

The logo for RLB Digital, featuring the text "RLB Digital" in white on a dark blue rectangular background. The background of the entire slide is a modern building with a grid of windows, overlaid with a perspective grid and various semi-transparent geometric shapes in shades of blue, green, and white.

RLB Digital

The Information Management Blog

Part 1

Hello and welcome to this new blog series where we'll delve into the topic of information management. It's something I've been wanting to do for a while: gather my thoughts and ideas on the subject in one place.

Understanding information is critical to the future of the industry - from getting value from technology, reducing digital impact, implementing AI and increasing productivity. I'm a firm believer that the direction of information management in the industry should be driven by science.

This series isn't aimed at any specific audience but is for anyone interested in learning more about information within the built environment. When I say, "within the built environment," I mean anyone involved at any point in the lifecycle of buildings and infrastructure facilities.

These are my personal thoughts which I'm sharing to hopefully provide clarity and spark discussion and feedback. This document is published on behalf of RLB Digital and is not official guidance from any other positions or initiatives I'm part of.



This series will be based on my work around piecing together the information management puzzle. In my opinion, until we do this, the chaos in our industry will persist.

I'm starting with first principles, so it may seem theoretical at times, but bear with me. I believe science is key to effective information management, to developing new tools, and to reducing the burden on those working in the industry.

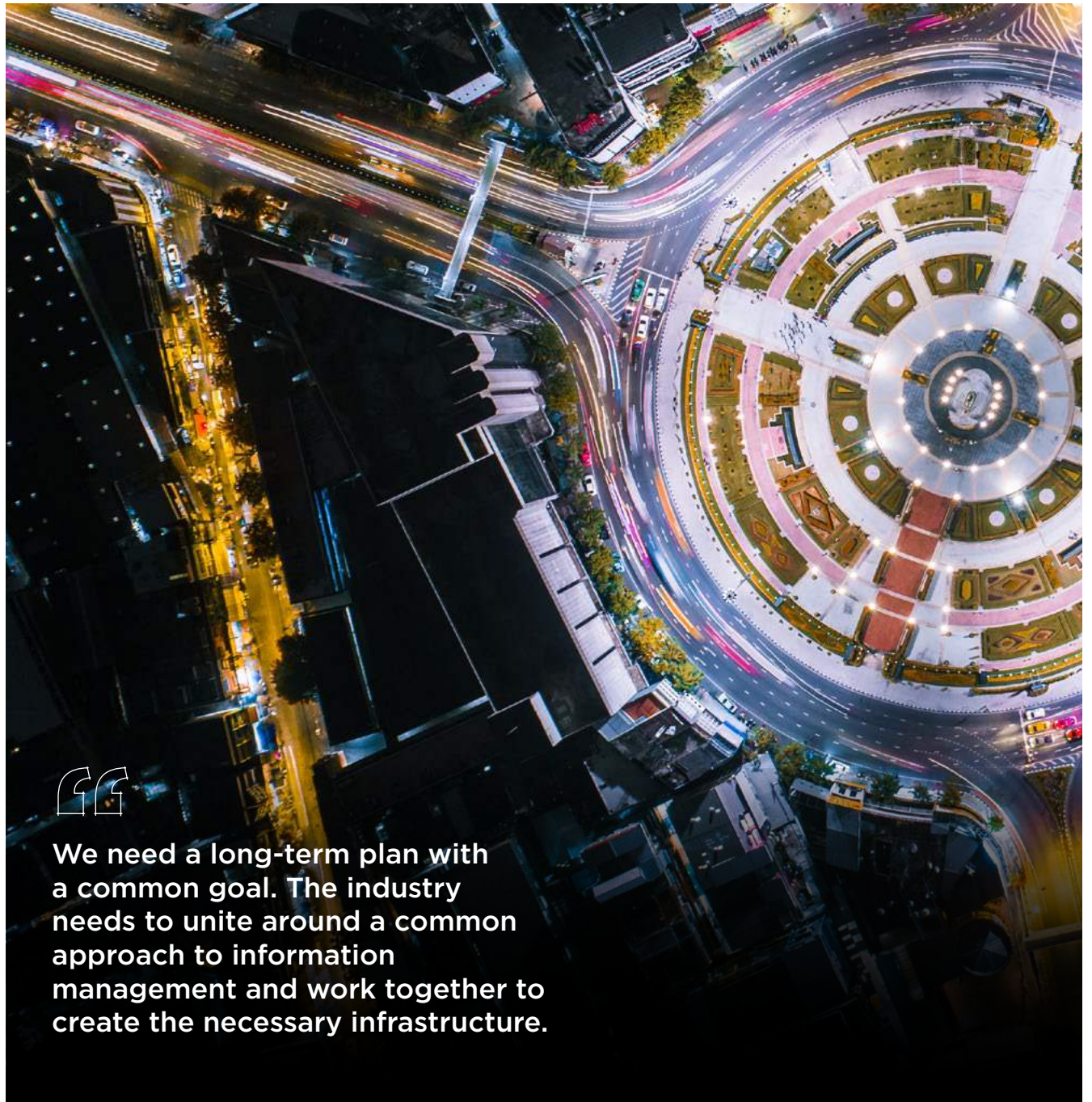
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This blog has three primary aims:

- **Understanding:** Increase understanding of information and the science behind it, and how this knowledge should shape the future with regards to information management.
- **Clarifying terms:** Minimise misunderstandings and misinterpretations of industry acronyms, labels, and buzzwords. For example, we should move away from the “5D, 6D, and 7D” mindset and stop limiting our view of information models to 3D pretty models. Rather than thinking of BIM and information management solely as software solutions, we should focus on the information and data itself.
- **Calling for support:** Seek help from the industry. The information and data infrastructure for an industry employing over 2 million people is currently being developed by volunteers across many groups. These groups need alignment and the industry must commit to properly investing in this collective effort.



We need a long-term plan with a common goal. The industry needs to unite around a common approach to information management and work together to create the necessary infrastructure.

Information – what is it?

You might think of information as a drawing, an email or a report and you wouldn't be wrong - this is information put into symbols and captured in a form for an intended purpose.

But I want to focus on information being a subject in its own right, before it becomes an output which is a difficult question to answer. It's an abstract concept that is both philosophical and scientific.

Even in academia, there is no consensus.

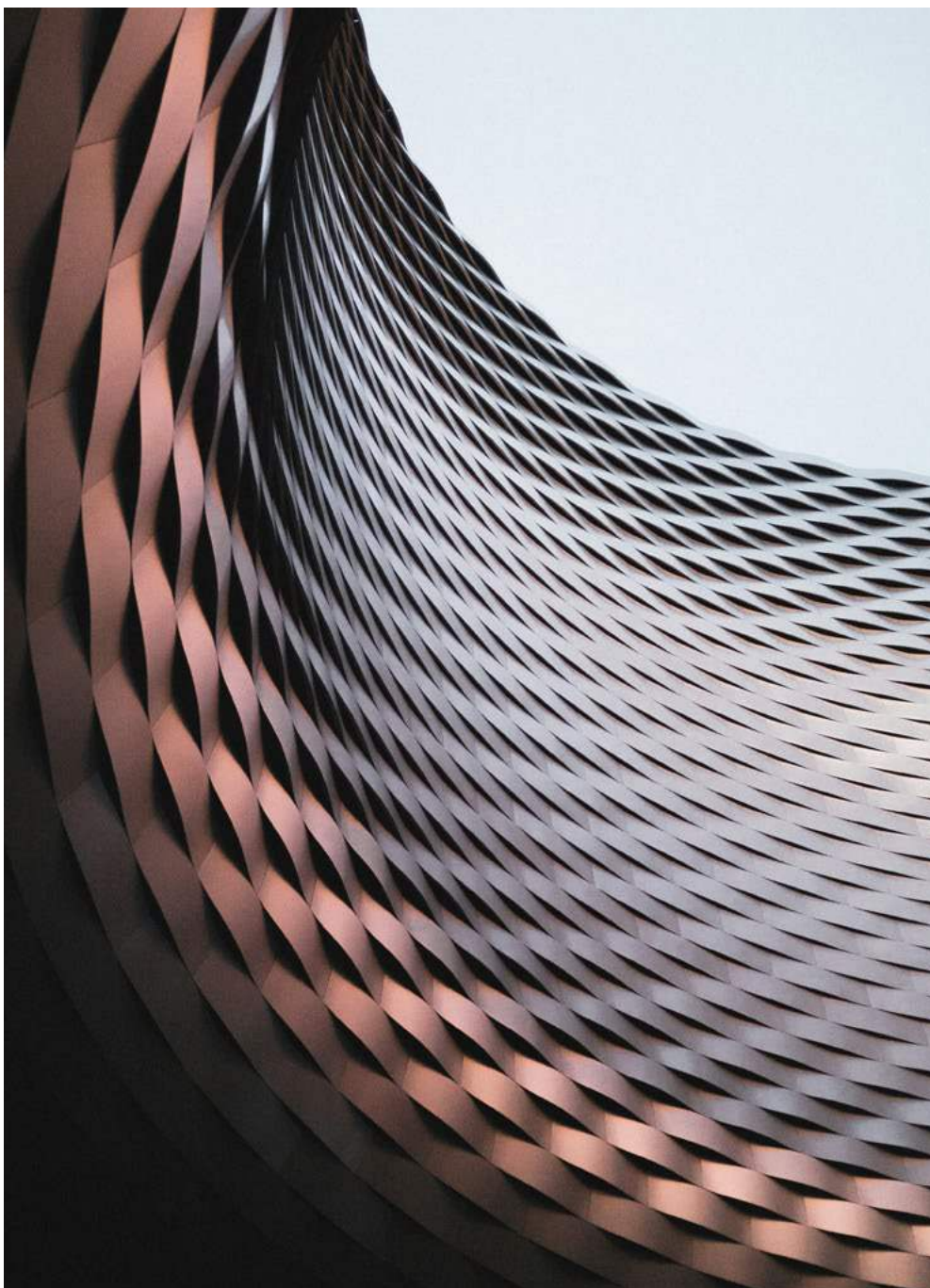
Information creates our reality; it helps us understand the world. Yet in today's world, we're overwhelmed by information across every aspect of our lives and it's often taken for granted. This is especially true in the built environment, where we don't consider information in the way that we should.

Information is data put into context by connecting it with other data and presenting it in ways that mean something to us. It's then interpreted based on training, experience or even the way our brains are wired.

We then choose to do something with it even if it's nothing at all. Most of the time we do this without really thinking about it. When we ask for information, it should be for a purpose; otherwise, it's just waste.

Data on its own isn't useful. If I say the number '24' it could mean anything. It's only when I associate it with other data to give it context like a street name that it becomes understandable as a house number, it becomes information.





Key factors of information

There are several words in the previous paragraphs that warrant further discussion; meaning, interpretation, presentation, purpose and connected data. You might wonder what this has to do with the real world? Well, quite a lot, because the way people interact with information has a bearing on the way that information (eco)systems should be set up and operate.

Meaning and interpretation

Meaning and interpretation are the bane of my life because we all interpret what we're presented with in different ways by associating different meaning. "Meaning"—or, in more technical terms, "semantics"—is the foundation of understanding information. Semantics is fundamental to the digitalisation of the industry, and most issues related to information management can be traced back to differences in how meaning is interpreted by both people and machines. Unfortunately, we often focus more on labels or terms than on semantics, leading to challenges I'll explore further in future posts.

A significant problem is that information has developed in silos. Each specialisation and domain within the industry has created its own "mini language" (its own semantics and labels) and associated processes. Now, with the need to share information across these silos, we face the challenge of aligning one data language with another. The industry must address this issue, and I'm certain we can establish foundations that span all parts of the industry, including regulators, manufacturers, insurers, contractors, maintainers, designers, asset managers, and even investors - essentially everyone involved. Importantly, these foundations must meet people halfway and simplify the complexity involved.

Presentation

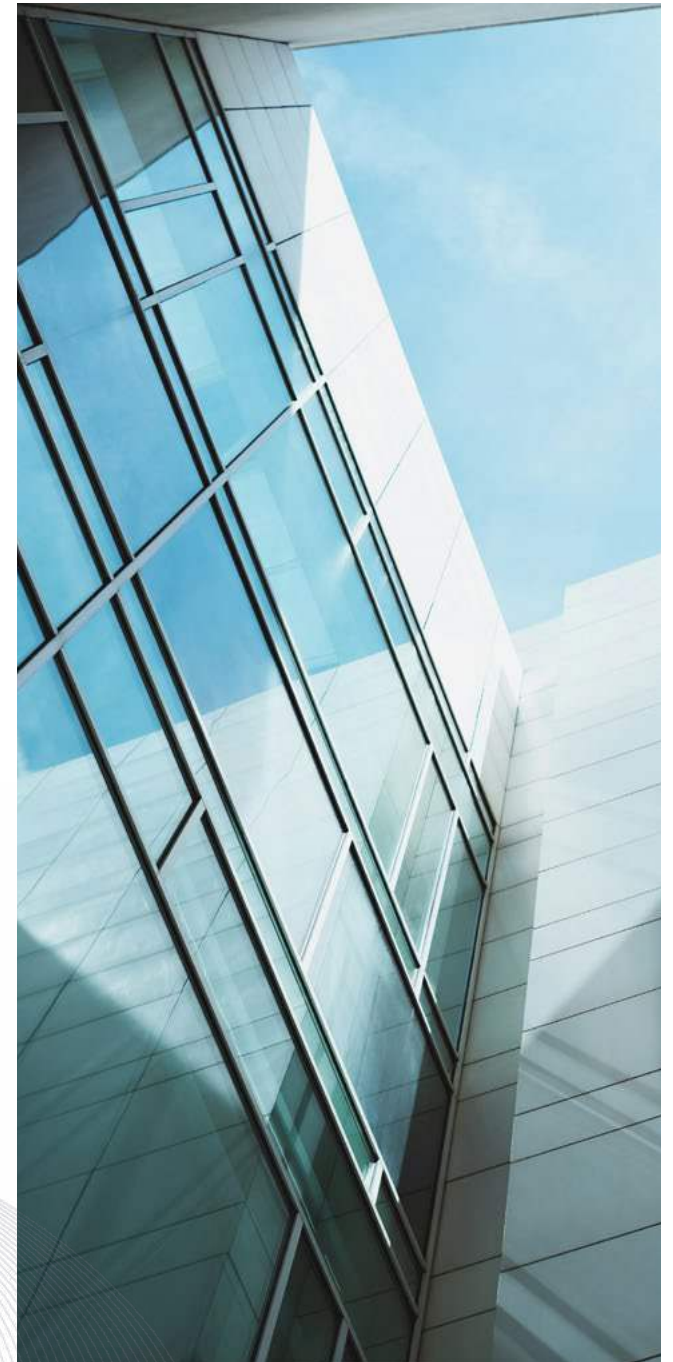
Presentation, or the grouping of information, is essential because we tend to think of it first and the content second. We're often quick to name documents without clearly defining their content. For instance, how many times can you reinvent the wheel regarding what goes in a door schedule? Every time I ask people what's in a fire strategy, I get different answers. And the O&M manual? I could write an entire blog on that alone. We must move away from creating massive documents and instead focus on breaking them down into modularised sets that can be grouped in various ways for different purposes. We need to rethink how we create information.

Purpose

This brings me to purpose, which is one of the hardest aspects of information management to address. We're not great at thinking about why we need information, and often, the answer is simply "because we've always asked for it." We need to step back and reevaluate why we need certain information and the value it provides.

Connected data

Finally, there is connected data. I can't emphasise enough how interconnected everything in this subject is. It's within these connections, or relationships, that the "magic" happens - where we can extract value from information, elevate it to the next level, and gain real insight.



A common approach

The reason I've discussed these factors is because understanding them provides the starting point for defining a common foundational approach to information and data across the industry. This approach should provide a consistent, trusted framework that allows us to share and re-use information effectively. Such a foundation will also support digital innovation in areas like digital twins, AI, and robotics.

For me, a common approach should be based purely on information, as it has a natural flow, similar to water. However, we often try to control it by forcing it through traditional processes, creating traditional outputs, or shaping it to fit our own agendas. All this does is stop and start the flow, setting up barriers or creating large gaps.

We already have many of the puzzle pieces needed. By rationalising these pieces and connecting them to create a bigger, joined-up picture, we could greatly benefit the industry, giving everyone a common starting point rather than expecting this work to be redone on every project, with different interpretations each time.

Information chaos

I have spoken a lot about information chaos over the years. The lack of focus, confusion, and ad-hoc or siloed creation of information has resulted in a highly tangled and chaotic web. Not only does this create significant waste, but it also leads to gaps, contradictions, and duplication, which in turn creates assumptions and errors. Moreover, a lack of governance often results in the use of incorrect information, while the chaos makes it more challenging to maintain information security.

This introduces considerable risk to businesses and projects. Yet, despite the industry's obsession with risk, information risk is rarely considered.

Increasingly, there is demand for information from various stakeholders due to evolving policies, regulations, and standards. We can produce vast amounts of information and data—technology makes this possible. However, while technology has

advanced, people's maturity and understanding of information management have not kept pace. As we adopt more technology, we're piling more data onto weak foundations, relying on quick fixes to cover up the cracks. With each step, stability decreases, and we wonder why productivity fails to improve despite new technological investments.

When I discuss this with others, they always agree; it's widely acknowledged that we need to focus on the basics, mitigate risks, and derive greater value from information. But this topic doesn't carry the allure of shiny technology—it's difficult to communicate and often fails to attract the necessary investment. If the industry aims to boost productivity, improve profitability, keep trading with the EU, streamline approval processes, reduce its impact and avoid being dominated by technology companies, it must pay attention and act.



Focus on information over technology

I haven't focused much on technology here, which is intentional; to me, it isn't the primary issue. I frequently advocate for shifting the mindset from a "technology-first" to an "information-first" approach, where information is defined independently of technology to ensure it serves a clear purpose. Technology should then be introduced to support that information. For too long, we've prioritised the latest software and tried to force information to fit into rigid technology systems, making it difficult to share between applications. This approach has unnecessarily exposed us to technical complexities. Technology should act as a shield, hiding this complexity from us.

It's essential that technology serves a consistent, open, and neutral information framework. This enables interoperability, allowing any technology to integrate seamlessly, and ensures data can move freely without becoming trapped in silos.

People and structural challenges

Technology isn't the only challenge - people add layers of complexity. Through complex organisational and project structures, we have created such convoluted pathways for information that it becomes nearly unmanageable. With each additional exchange point, the system weakens, introducing even more risk. To address this, we must rethink business models, insurance, and procurement processes. I'll explore this further in a future blog.



Information management

Poorly managed information and data has consequences within organisations and on projects. Therefore, information needs to be managed to reduce risk.

People can't do their jobs without information, and when information is difficult to find or incorrect, it wastes time, money, and can even cause potential harm. In fact, most issues related to the lifecycle of a built asset stem from poor information or its inefficient exchange.

Information management seeks to address these issues by applying the information theory and concepts discussed earlier in the blog to real-world scenarios and real people across the entire lifecycle of a physical asset. It does this by treating information as an asset in its own right, on par with the physical asset. Like any asset, information needs to be specified, procured, delivered, governed, and utilised.

It's basically the good old... right information to the right person/machine at the right time in the right way. To enable us to find, share, use and query information easily to enable us to do our jobs more efficiently.

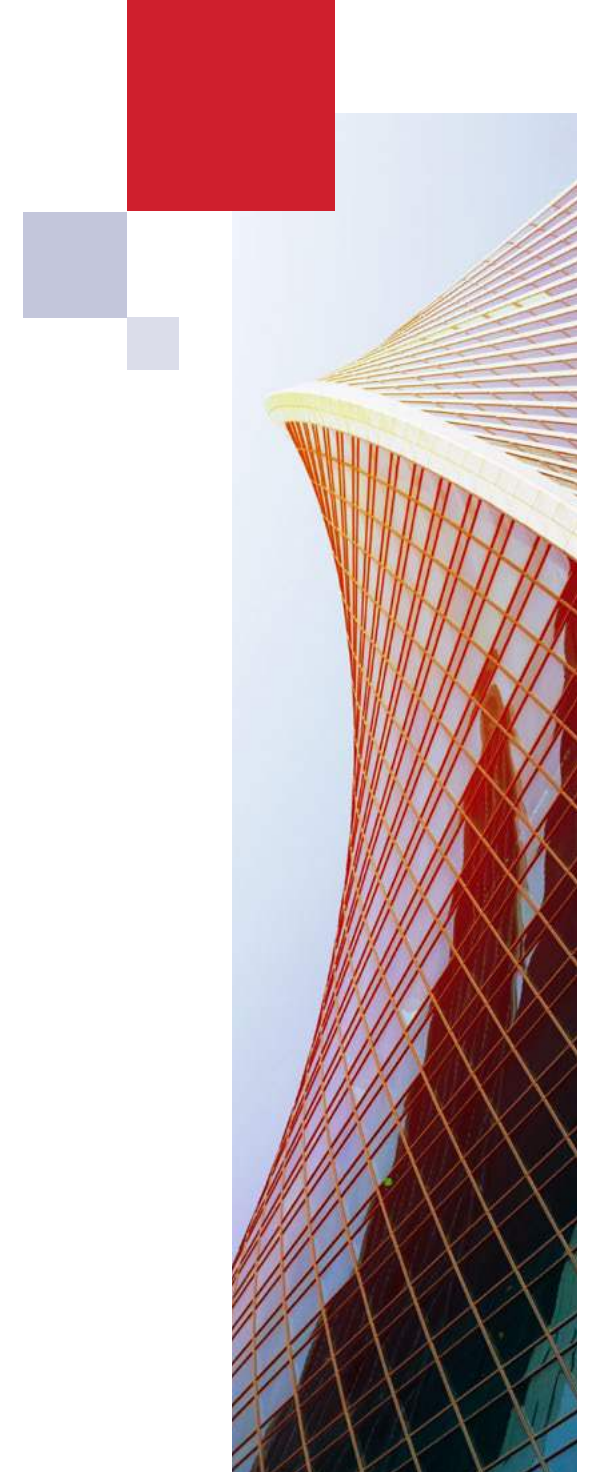
Information management starts with those asking for information to identify purposes and

define what information is needed to fulfil those purposes. For those producing information being aware that information once passed on needs to be useful and meet the requirements.

In the UK especially, we've moved to using the term "information management" instead of "BIM" because "BIM" often makes people think solely of 3D models. What we really need is to manage all information - whether unstructured (like in drawings or reports) or structured (like in databases or structured spreadsheets). For me, BIM represents a shift toward using more structured information within connected data models. This shift allows us to find, share, use, and query information more effectively by integrating automation and connections, which brings much greater insight and value from data.

If you've seen my presentations, I use the following diagram to explain information management. Across an assets life there is both a management (process) layer which contains appointment-based activities¹ for projects/events - this is what people interact with. Underpinning this is an information (or data) layer, which contains the rules for how information is ordered, its semantics, and how it's connected. This is the layer that technology interacts with.

¹ Activities based on the GIIG's activities [GIIG - nima](#)



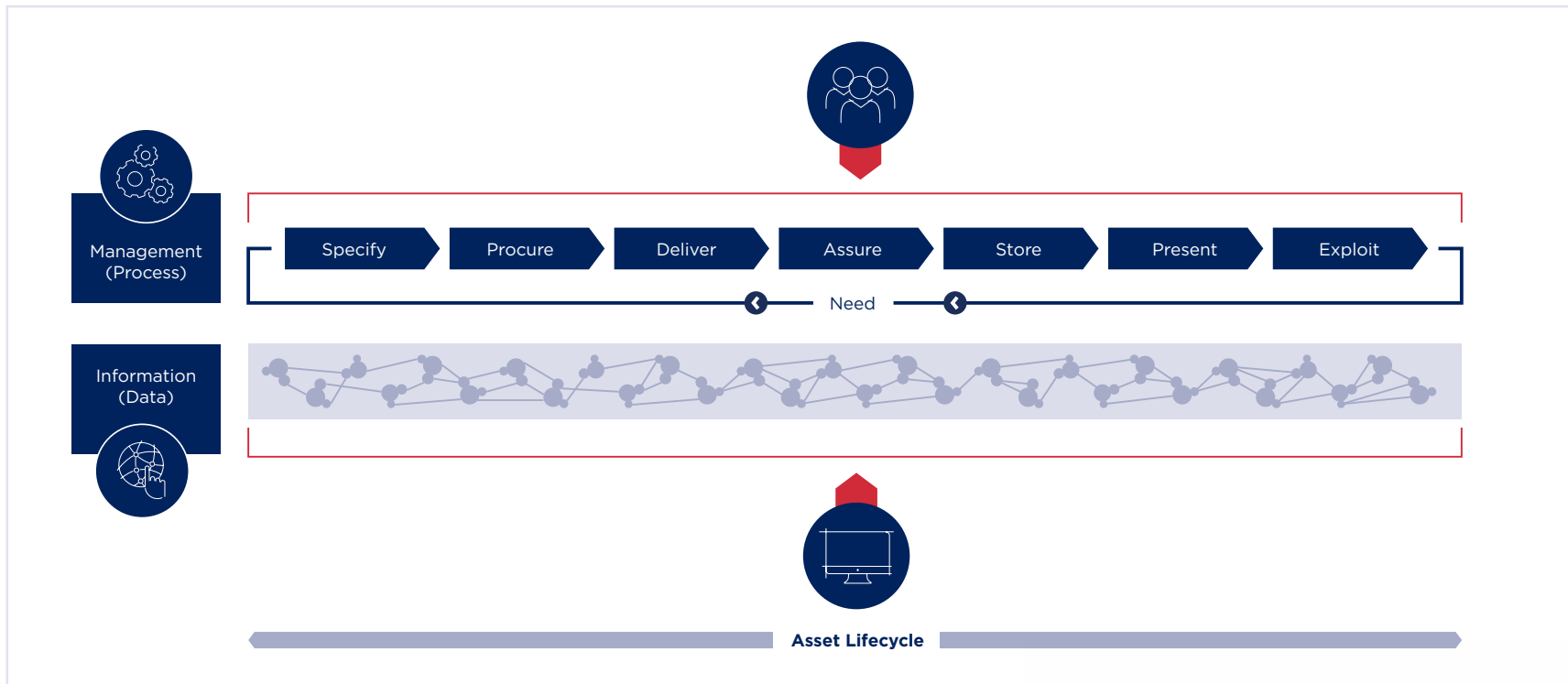


Figure 1 - The layers of information management

It's really important that both layers are considered together for effective information management. Together, they form a consistent and common framework that both people and technology can connect to.

This information framework operates across three viewpoints:

- Industry
- Organisation
- Project/event

Industry

When it comes to information, I always think of the industry as a single organisation because information needs to flow across every part of it. To enable this, we need an industry-wide, consistent approach to information management that connects the semantics, terminology, relationships, and grouping of information across the industry. This is where institutions, specialist domains, and special interest groups contribute their specific content.

When speaking with different parts of the industry, they all report similar issues with the quality, usability, retrieval, and sharing of information. Although the content of the information will differ, the structure and methodology will be the same. This commonality needs to be captured across the industry. Without a standardised approach, we will always face challenges in sharing and connecting data across domains.

Organisations

The industry foundations form a basis for organisations to build from and create their own information frameworks tailored to their business needs. A key aspect of information management is that it starts with business needs. Organisations must prepare for information management before any projects take place. Information management requires dedicated resources that span departments, integrating capital and operational expenditures to create a consistent information language across the organisation.

I have repeatedly seen organisations that have not considered information and data management, resulting in each department producing information in different ways, making it difficult to share across departments and impeding business-wide decision-making. Adding to this challenge, many software solutions are used that contain duplicated and contradictory data, forcing employees to spend time searching for, questioning, and cleaning up information before they can use it. When information isn't managed well, it's people and the bottom line that suffer.

Projects

A project (or an event) encompasses more than just capital projects; it includes any activity that requires an information exchange, such as new construction, refurbishments, maintenance, inspections, or replacements. The information follows a similar journey regardless of event type. If you think about it a project is where different parts of organisations come together to share information to accomplish something in the physical world. Therefore, if organisations share the same foundations the sharing of information across projects would be so much easier and it would form a stable base for the project.

It's also important to note that there is no such thing as a "BIM project"—information exists on projects regardless, and no project can exist without information. We should think of it more in terms of maturity, moving towards the use of more structured information.



The value of a common foundational approach

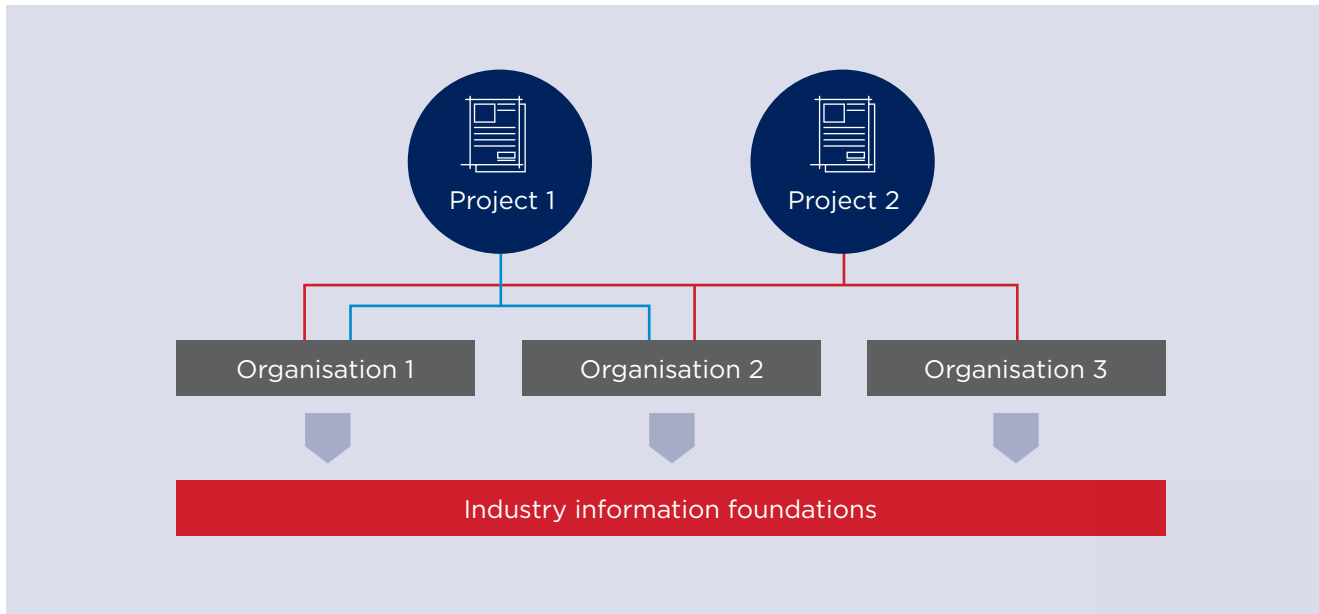


Figure 2 - A common information framework

This upwards cascade of a common information framework that spans industry, organisation, and projects - not only lays the foundations to enable information to be shared, connected and understood. It will allow people to move across different projects, organisations and domains

without needing to learn new information languages, structures, and workflows. It enables projects to start without reinventing the wheel each time, provides a foundation for deriving real value from technology, and allows flexibility in technology selection.

Conclusion

In this post, I've discussed several key concepts with regards to information and its management, but the most important one centres on the need for a common, consistent framework that requires committed industry buy-in and true collaboration. We have many of the puzzle pieces, but we need a clearer, bigger picture- to work towards, to start connecting what we have. I hope to explore aspects of this bigger picture in later publications and delve into some of the details.

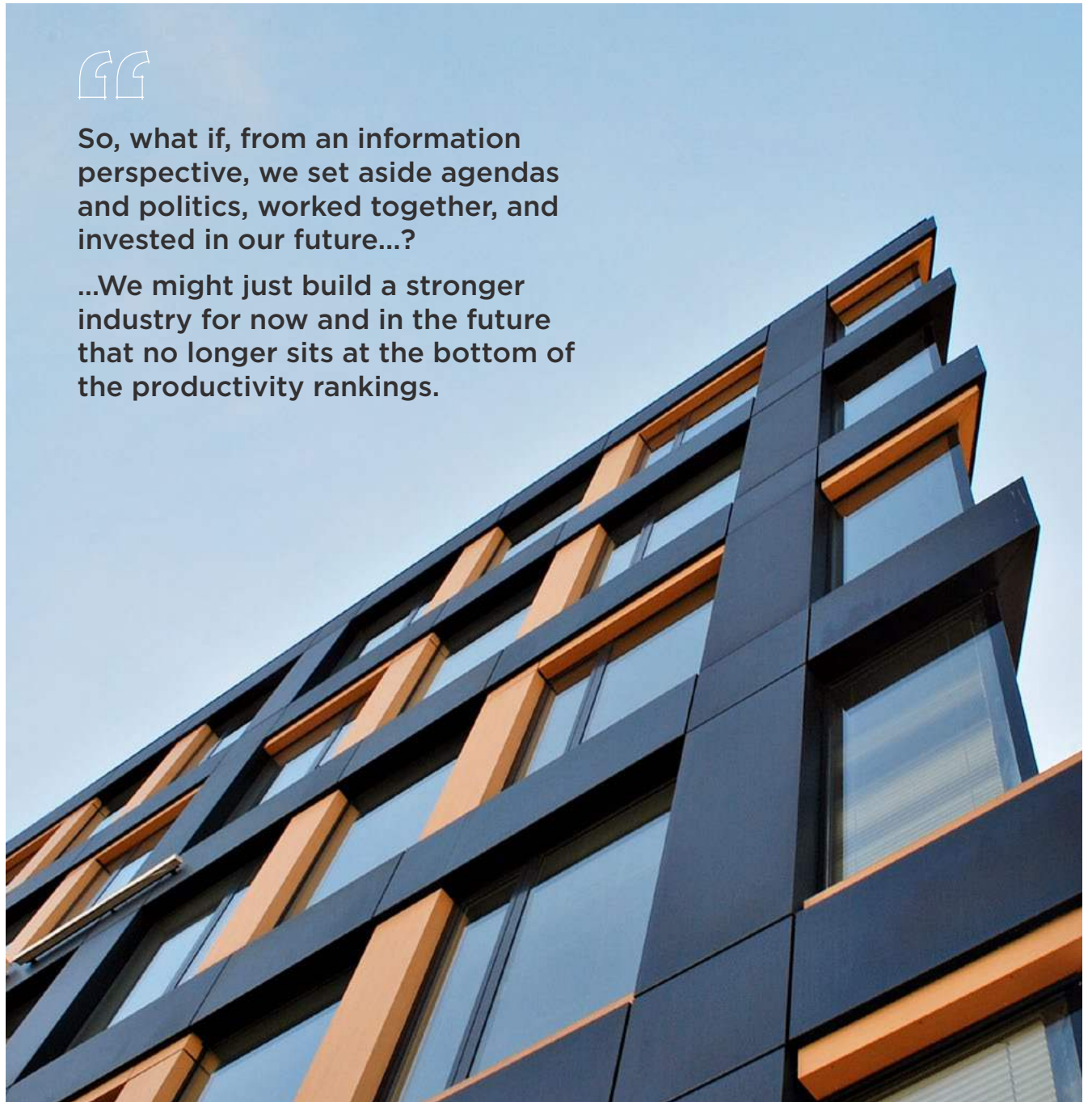
You might say, "We've tried this before." True, but we've not had the understanding of the direction we need to go in to create a cohesive, data-driven approach. Otherwise, we'll just continue to rely on different combinations of people doing things differently on each project, resulting in thousands of varied outcomes - where is the efficiency in that?

We are also now at a point where I believe this can no longer be ignored. Digital Product Passports, the Golden Thread of Information, approval gateways, decarbonisation, and AI are all real factors with serious implications if we get them wrong. These initiatives will only succeed if we have the proper information foundations and strategies in place as an industry.



So, what if, from an information perspective, we set aside agendas and politics, worked together, and invested in our future...?

...We might just build a stronger industry for now and in the future that no longer sits at the bottom of the productivity rankings.





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