

# Data Management Tools in Project Controls

Tarcisio Althoff and Courtney McCormick



# Agenda

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Who we are

Problem

A client looking for help

How information is usually managed in a project

Spreadsheets and Databases – A solution?

Solution

What is a Data Management Tool

How a DMT can be used in Project Controls

Benefits and limitations

# Who we are





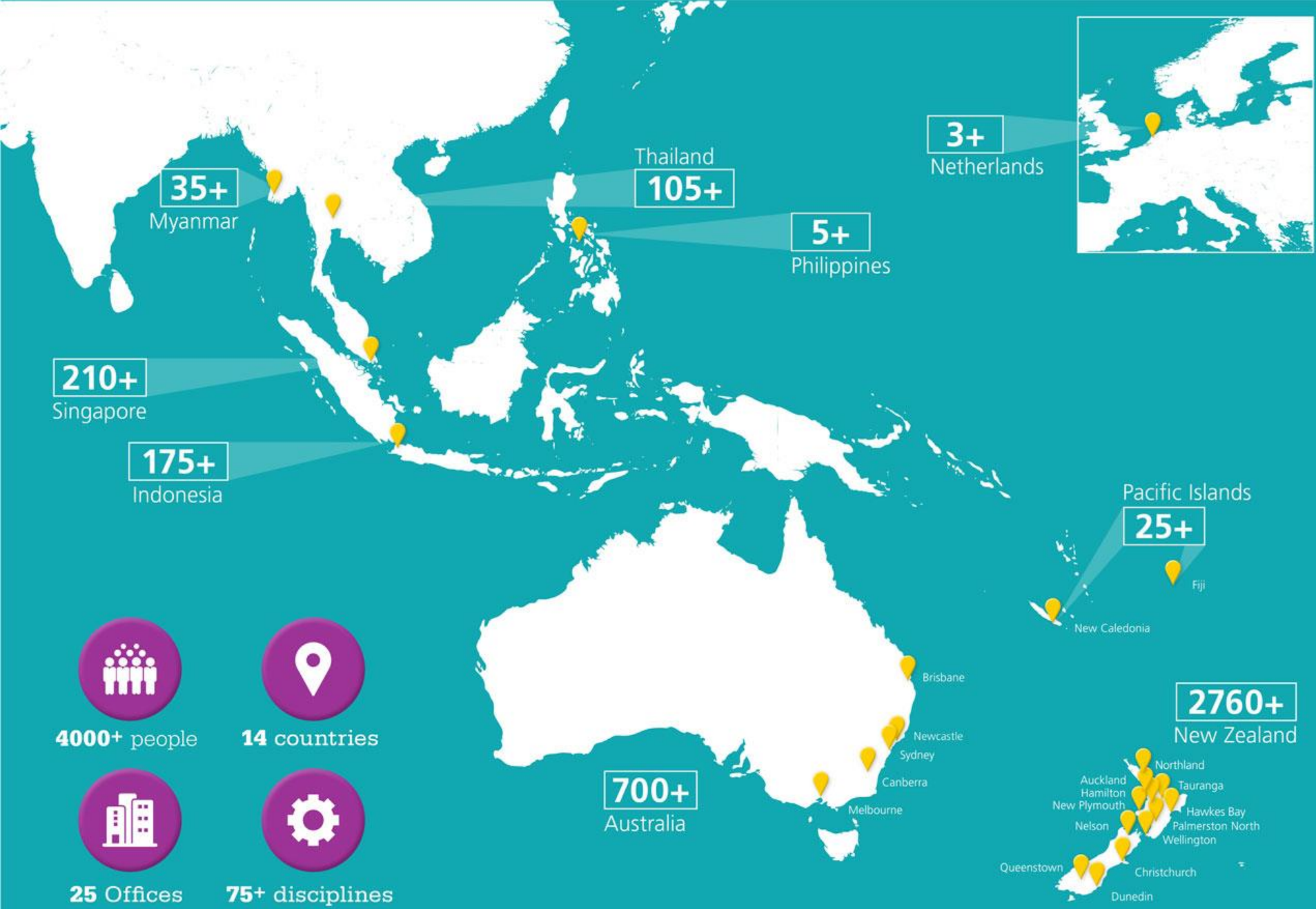
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Programme Analyst



Tarcisio Althoff  
Senior Project Controller



- One of **Asia Pacific's leading professional services** consultancies
- Delivering projects in over **70 countries**
- **Highly engaged, values driven** culture
- **Employee-owned multidisciplinary consultancy** offering services across business advisory, engineering, architecture and planning, project and cost management, digital and software technologies and valuation
- **End to end delivery** across the asset, infrastructure and business lifecycle







## Global business groups

- Advisory
- Buildings
- Industrial
- Transport & Infrastructure
- Utilities





## Seaworthiness Assurance Program

We developed an assurance system for the Royal Australian Navy's (RAN) critical maritime assets, including wharves and ship lifts. We adapted a missions' system assessment Submissions Requirements Set (SRS) to an assessment tool suitable for shore based infrastructure, tailored to the upkeep and maintenance of critical assets and developed tools for RAN's ongoing use.





## Qantas Catering Facility, Australia

For the Qantas Catering Facility, we provided engineering and design services to deliver a next generation flight catering facility for Qantas at Brisbane Airport. We worked with Laing O'Rourke to deliver this 8,310m<sup>2</sup> single-storey, temperature controlled, semi-automated assembly plant.







## Victorian Desalination Plant

Located near Wonthaggi in Victoria, Australia, the plant is one of the largest reverse-osmosis desalination plants in the world, capable of supplying up to 150 billion litres of water a year with capability to expand to 200 billion litres. It is one of the most technically advanced, environmentally sensitive and energy efficient desalination facilities in Australia.







## Melbourne Airport's Runway Development Program, Australia

Led by Beca, a team of Arup, Golder Associates (Golder) and Atkins was Feasibility Design Consultant for Melbourne Airport's Runway Development Program – a game-changing capital works program propelling the next phase of growth for the airport.





# Problem



## A Client looking for help

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Major Industrial Client

Programme with multiple projects

CAPEX \$150M

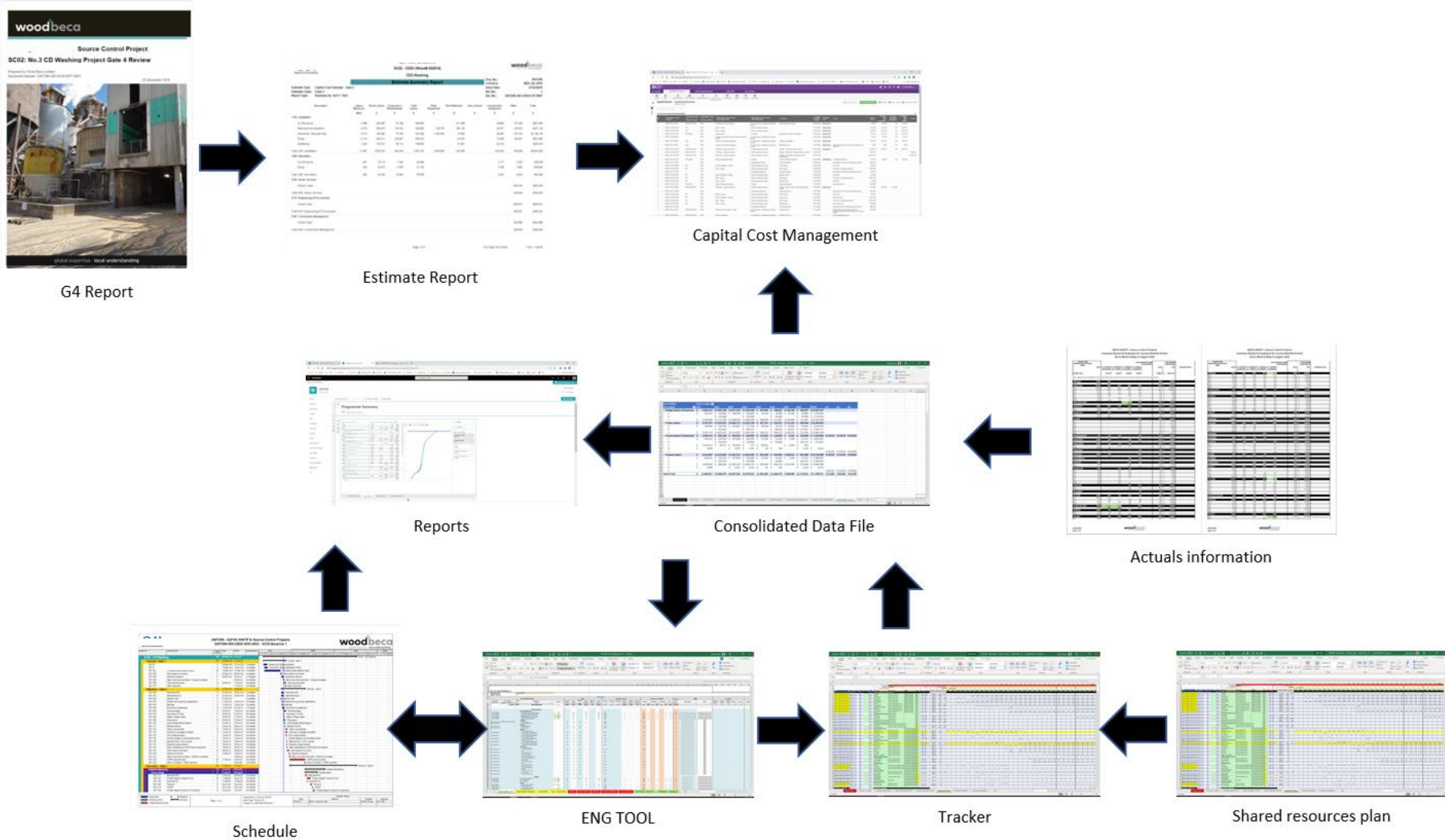
3-4 years timeline

Project Controls Team overloaded

Reports late and inconsistent

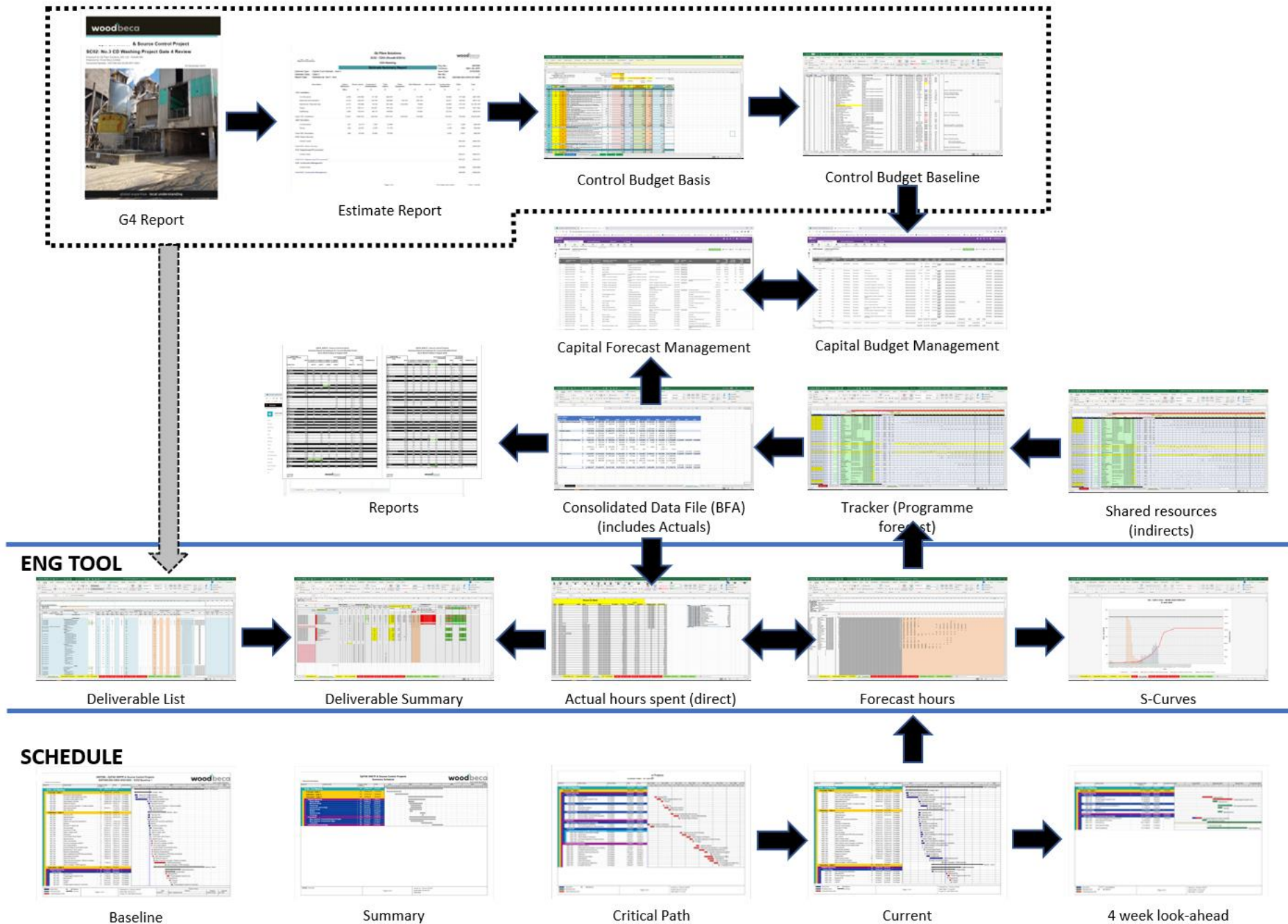


# Project Controls – Summary View





# Project Controls – Detailed View



# Project Controls – Detailed View

## Accruals Review (Due ASAP on BD1)

1) Data extracted from SAP (Spend & Commitments)

2) Extracts consolidated into Quickbase

3) Totals validated against SAP ZPR1 report

Calc PTD (Spend + Accruals)

Project Ref No. / Vendor Description	Ref. document number	Name	Commitment W. /	Spend	Open Commitment	Accruals	Spend + Accr. / Notes	Action
1602C	16190204	ACC1805: SC21 SC Proj No. 1 888 Worker	\$	918,200.57	\$	918,200.57		
1602C	16230304		\$	8,800.00	\$	8,800.00		
1602C	16230304	Graduate Engineer	\$	4,000.00	\$	4,000.00		
1602C	16230304	Senior Designer	\$	4,800.00	\$	4,800.00		
1602D	7505544126	ACC1803D Prog Payment 2 To 50% LID	\$	1,135,385.77	\$	1,135,385.77		
1602D	7505544126	Progress Payment 1 - 10% Lender interest	\$	168,115.18	\$	168,115.18		
1602D	7505734395	ACC1803D - Supply target Fibre cable	\$	12,485.57	\$	12,485.57		

4) Commitments Reviewed & Project PTD calculated

5) Accruals calculated and communicated to finance

## Client finance process



1) Accruals entered into SAP

2) Actual (incl Accruals) entered onto 'Grey Sheet'

(note: sum of PTD values on 'Grey Sheet' <> calcPTD or CAPWIP)

## Forecasting Review (Due BD 4)

10635	Lead column	Budget	Actual	Commitment	RemOrdRtn	Assigned	Available
Overall		14,850,000	3,666,173	1,455,246	0	5,121,415	9,728,581
Previous years		4,728,300	342,184	566,625	0	708,809	4,019,491
2020		10,121,700	3,323,989	888,621	0	4,412,610	5,709,090

1) SAP month end actuals validated against Accruals Review calc PTD.  
(note: Can differ if there has been additional goods receipting)

2) CY forecast reviewed and updated

October Forecast	Oct	Nov	Dec
SC01 (10635)	\$ 785,636	\$ 1,124,787	\$ 1,071,910
SC02 (11044)	\$ 383,307	\$ 219,114	\$ 409,327
SC03 (11045)	\$ 247,139	\$ 695,011	\$ 639,338
SC04 (11047)	\$ 61,371	\$ 54,000	\$ 18,000
SC05 (11050)	\$ 84,693	\$ 338,694	\$ 43,630
SC06 & SC08 (11052)	\$ 11,071	\$ 62,689	\$ 51,689
SC07 (11053)	\$ 3,148	\$ 2,677	\$ 2,206
WWFP (11038)	\$ 619,876	\$ 698,220	\$ 355,042

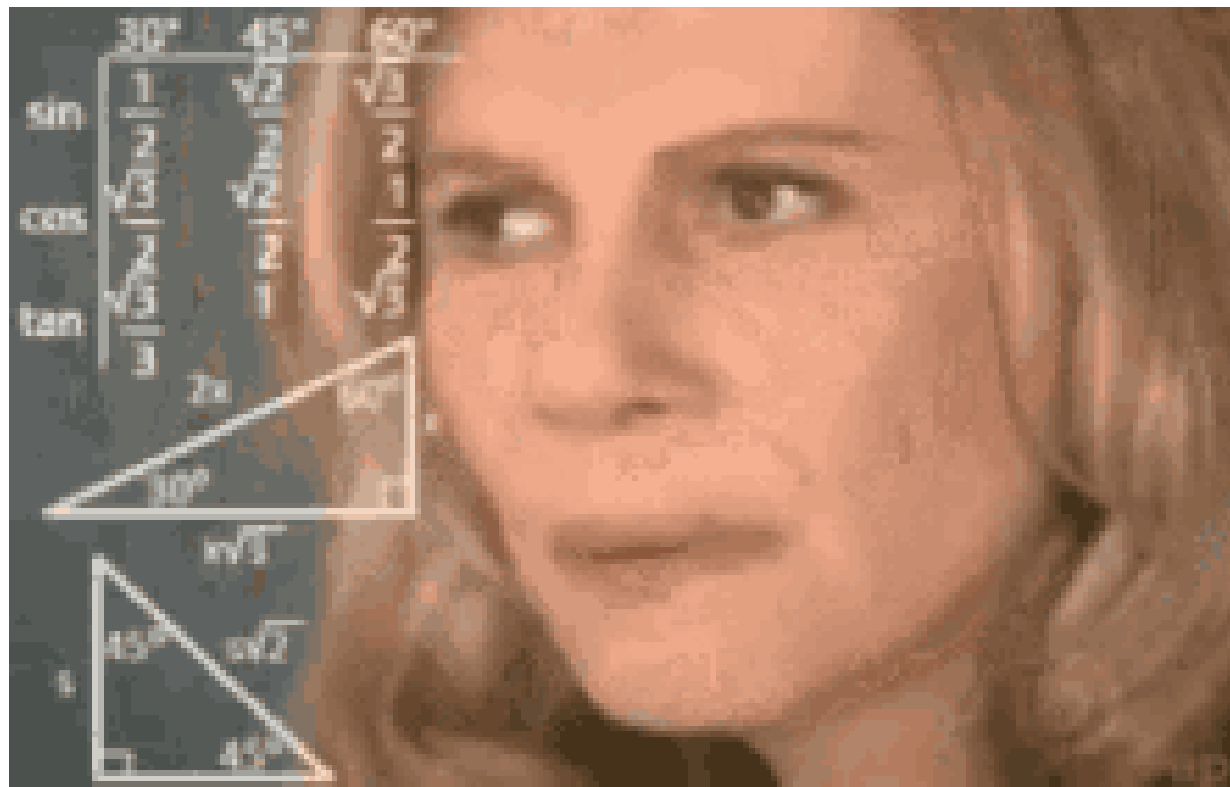
3) Forecast communicated to finance

## Client finance process

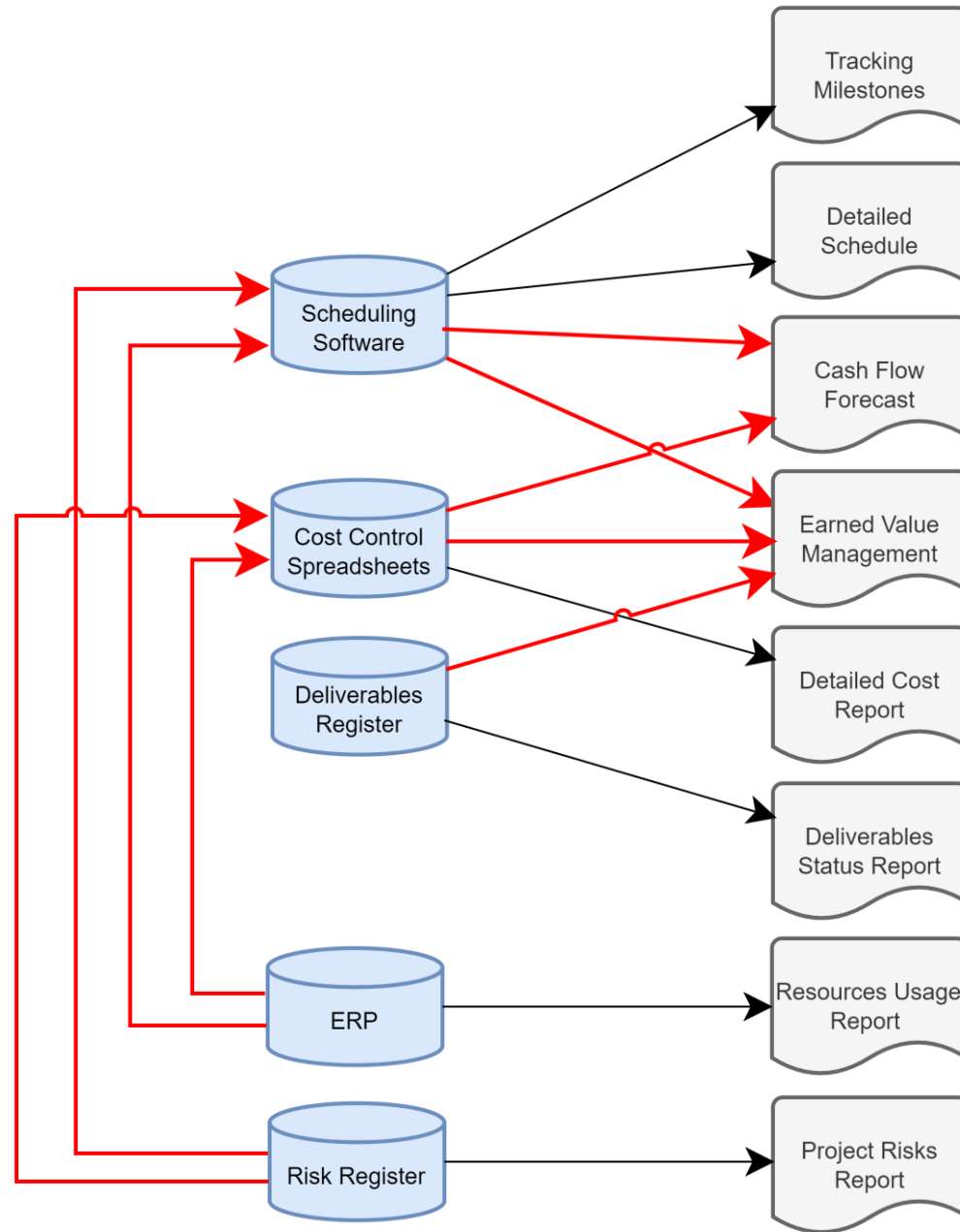


1) Forecast entered into SAP

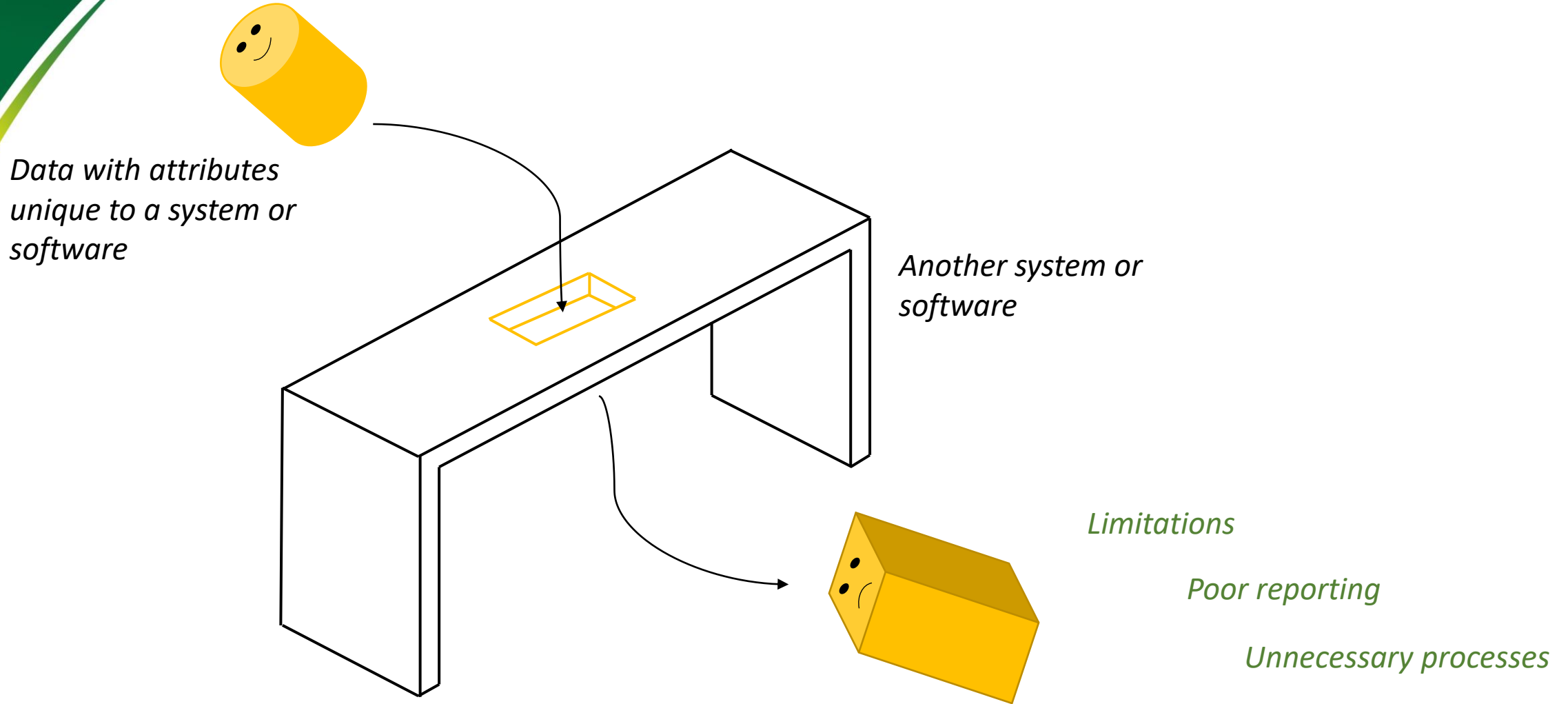
2) Forecast entered onto 'Grey Sheet'







# How data conversion works





# How Information is usually managed in a Project

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Several pieces of software working in a decentralised system



Duplicate information, often inconsistent



Time wasted in data conversion



How to handle iterative processes?



Nightmare for reporting, multiple sources of info

# Are spreadsheets a solution?

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Cheap

Accessible

Familiar to almost everyone

BUT...

Lack of Consistency (Auckland / Acukland / AKL)

Mixed Data Types (text vs numbers vs dates)

Hard Permissions Management

Frequent crash



Spreadsheet or SHIT SPREADING?



## Are databases a solution?

A **relational database** is a tool that organises data into rows and columns, which collectively form a table. Data is typically structured across multiple tables, which can be joined together via unique identifiers through relationships.

Concept exists since 1970 – Proven concept

Back-end tool, behind the scenes of most of the apps and websites we use

Solve most of the spreadsheet problems (reliable, scalable, consistent)

BUT...

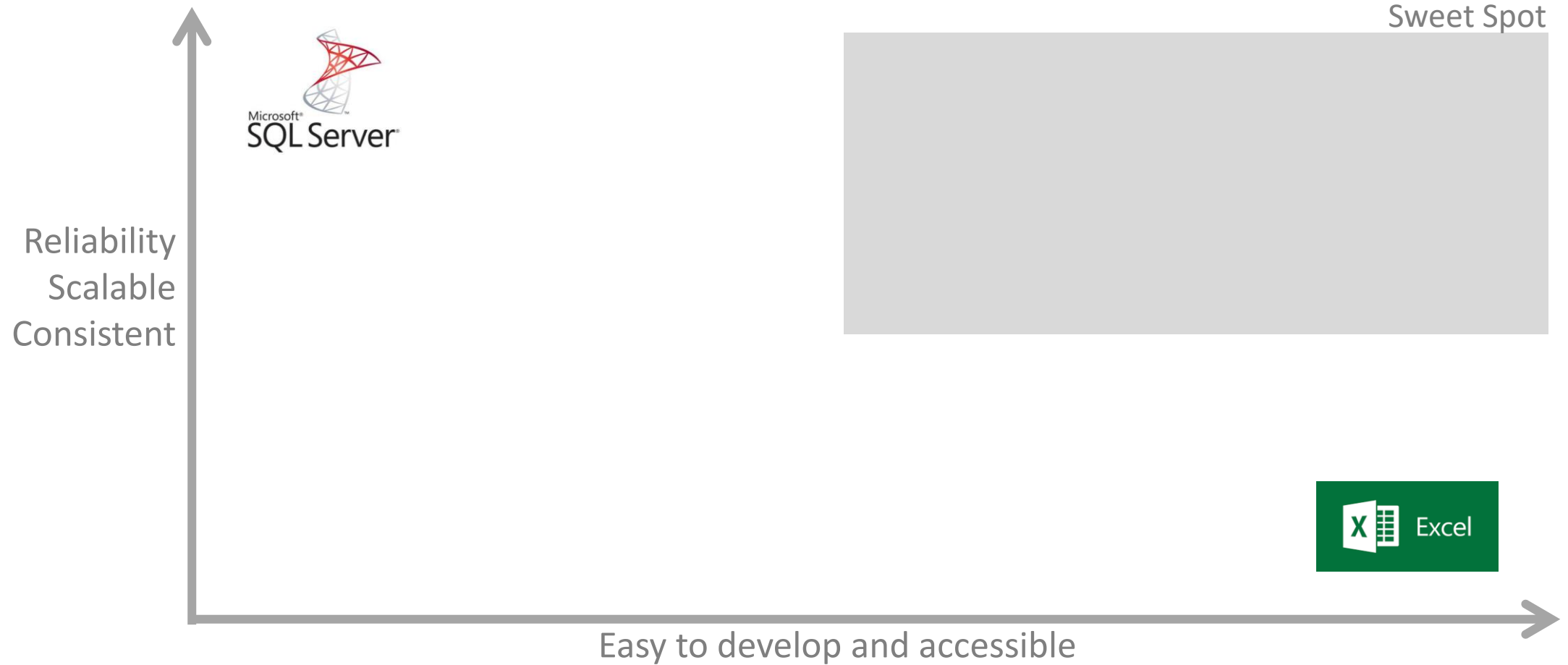
Requires developers

Hard to learn for an ordinary person

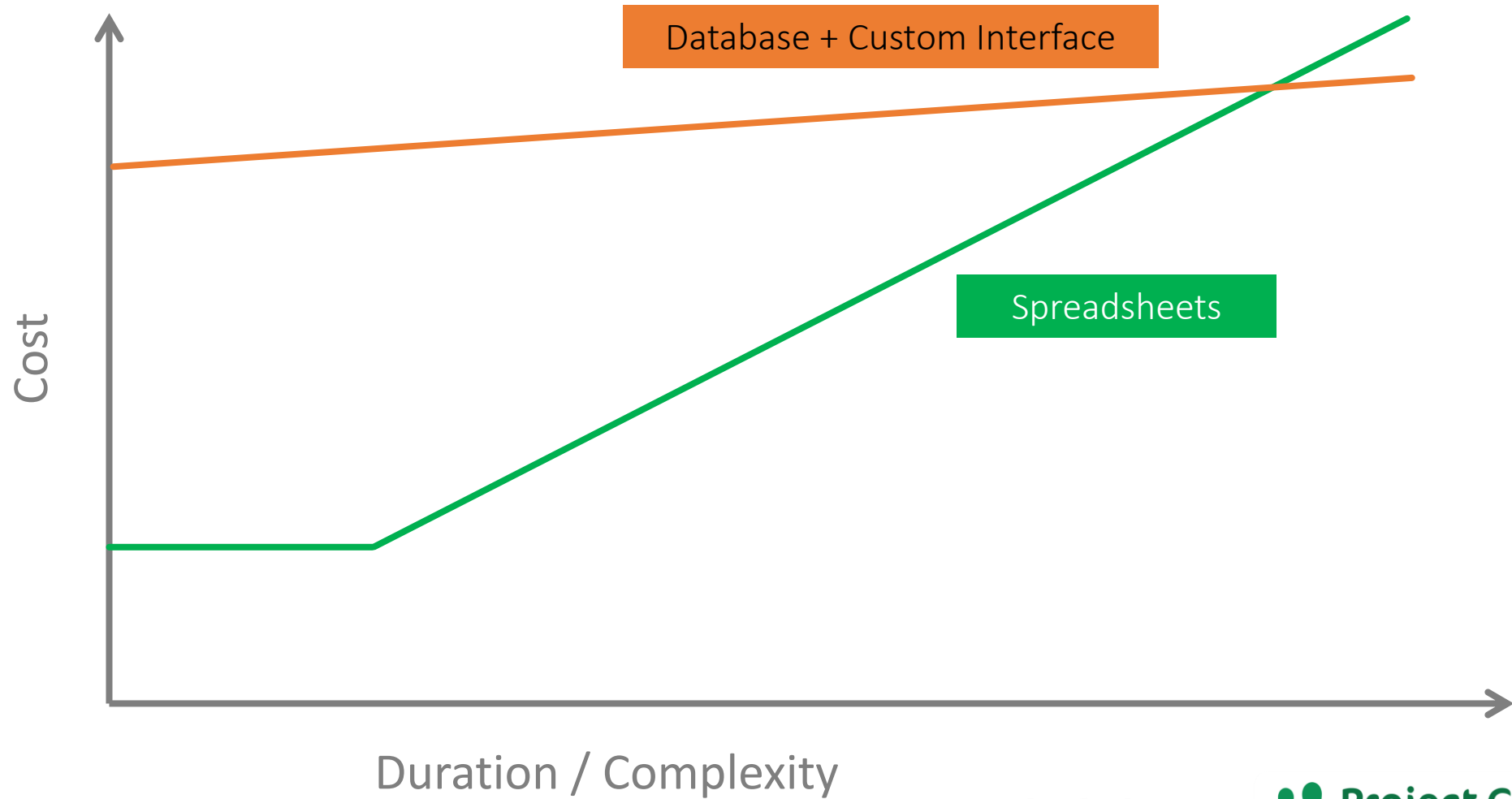
Custom user interface needs to be developed



# Tools available

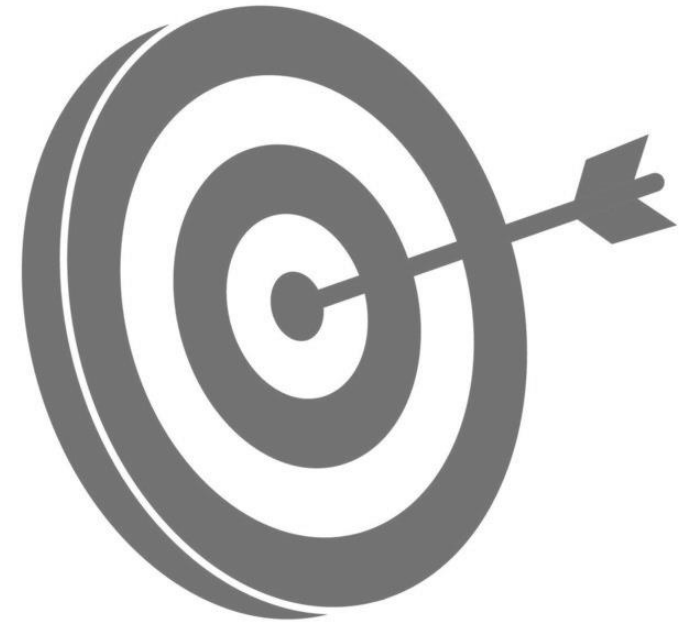


# The hidden costs of spreadsheets





# Solution



**Low-code/no-code (LCNC)** development is the creation of applications software using graphic user interfaces or minimal basic code instead of large strings of complex coding.

**Citizen Development** is the movement enabled by LCNC where advanced users create applications using LCNC platforms, without reliance on IT departments or developers.

# Low-Code / No-Code – Citizen Development

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Recent concepts (<10 years)

Allows users to become “developers”

Cheaper to develop

BUT...



More expensive to operate (rely on service providers)



# What is a Data Management Tool

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Database + Low-Code/No-Code development = Data Management Tool (DMT)

A powerful database (reliable, scalable, consistent)

User interface built-in

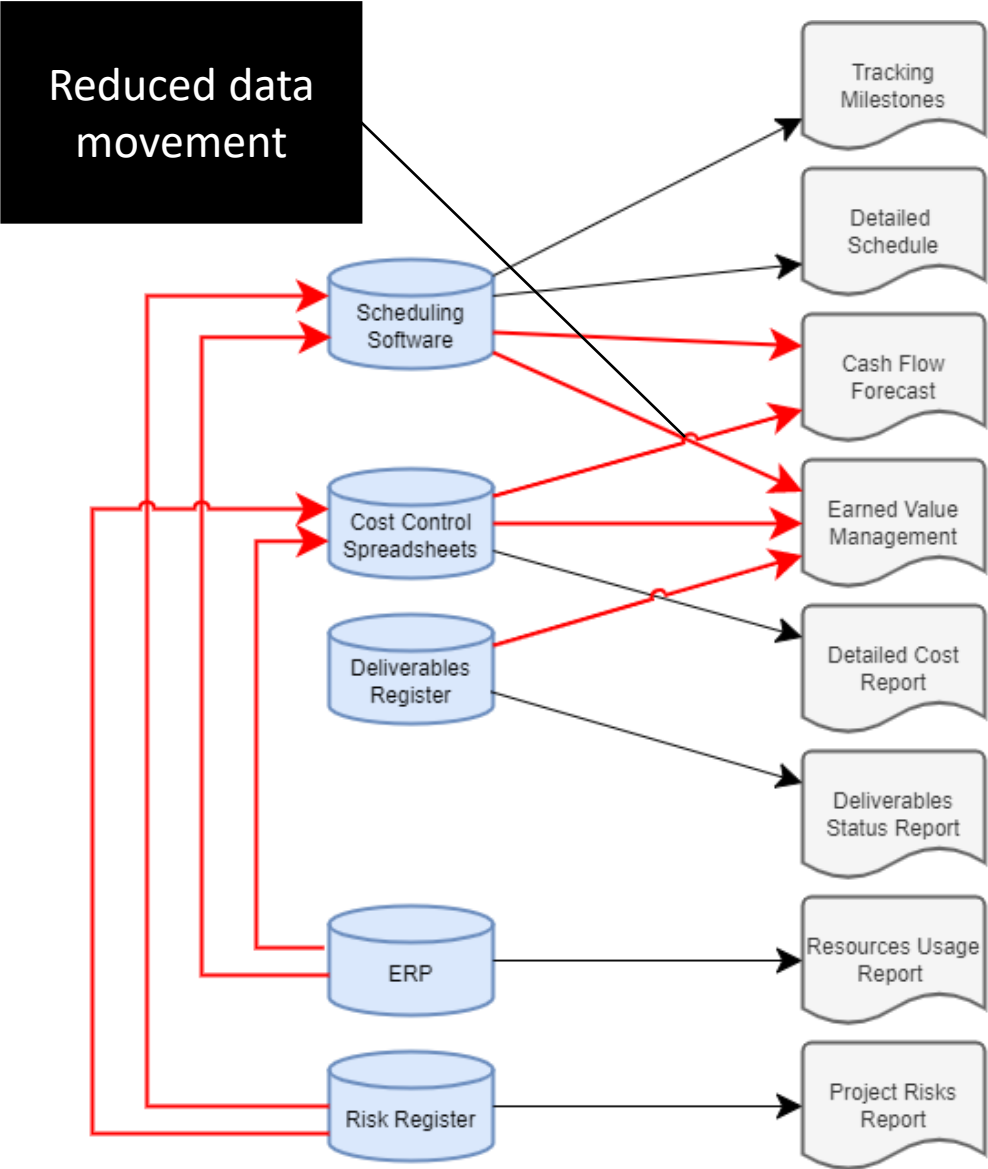
Made for integration

Cloud-Based

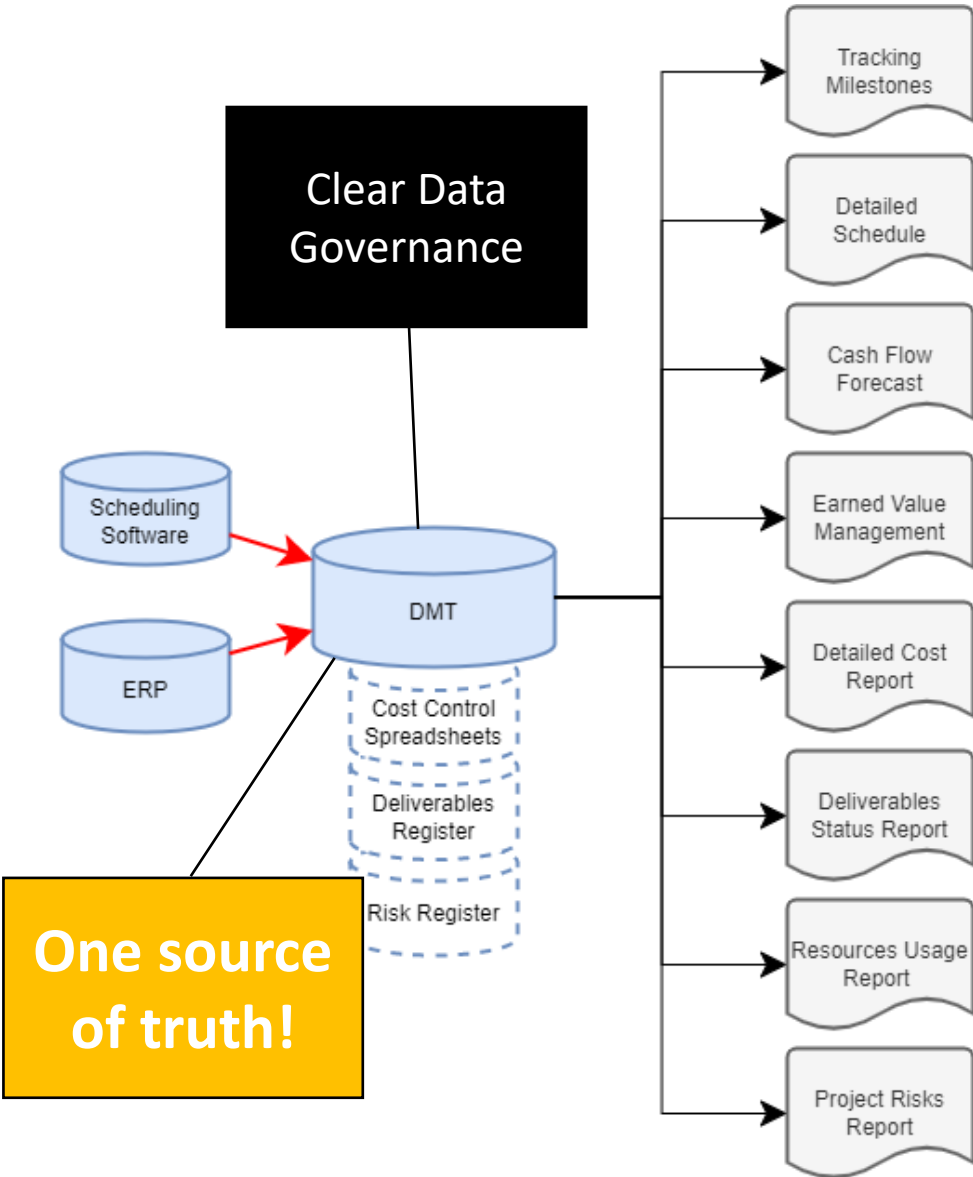
Easy to learn



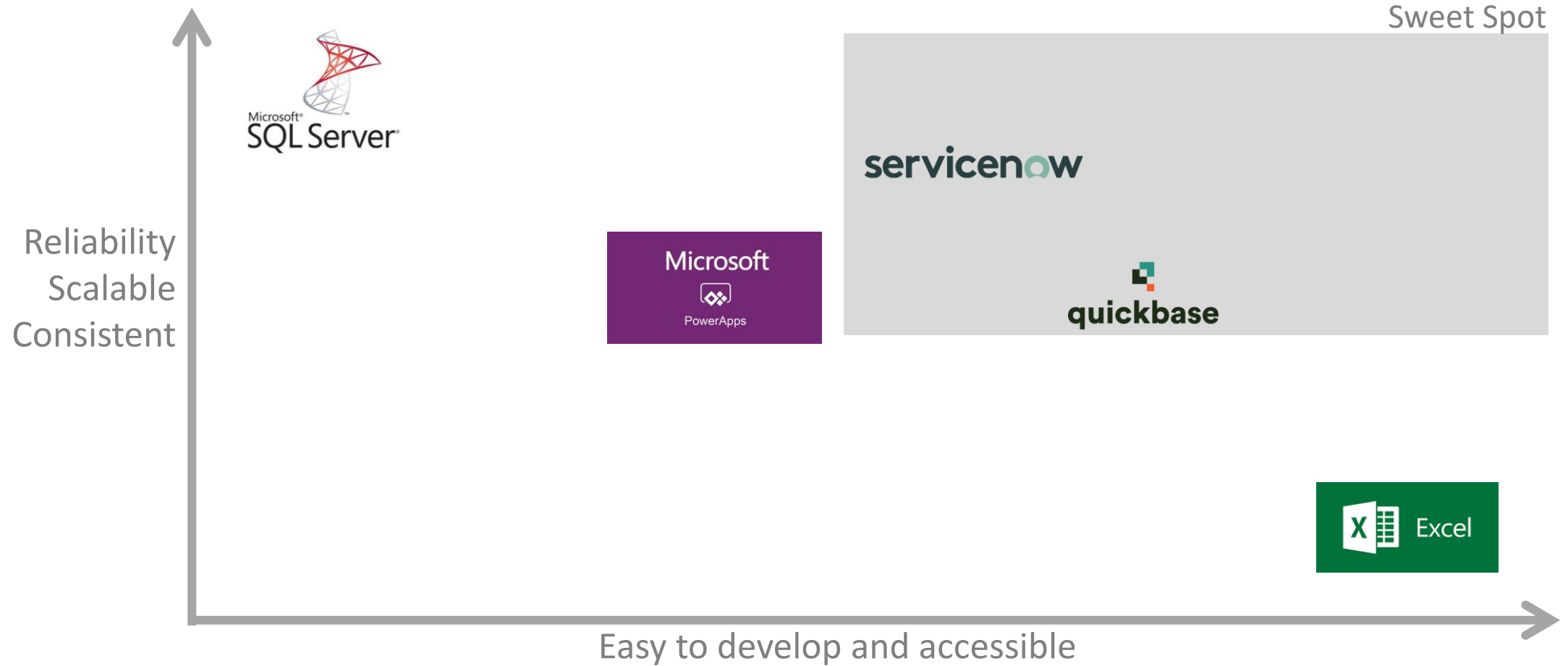
# Traditional Data Approach



# Use of Data Management Tool



# Tools available



Every company/client uses different tools so this can be subjective.





## Do your research

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It is vital that the right tool is selected from the start

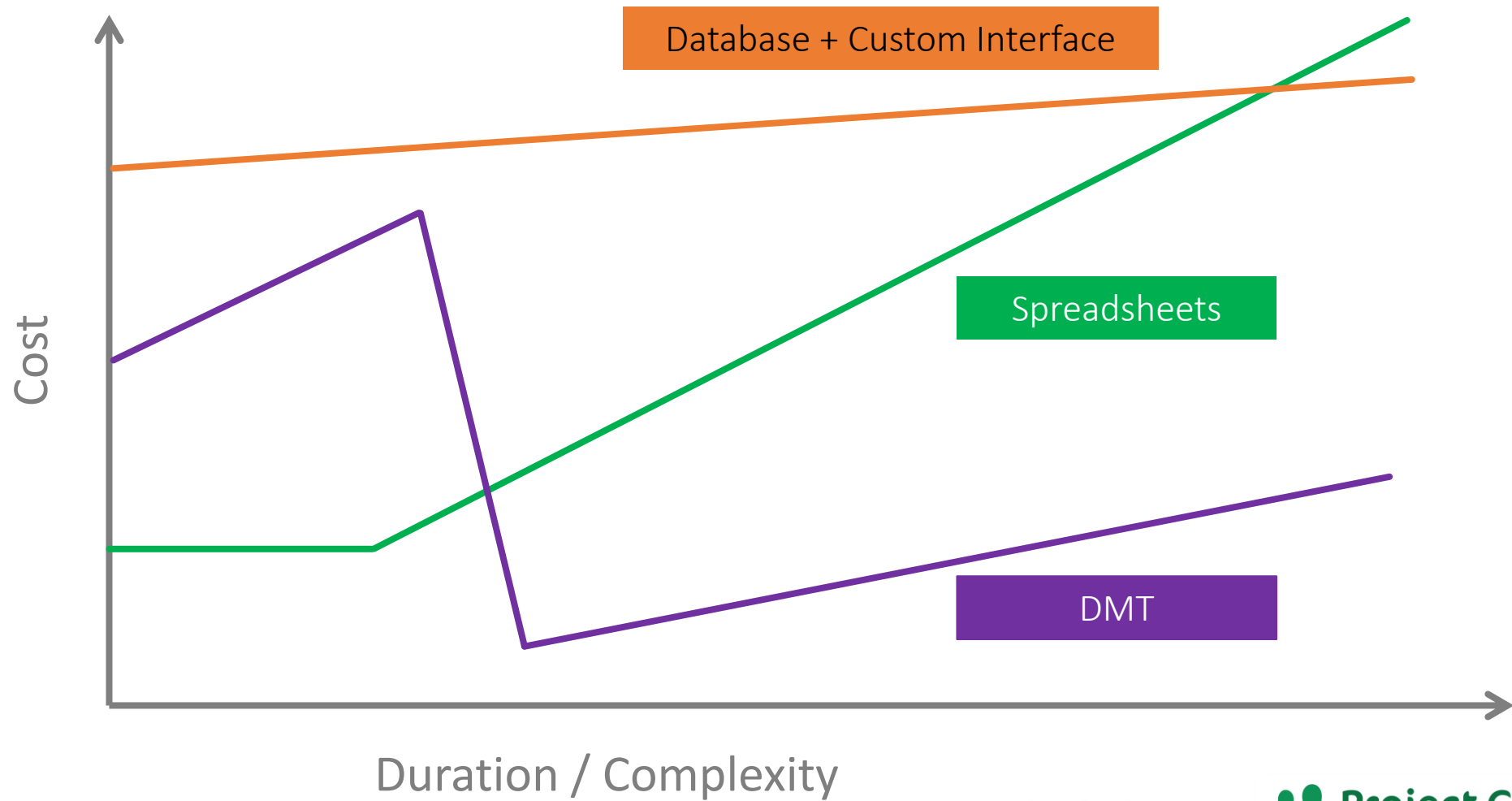


Spend some time researching what tool provides the key features that you need



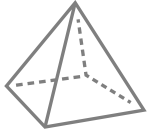
If the wrong tool is selected it can be a very expensive endeavor to make the DMT work as you wish or move to a different tool

# The cost of implementing a DMT



## Key benefits of a DMT

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The tool that is selected is created around the data of the project



No double handling of data



Trustworthy data set



Multiple access that works!



Quick development



# Reporting and data issues that cannot be solved with a DMT

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Human behaviour



Reporting culture



Time poor project managers

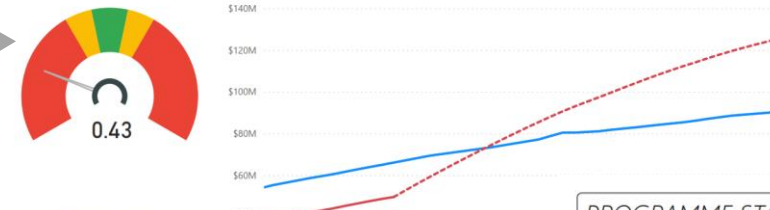


Change management

# Earned Value Management Report TOC2B

Status as of 06/09/2022

Schedule Performance Index (SPI) — Baseline — Actual — Forecast (Dashed) — Earned



Cost Performance Index (CPI)



## PROGRAMME STATUS REPORT

KEY STATS		SPACES PROVIDED		PROJECT SCHEDULES	
NO. PROJECTS	78	SPACES PROVIDED	338	Baseline	Current
STARTING CONSTRUCTION WITHIN 3 MONTHS	9	PROJECTS ON HOLD	9	Not Started	0 1
AVERAGE DAYS DELAYED MOVING INTO DESIGN	97			Pre-Project	7 42
				Design	57 25
				Execution	6 1
				Complete	0 0



## Projects Risks & Opport

**56** Active Opportunities

Does not include scope additions

**450** Total Risks | **WIP** Total Opportunities

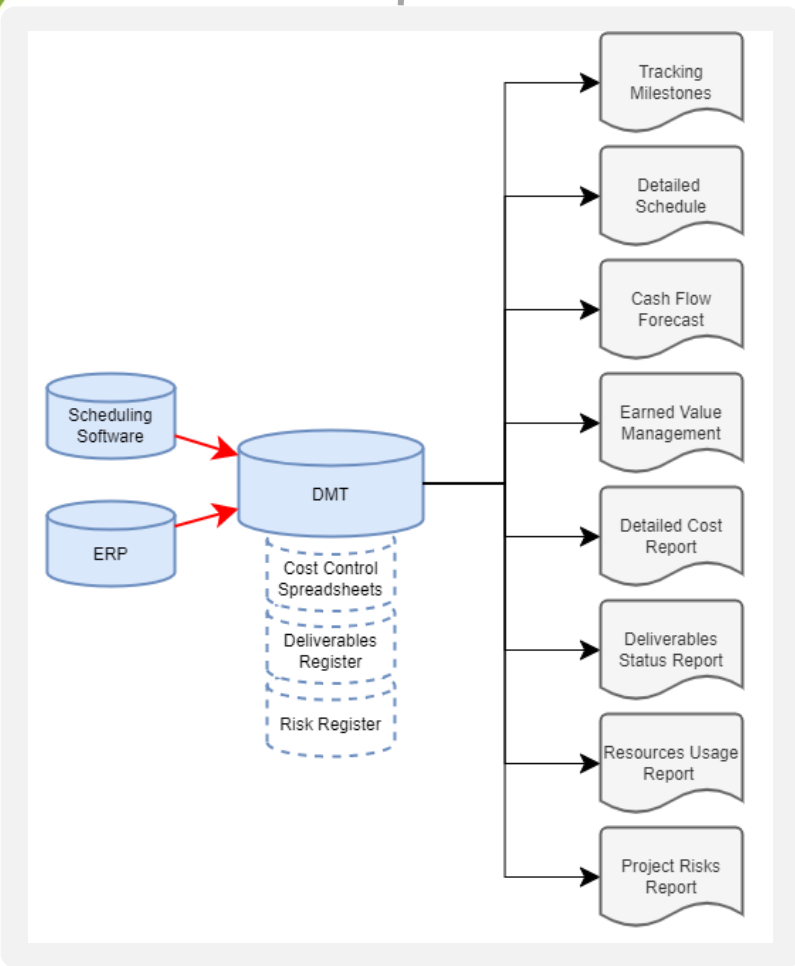
**19** Projects with no risks recorded

**4** Projects added with risks Last Month | **1** This Month

**5** Risks in dataset | **15** From previous month

**TREATED RANK BREAKDOWN BY PROGRAMME**

- Programme 1: 4 (Unassessed: 24, Low: 11, Medium: 5)
- Programme 2: 24 (Unassessed: 38, Low: 137, Medium: 133, Very High: 7, High: 41)
- Programme 3: 9 (Unassessed: 6, Low: 18, Medium: 30, High: 4)
- Programme 4: WIP



# Questions?



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# Thank you!

