



Evaluating the underlying reasons for handover information degradation for commercial buildings

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Professional background



AECOM



“What is Building Handover Information”

What is it for?

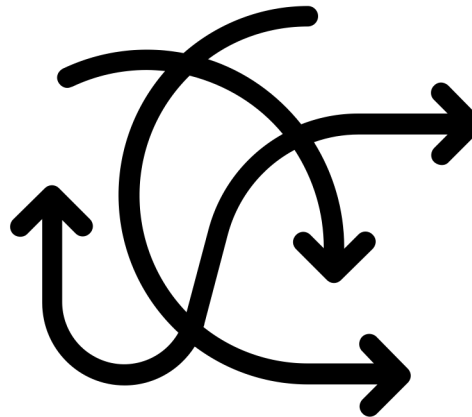
I don't know.

Where is it?

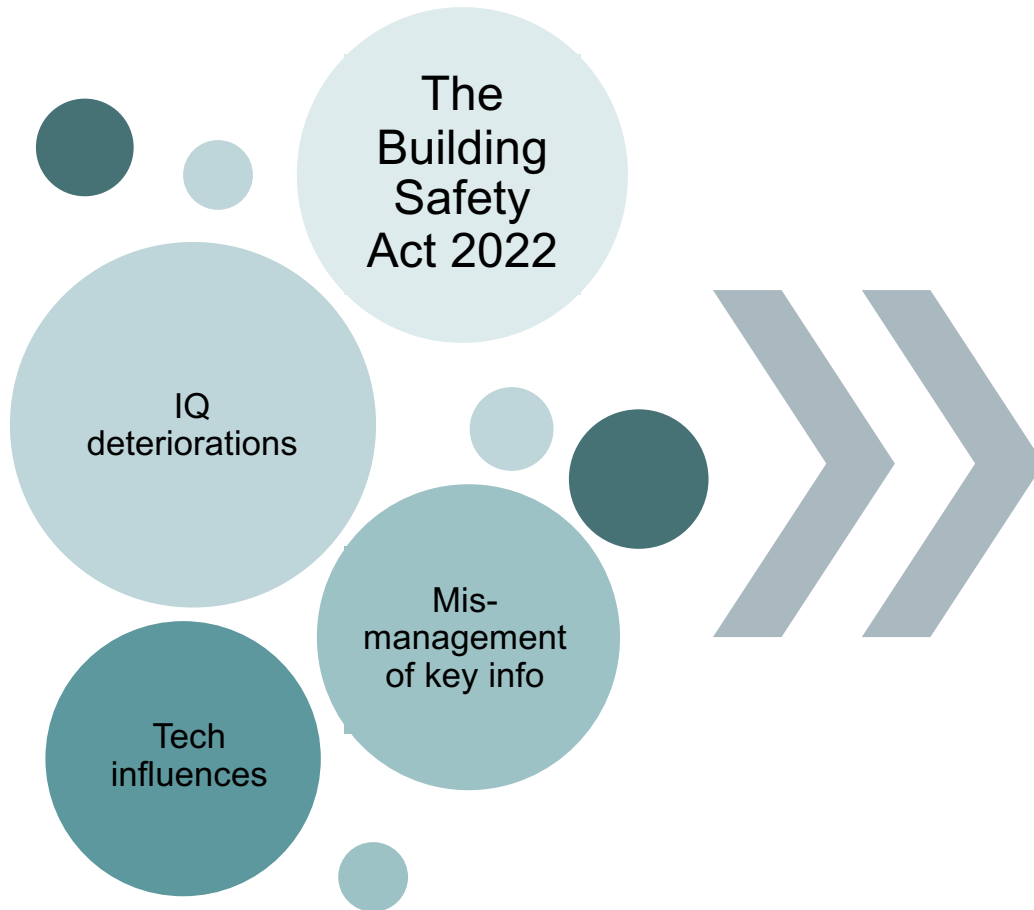
I am not sure.

Who manages
it?

Hmmm
It is a good
question.



Research background



Research objectives

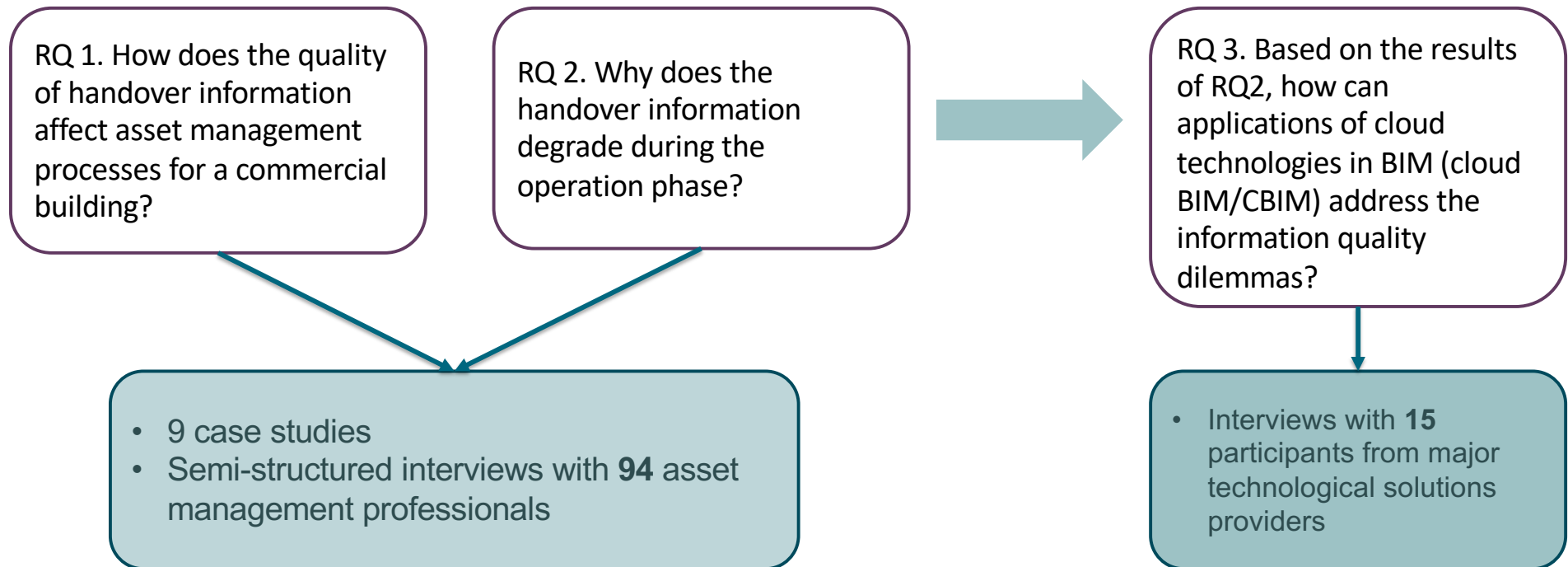
1. The use of HO information & its IQ preferences
2. The underlying reasons for IQ degradation
3. The intervention of tech solutions to address IQ issues.

The reason for qualitative research approach

“New phenomenon without matured descriptions needs to be articulated into a framework, and theory building from the phenomenon is a foundation for further quantitative testing”.

--Dr Yongjiang Shi, University of Cambridge

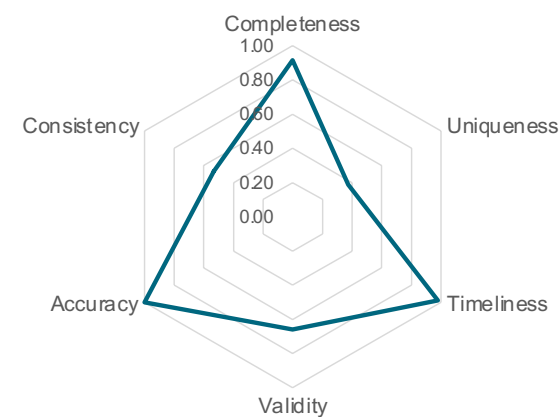
Research questions



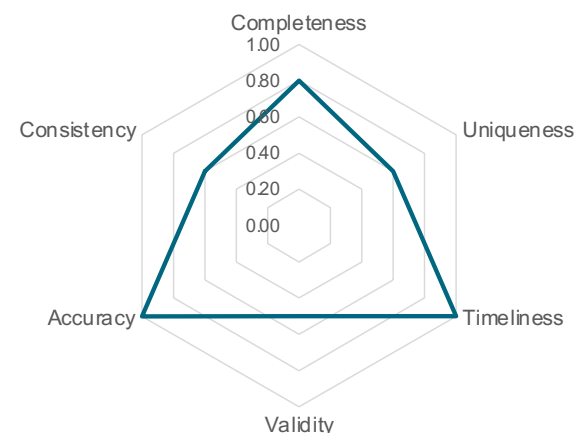
Findings: The use of handover information

Categories of Handover Information		Asset management processes							Participant's correspondence (ID#)	
		Space Management	Asset Valuation	Fire Alarm Insp	Electrical Fixed Wiring Insp	Electrical Equipment Integrity Insp	Gas Safety Insp for gas-fired boilers	Lifts Insp		Water Quality Insp
Graphical Handover Information	Architectural site plan	XX	XX	XX						IDs 1-7, 10, 11-14, 15-19, 47, 49, 50, 52, 64-66
	Architectural floor plans	XX	XX	XX			XX	XX	XX	IDs 1-19, 26, 39-42, 45-50, 52, 64-66
	Furniture plans	XX	XX							IDs 4, 5, 9, 11-14, 48, 64-66
	Electrical site plans		XX	XX	XX	XX		XX		IDs 11-19, 20 & 27-30, 43, 44, 50, 52, 59, 61-66, 94
	Mechanical plans (incl. plumbing & fire protection plans)		XX				XX		XX	IDs 11-14, 20-25, 31, 33, 34, 36, 37, 43, 44, 45, 50, 52, 61-66, 94
	Fire alarm system		XX	XX				XX		IDs 11-15, 18, 19, 43, 44, 50, 52, 61-66
	Vertical transportation		XX					XX		IDs 11-17, 43, 44, 50, 52, 61-66
Non-graphical Handover Information	Architectural room schedule	XX	XX							IDs 1-8, 10, 11-14, 26, 48, 50, 61-66
	Electrical equipment schedule		XX		XX	XX				IDs 11-14, 20, 27-30, 43, 44, 50, 52, 56, 60, 61-66, 88-90
	Mechanical equipment schedule		XX				XX			IDs 11-14, 31, 33, 34, 36, 37, 43, 44, 50, 52, 56, 60, 61-66, 88-90
	Product information		XX	XX	XX	XX	XX	XX	XX	IDs 11-17, 20-25, 27-44, 45, 50, 52, 56, 60, 63, 61-66, 68, 70-79, 84, 88-90, 94
	O&M manuals		XX	XX	XX	XX	XX	XX	XX	IDs 11-17, 20-25, 27-44, 45, 50, 52, 56, 60, 63, 61-66, 68, 70-79, 84, 88-90, 94

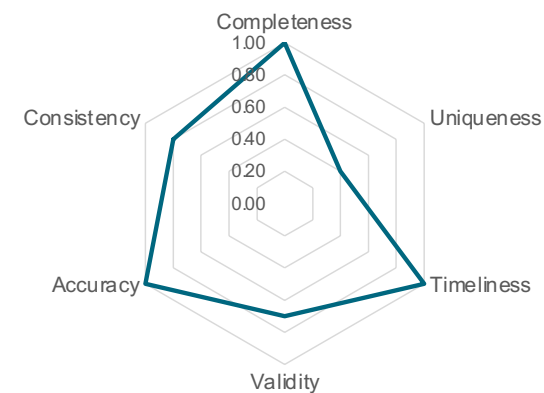
Findings: HO quality preferences of the selected AM processes



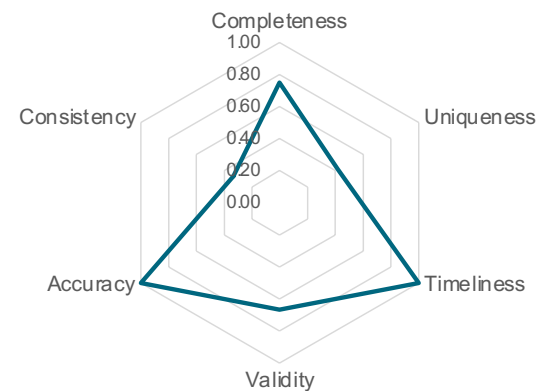
Capital Planning



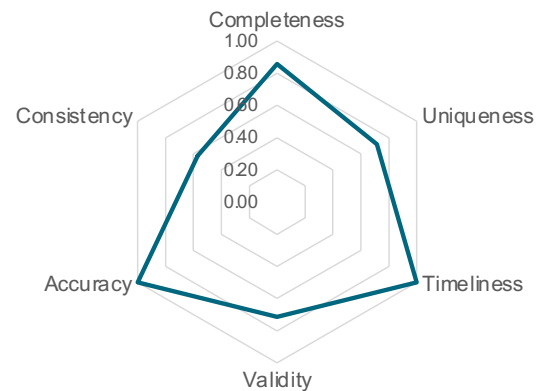
Recurring Space Utilization Management



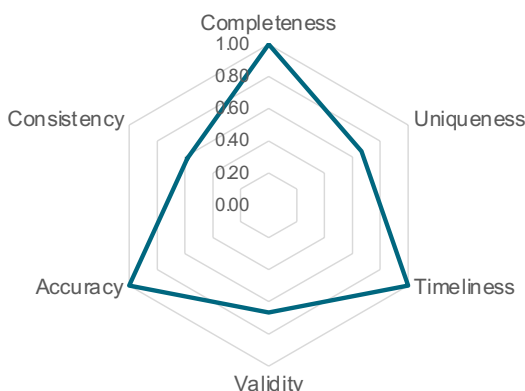
Fire Alarm System Inspection



Gas Safety Service for Boilers



Regular Water Quality Inspection



Electrical Integrity Inspection

*“The [quality] discrepancies tend to come up from our own **internal processes**.”*

*“We are **lucky if we could find a set of floor plans**.”*

*“It falls down to a **human error side** of things more than anything else.”*

*“**Separate information sources** sitting all over the place.”*

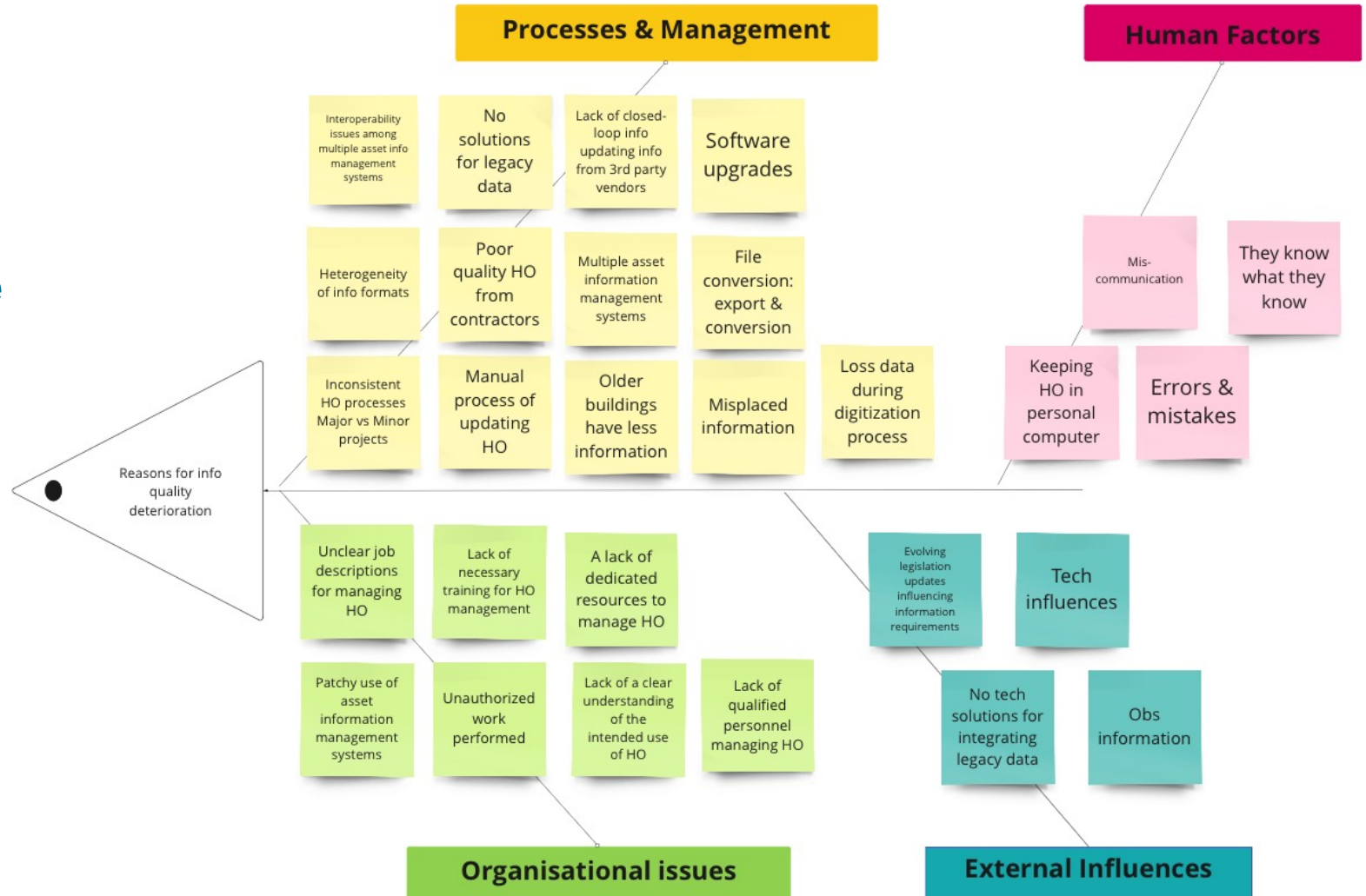
*“We need to be really clear about how we're gonna **use** that **embedded info**.”*

*“What I'm saying is that it's really, really important that **information flow**.”*

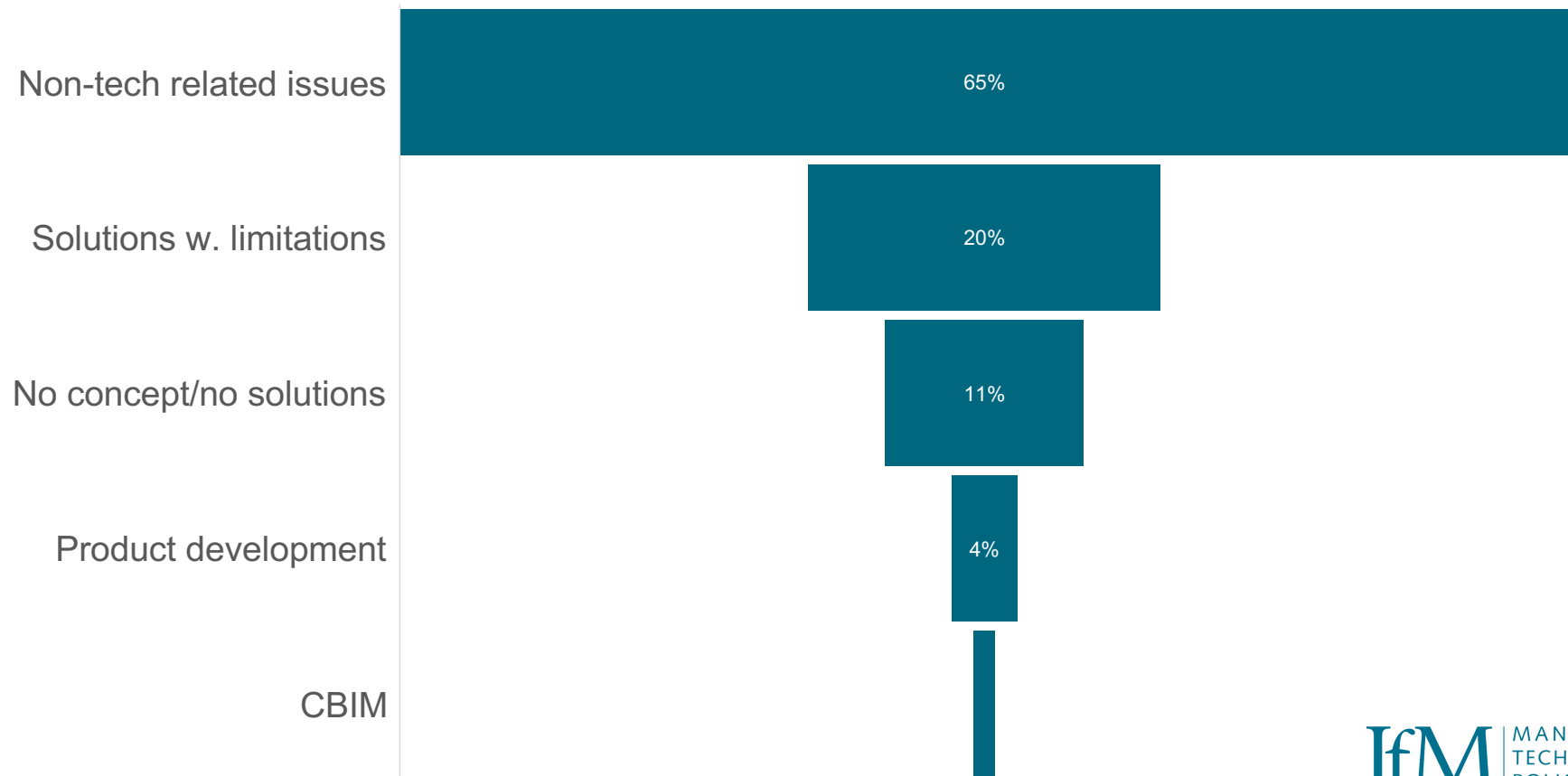
*“All kinds of things in the building will also change over time. And if you've got some **legacy assets** that are producing data in a certain way that doesn't align with the incredibly fast-moving world [of technology].”*

*“I think the issue here in terms of handover documentation is to do with when we're modifying the **existing buildings**. ”*

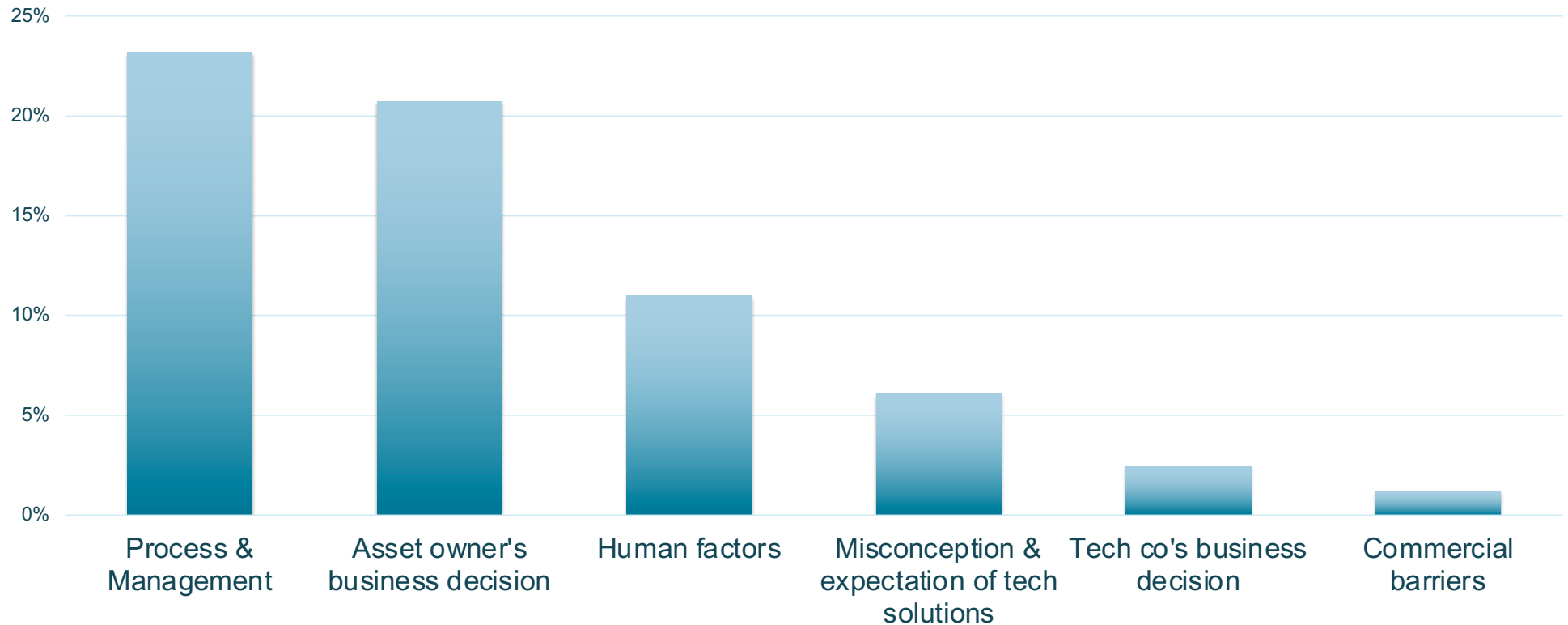
Findings: The underlying reasons for information quality deterioration



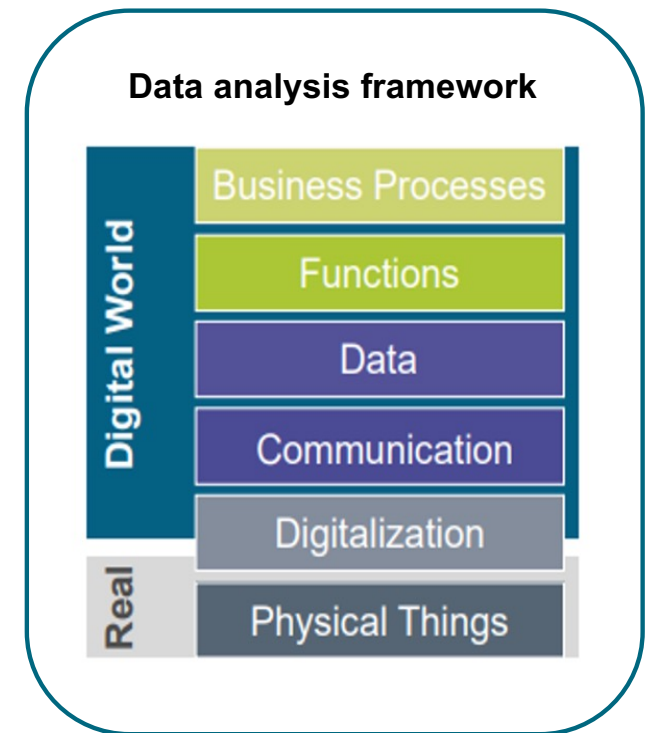
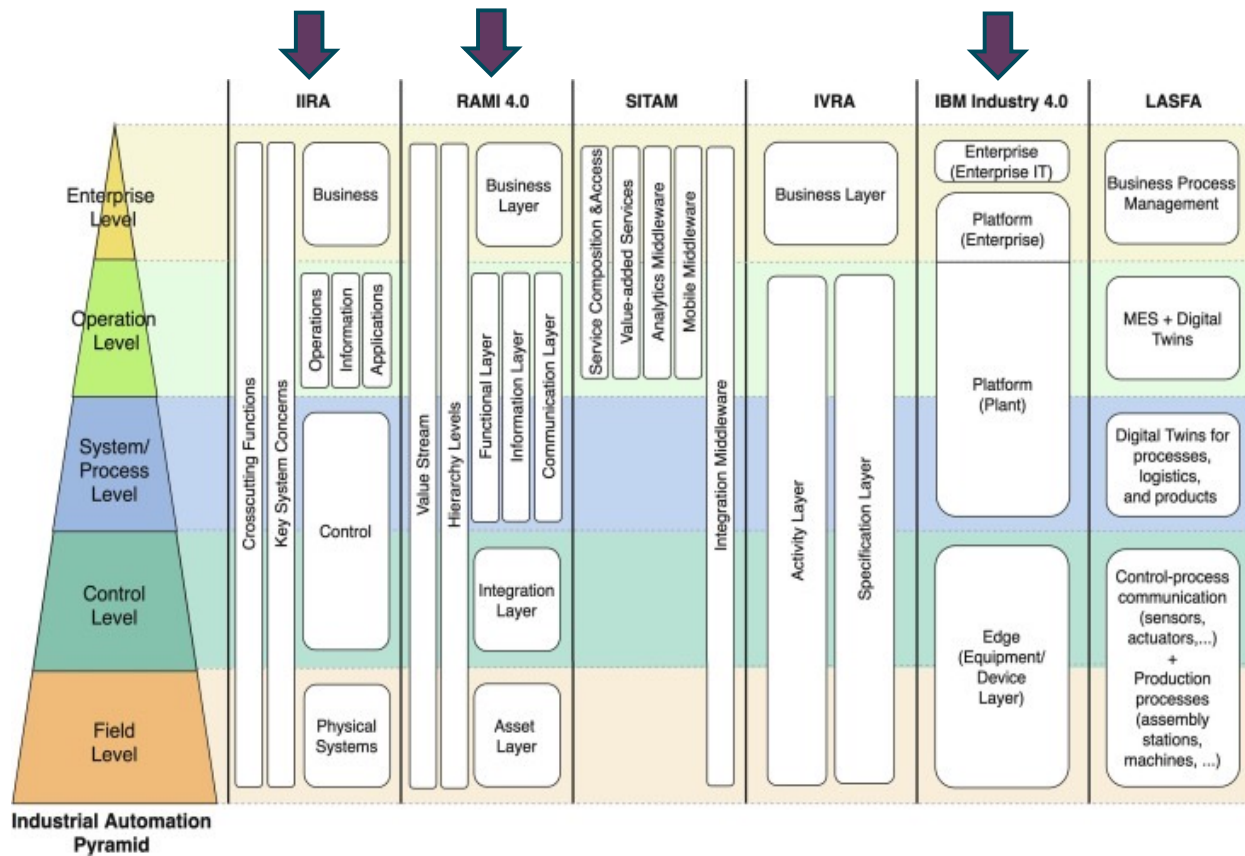
Findings: Technological solution providers responses to IQ issues



Findings: Details of the non-tech related issues



Remaining of work



Take away point 1

Building handover information is used predominately to use to comply with statutory obligations.

Take away point 2

Document-based information has at least two points of quality failure: export & conversion.

Take away point 3

Checking ‘Accuracy’ & Timeliness of handover information is mainly done manually.

Take away point 4

Legislation updates and technological advancement influence the ‘Consistency’ of the information & its formats.

Take away point 5

There are limited technological solutions available for reconciling legacy data into digital formats.

Q&A

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