

15 - 16 November, Wembley Stadium, UK



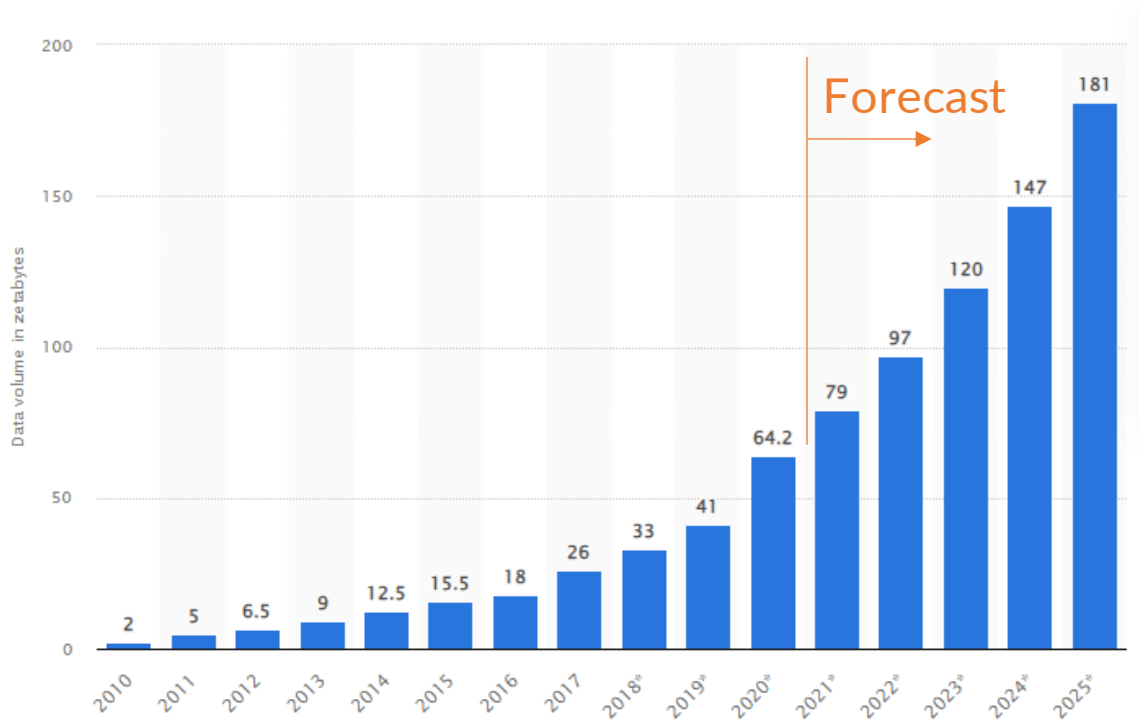
How to get dashboards that you can  
trust *enough* to make multi-million £ decisions

 **Project Controls**  
EXPO  
London, UK

**Laminar**  
CLEAR. CONTROLLED. DELIVERED.

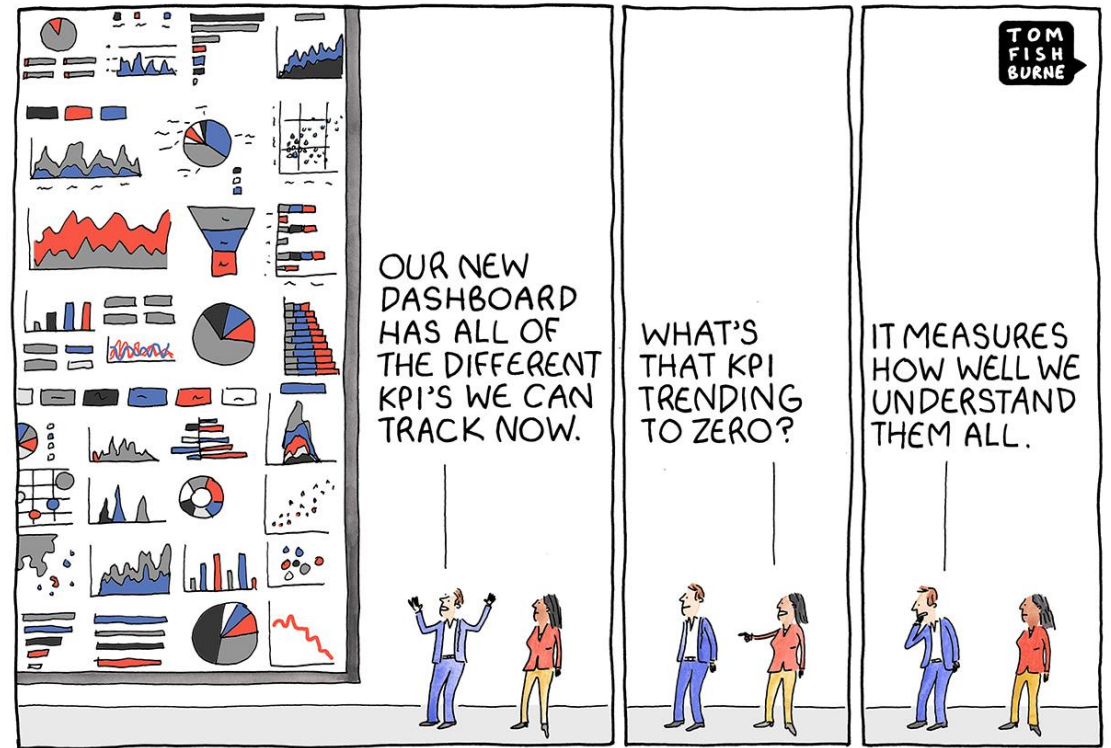
# More data, more dashboards

Volume of data created, captured, copied, and consumed worldwide



Statista 2022

The last 5 years have seen an explosion of dashboards



# Dashboards? Great! But do people **trust** them?

Just because you have a dashboard, doesn't mean people on your project trust it.

By making the decision to publish a dashboard you are opening a Pandora's box of new complexities:

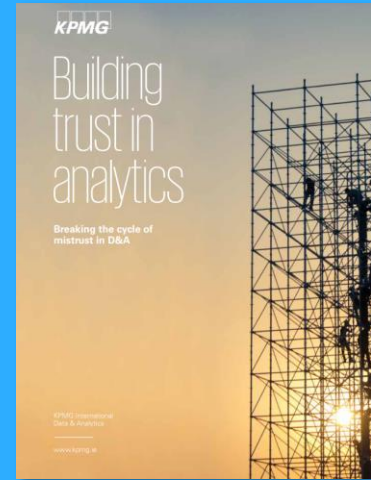
- ? Data collection
- ? Data cleaning
- ? Data transformation
- ? User interface design
- ? User experience

# 1

Trust isn't always an abstract concept.

*"60% of organizations say they are not very confident in their D&A insights"*

[Building trust in analytics](#), KPMG, 2016



Trust can be maximised by identifying the biggest eroders of trust and applying strategies to overcome them.

# 2

# Introduction

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**Will  
Needham**

Data & Digital  
Lead

- Chartered Construction Manager
- BSc Architectural Engineering
- MSc Data Science
- Tier 1 Main Contractor, Engineering Consultancy, Tech start-up

# Introduction

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Stephen  
Herd

Data & Digital  
Director

- Chartered Mechanical Engineer
- MEng Mechanical Engineering
- PhD Mechanical Engineering
- EPC, Big 4, Tech start-up

We bring **control and clarity to projects**

by combining our **extensive engineering** and **construction know-how** with the **latest technology**

to implement **pragmatic solutions**


that **work for everyone** from the site operative up to the project board.



# Poll

 Raise your hand if...

You have worked on a project with a  
**dashboard**

Keep you hand raised  if:  
you **TRUSTED** that dashboard?

Can you put your finger on  
exactly *why* you didn't trust it?

# We've identified three cornerstones for building trust in project dashboards

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Trust breaks  
down when...

Data sources  
are hidden



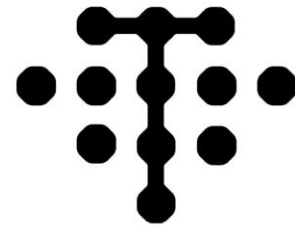
Data processing  
steps are not known  
or obvious



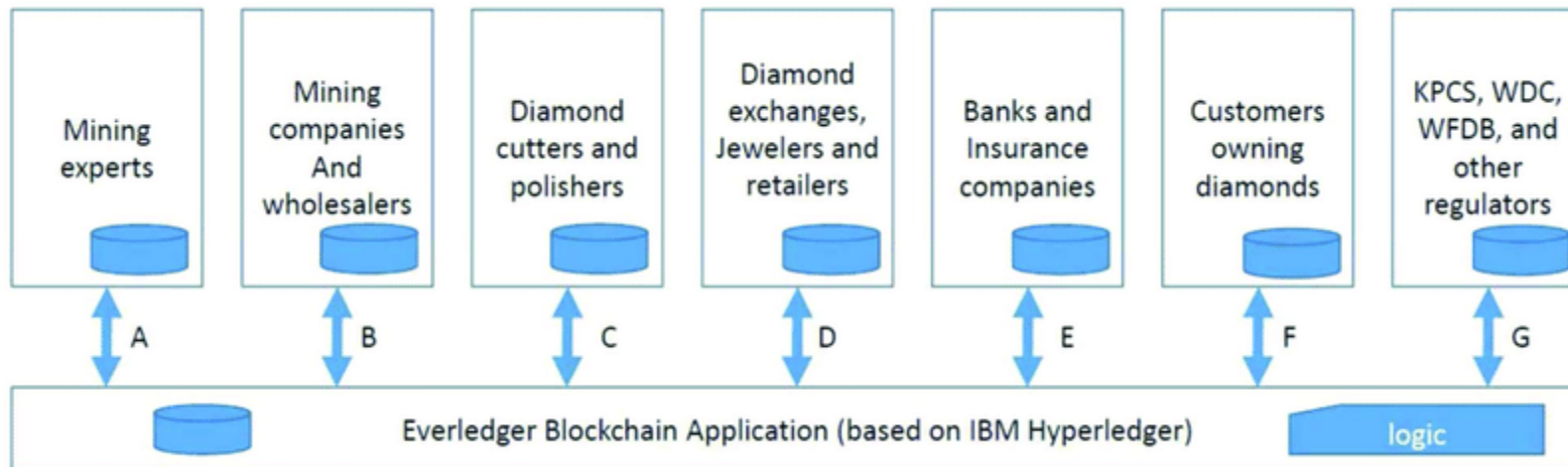
# Diamond provenance



EVERLEDGER



tracr





# Strategies for transparency

- 1 Document your data sources and data processing steps, and build awareness on the project



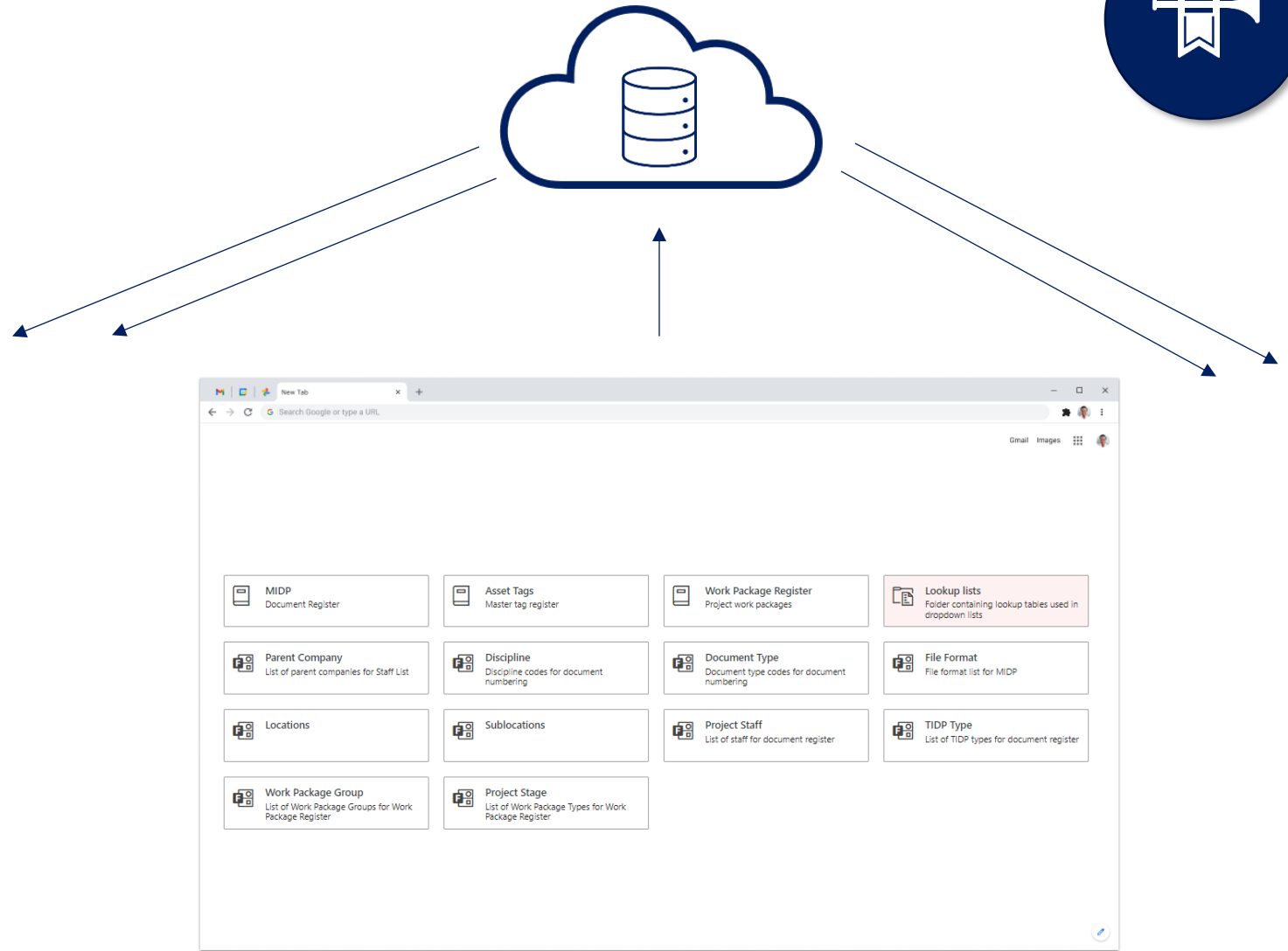
“Documentation”



Data catalogue

# Strategies for transparency

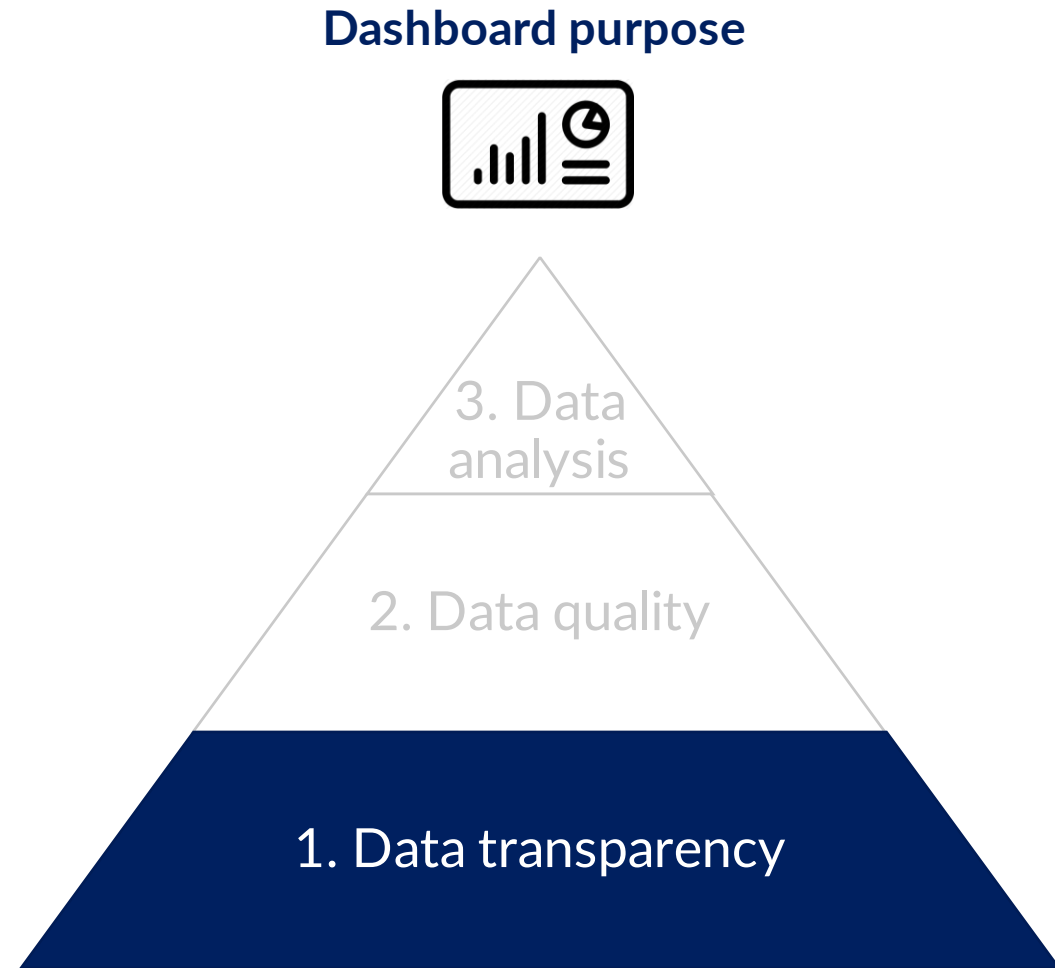
- 1 Document your data sources and data processing steps, and build awareness on the project
- 2 Greater control over the creation and management of key project datasets (data governance)





# Strategies for transparency

- 1 Document your data sources and data processing steps, and build awareness on the project
- 2 Greater control over the creation and management of key project datasets (data governance)
- 3 Self-service data and analytics





Assurance

Trust breaks  
down when...

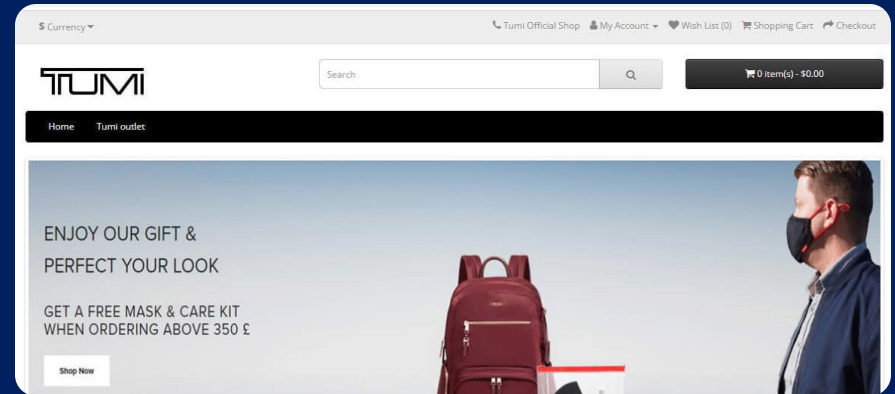
The user can spot  
errors

**FASTEST DRIVER** **Insights** powered by **aws**

Global Ranking **1983 - 2019**

Ranking	Driver	Nationality	Time Delta
1	Ayrton Senna	BRA	0.000
2	Michael Schumacher	GER	0.114
3	Lewis Hamilton	GBR	0.275
4	Max Verstappen	NED	0.280
5	Fernando Alonso	ESP	0.309
6	Nico Rosberg	GER	0.374
7	Charles Leclerc	MON	0.376
8	Heikki Kovalainen	FIN	0.378
9	Jarno Trulli	ITA	0.409
10	Sebastian Vettel	GER	0.435

Visual layout and  
styling looks  
unprofessional  
and inconsistent



# How do we assure engineering?



sdfgs - ASDIP Foundation - Combined Footing Design

File Edit Design Report Help

Geometry Loads Materials Reinforcement General

At a Glance Condensed Detailed Graph

**Summary of results**

Summary of results

Rectangular footing

STABILITY CHECK

Overturning Safety Factor	4.13 > 1.50	✓
Sliding Safety Factor	2.23 > 1.50	✓
Uplift Safety Factor	99.99 > 1.00	✓

SOIL BEARING PRESSURES

Allow. Bearing Pressure	3.0	ksf
Exterior Footing Pressure	2.7	ksf ✓
Interior Footing Pressure	1.1	ksf ✓
Area in Contact with Soil	100.0	%

BEARING PRESSURES ARE OK

LOAD TRANSFER

- Design Ratios	Exterior	Interior	
Column Bearing Ratio	0.14	0.10	✓
Footing Bearing Ratio	0.10	0.07	✓
Shear Friction Ratio	0.00	0.00	✓
Min. Col. Steel Ratio	0.31	0.31	✓
Dev. Length Ratio at Col.	0.50	0.50	✓
Dev. Length Ratio at Ftg.	0.40	0.40	✓

LONGITUDINAL REINF.

- Long Flexure	Mu	φMn	Ratio
Top X-Bars (k-ft)	154.0	208.2	0.74 ✓
Bot X-Bars (k-ft)	15.2	194.3	0.08 ✓
Min. X-Bars Area Ratio			0.98 ✓

FOOTING AT EXT. COL.

- Shear	Vu	φVc	Ratio
One-way (kip)	27.9	70.4	0.40 ✓
Punching (psi)	46.8	164.3	0.29 ✓

FOOTING AT INT. COL.

- Shear	Vu	φVc	Ratio
One-way (kip)	41.4	70.4	0.59 ✓
Punching (psi)	46.8	164.3	0.29 ✓

FOOTING AT INT. COL. IS OK

Geometry

Footings Columns

Column to Column Distance 10.00 ft

Edge Distance (X-dir) Exterior 1.50 ft Interior 1.50 ft

Footing Width (Z-dir) 5.00 ft 5.00 ft

Footing Thickness 18.0 in

Soil Cover 1.00 ft

Water Table Depth 3.00 ft

Rectangular footing

Diagram labels: Exterior, Interior, Edge, Column to Column Distance, Edge, Ext. Ftg. Width, Int. Ftg. Width, Col. Width, Col. Length, FT SC

# Strategies to assure quality

- 1 Manual peer review of dashboard quality



## Internal Testing Framework

Power BI dashboards

✓  
Meets users stories



✓  
Calculations have been specified and coded correctly



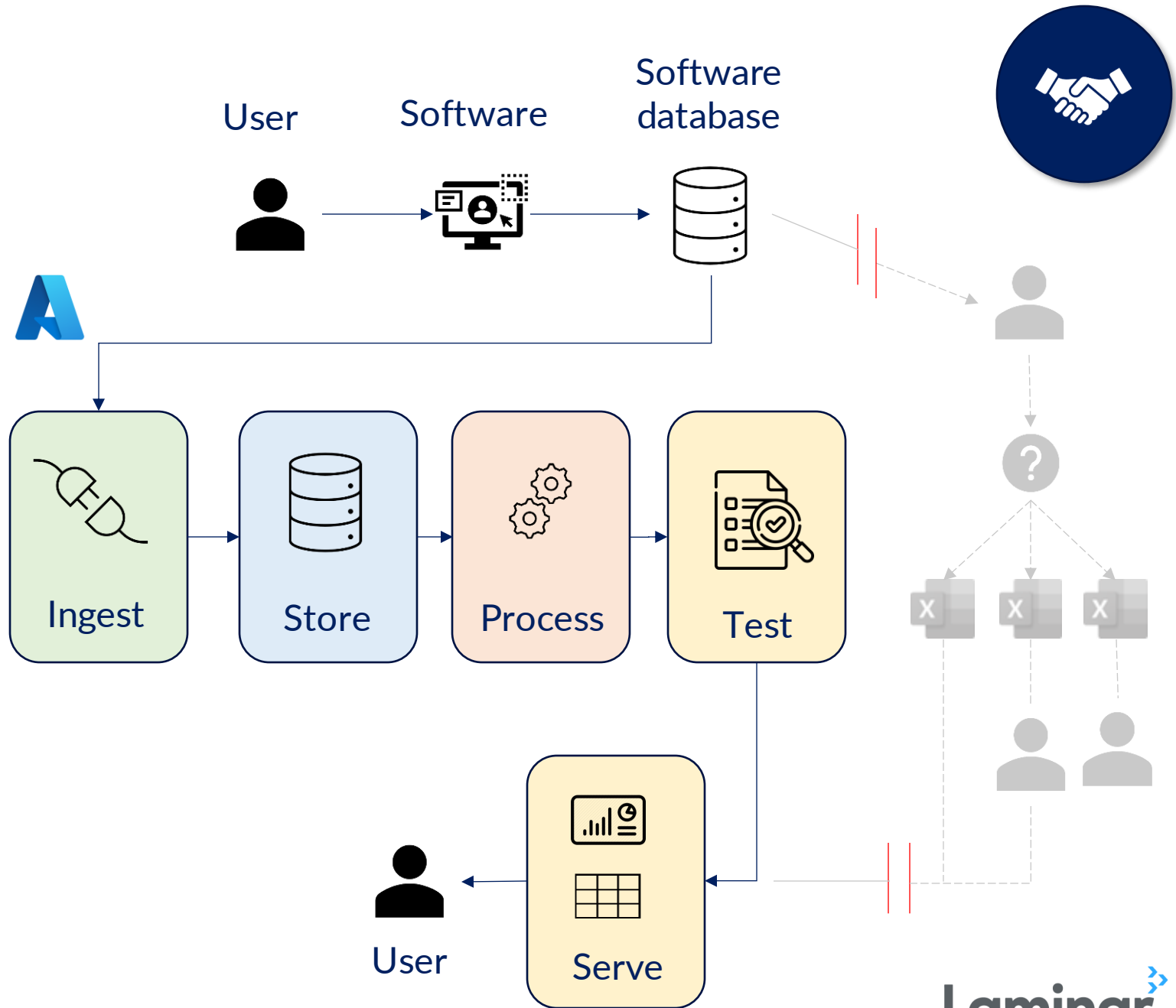
✓  
33 point visual checklist





# Strategies to assure quality

- 1 Manual peer review of dashboard quality
- 2 Build automated, tested and robust data pipelines



# Strategies to assure quality

- 1 Manual peer review of dashboard quality
- 2 Build automated, tested and robust data pipelines
- 3 Show evidence of data validation to the user





Trust breaks down when...

Question marks regarding the capability of the team implementing solutions

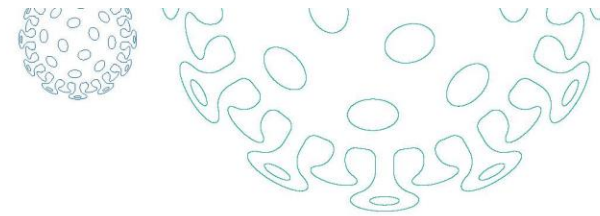


Insufficient data literacy to understand what is being presented

HM Government NHS

$$\text{COVID Alert Level} = R_{\text{(rate of infection)}} + \text{Number of infections}$$

# COVID 'upskilling'



## Advice on the coronavirus for places of education

### How serious is the coronavirus?

- it can cause flu-like symptoms, including fever, cough & difficulty breathing
- the infection is not serious for most people, including children
- there is currently no vaccine
- most people get better with enough rest, water to drink and medicine for pain

### How likely are you to catch the virus?

- you can only catch it if you have been close to a person who has the virus
- the chance of being in contact with the virus is currently low in the UK
- if you have travelled to areas where many people are infected, your chance of catching the virus is higher, i.e. China and any affected areas

### How can you stop coronaviruses spreading?

#### If you need to cough or sneeze



- Catch it** with a tissue
- Bin it**
- Kill it** by washing your hands with soap & water or hand sanitiser

#### You should wash hands with soap & water or hand sanitiser



- After breaks & sport activities**
- Before cooking & eating**
- SCHOOL ETC.** On arrival at any childcare or educational setting
- After using the toilet**
- Before leaving home**

- ✓ Try not to touch your eyes, nose, and mouth with unwashed hands
- ✓ Do not share items that come into contact with your mouth such as cups & bottles
- ✓ If unwell do not share items such as bedding, dishes, pencils & towels



Stop germs spreading with our e-Bug resources on hand and respiratory hygiene lesson plans for KS1, 2 and 3: [campaignresources.phe.gov.uk/schools](https://campaignresources.phe.gov.uk/schools)

### What should you do if you feel unwell?

Keep away from others and stay at home to stop the infection spreading. Avoid public transport if you think you have symptoms of coronavirus. If you become unwell at a place of education, tell a member of staff and let them know if you have travelled to any other countries in the last 14 days.

If your staff member or parent thinks you have symptoms of coronavirus, they should call **NHS 111** for advice. Follow the UK Government advice for childcare or educational settings [gov.uk/government/publications/guidance-to-educational-settings-about-covid-19](https://www.gov.uk/government/publications/guidance-to-educational-settings-about-covid-19). Parents can visit [NHS.UK](https://www.nhs.uk) to find out more information. Teachers and support staff should follow the UK Government advice.

Staff, students and pupils who have returned from Wuhan and Hubei Province in China should self isolate, and NOT attend education or work for 14 days. See [NHS.UK](https://www.nhs.uk) for advice on coronavirus.

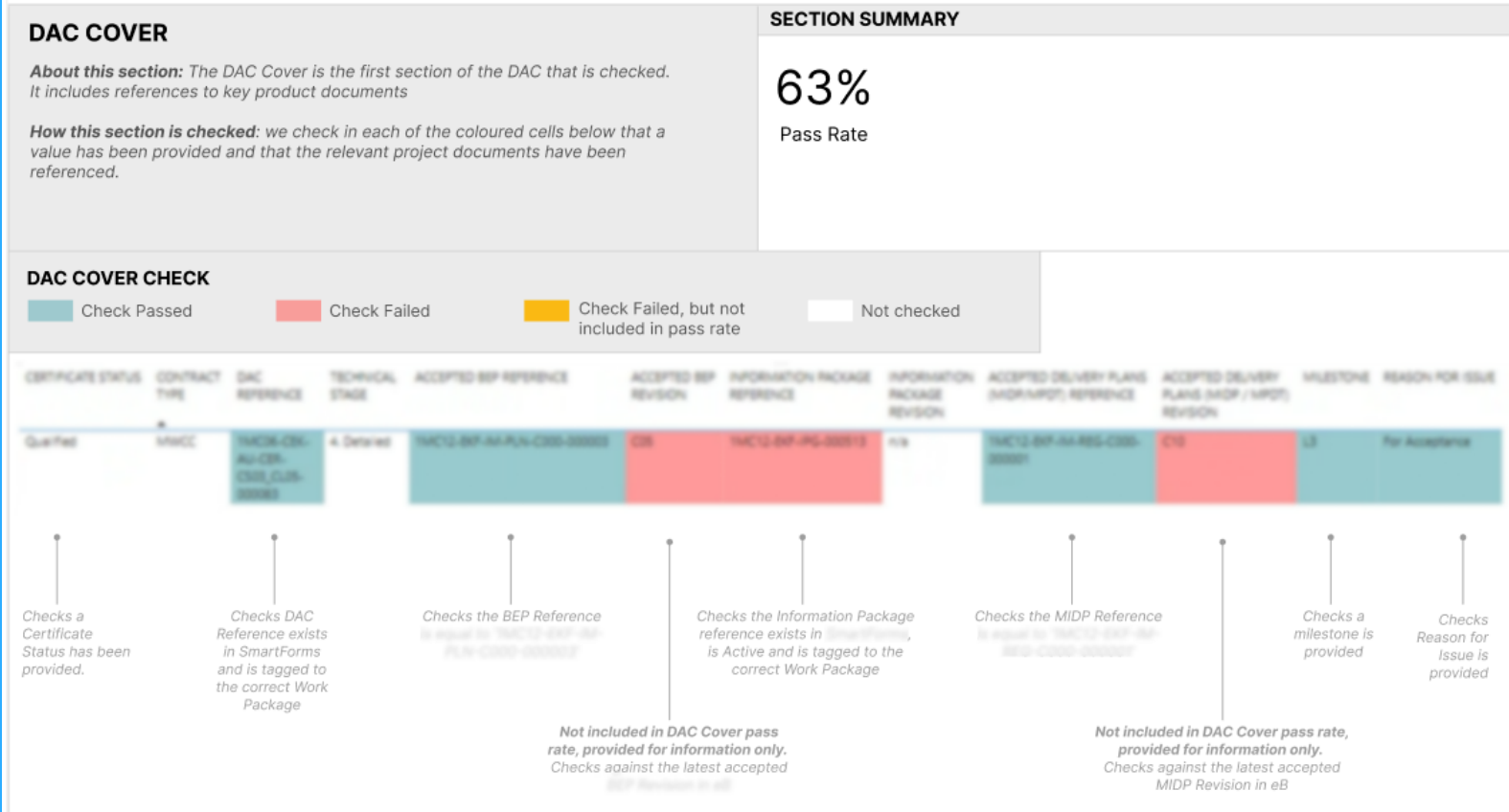
**If there is an emergency, call 999 immediately**



# Strategies to build capability



## 1 Upskilling through visualisation and documentation



# Strategies to build capability



1 Upskilling through visualisation and documentation



Stephen Herd

Data & Digital Director

- > Chartered Mechanical Engineer
- > MEng Mechanical Engineering
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Will Needham

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2 Recruit a strong team/hire in experts



The University Of Sheffield.



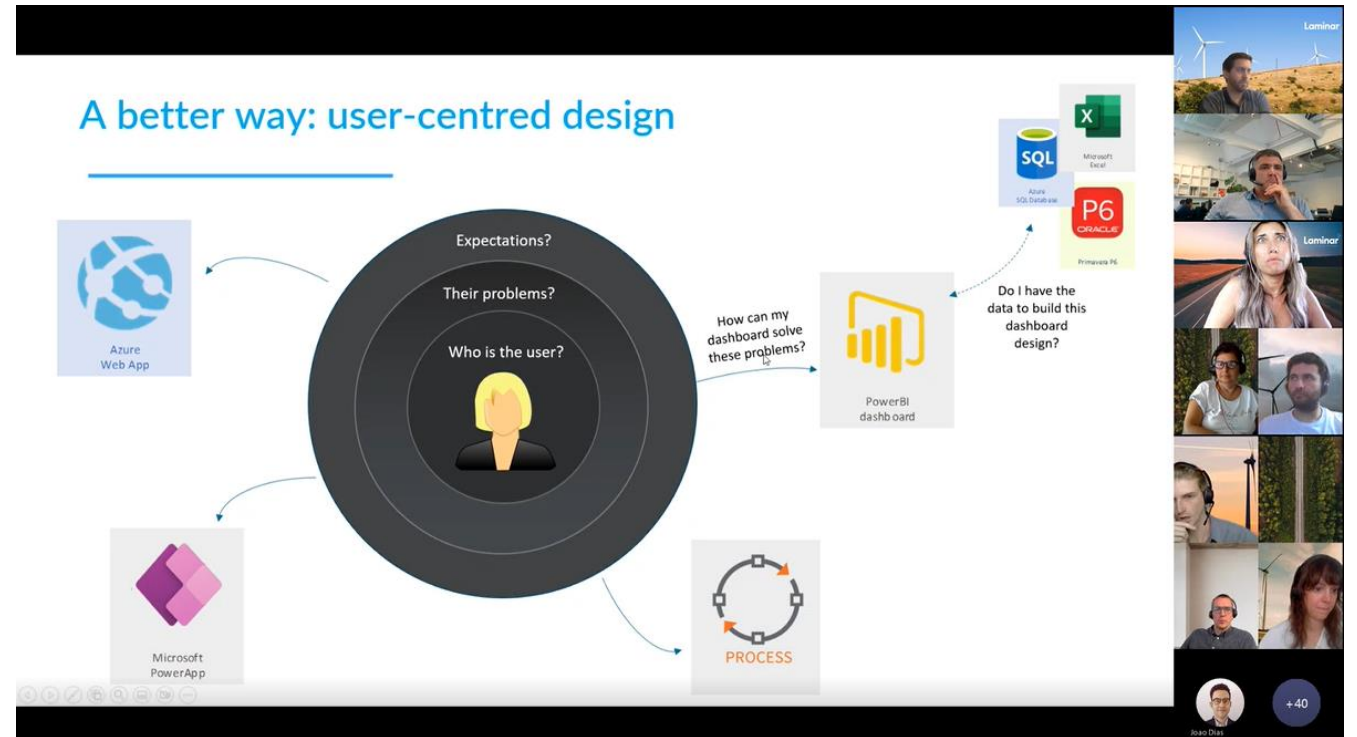
Loughborough University

# Strategies to build capability

- 1 Upskilling through visualisation and documentation
- 2 Recruit a strong team/ hire in experts
- 3 Upskill your team, and your audience



## Laminar Way





# Recap and challenges

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## Transparency

*Greater control over the creation and management of key project datasets*



## Assurance

*Build automated, tested and robust data pipelines*



## Capability

*Upskill your team, and your audience*



## Challenge 1

*Create and control a key project dataset in a database, rather than Excel*



## Challenge 2

*Create a data pipeline that transforms this data in a reliable and automated way*



## Challenge 3

*Create a data literacy programme in your project to upskill all staff*



**THANK YOU**