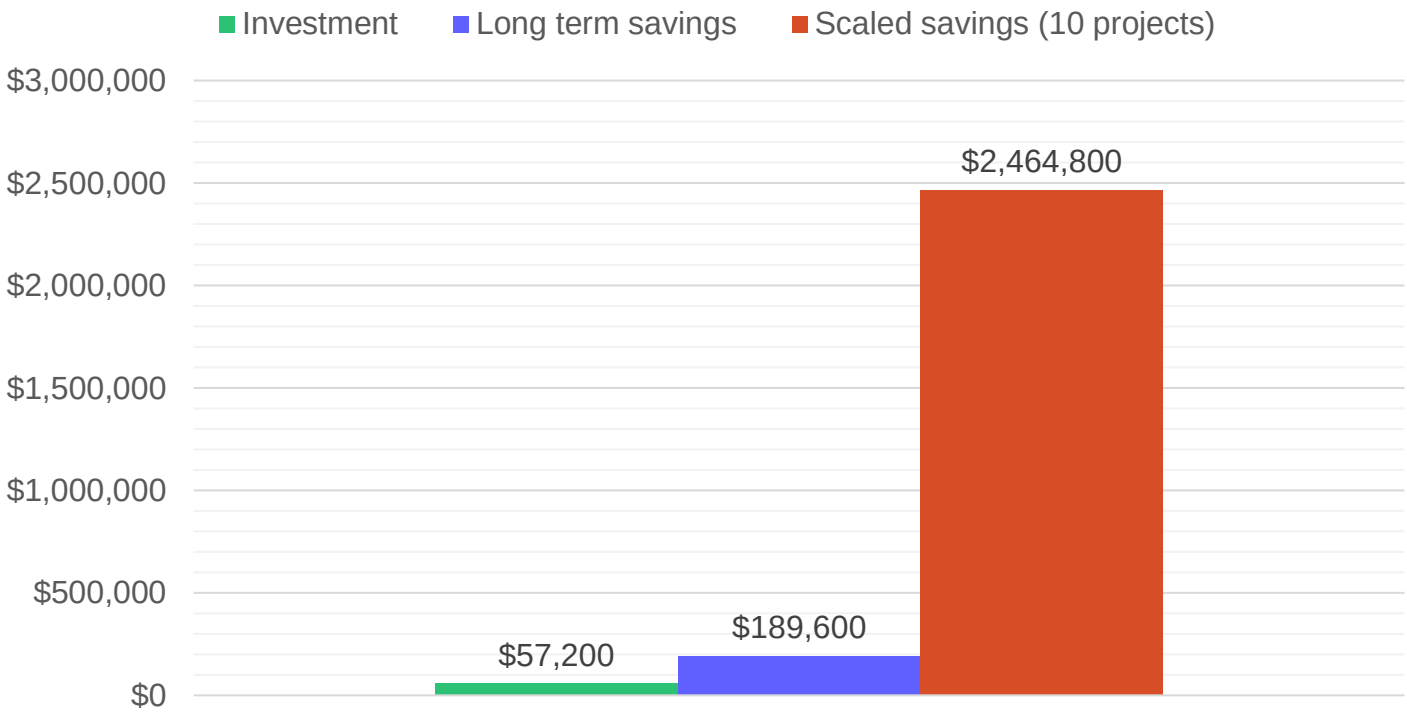
Benefits

Scaled savings (10 projects):

- $2,370/week x 104 weeks x 10 projects ≈ **$2.5M**

Benefits

Summary



Benefits

Other:

- ❑ Reduced risk at missing dead-lines
- ❑ Reduced risk at overspending
- ❑ Higher client satisfaction
- ❑ Higher deliverables quality
- ❑ Higher accountability
- ❑ Better data management and oversight

“What you get is **proactive project management** rather than **reactive trouble shooting**.”

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Next Steps

Next Steps

Risk & Safety / Quality Management

- Risk & Safety Management
  - Risk Register
  - Interaction with 3D special information displayed

- Quality Management
  - Check and approve workflow
  - Different levels of granularity
  - Reflected on models displayed in Forge Viewer

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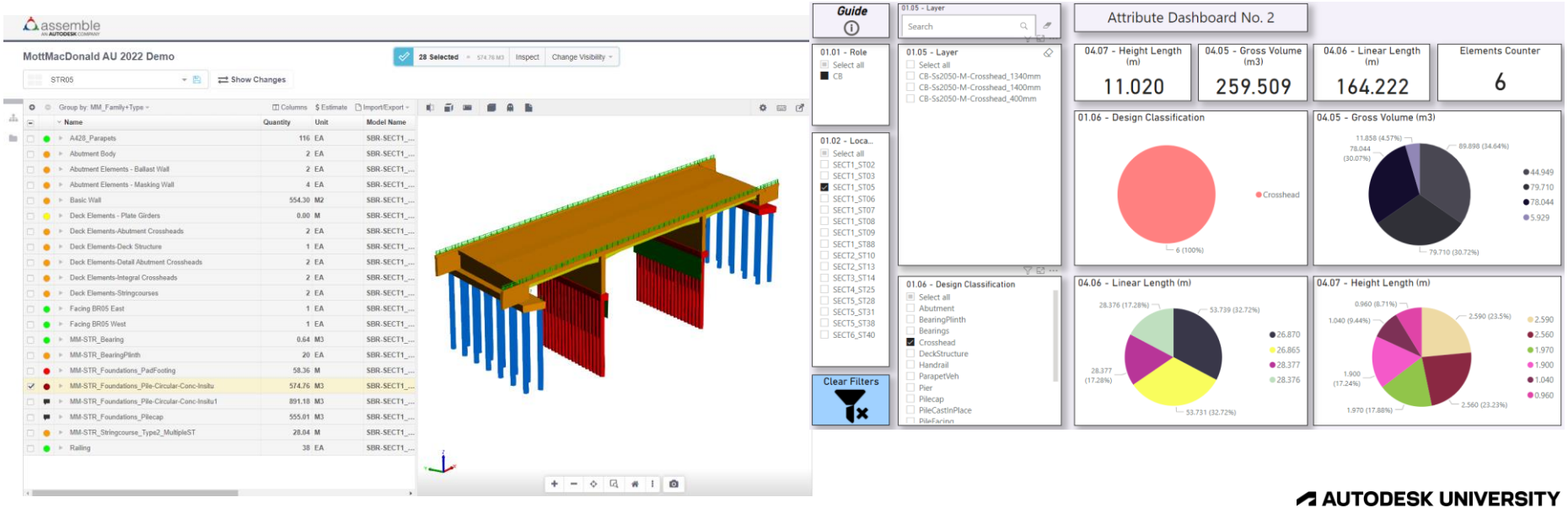
Similar Initiatives

Option

Assemble + Power BI Developing a Powerful and Practical Model-Checking tool

CS502129 | Paul Briedis and Fouad Mulla

Technical Instruction how to create a Power BI Dashboard using Autodesk Assemble for validating and checking model content against project standards.



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Summary

Summary

- Autodesk Forge allows us to access and manage project data;
- To implement custom automated workflows to satisfy our needs and improve our project outcomes.
- Automated workflows increase productivity and quality, and reduce costs.
- Standardization allows for scalability and a higher profitability of an investment for automation.

Thank you!