



# Using **BIM / Digital Engineering** to de-risk and improve the entire **Project Lifecycle Management**





## Holger de Groot

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- Sessional Lecturer - University of NSW
- Board of Directors - buildingSMART Australasia

As National Director of BIM for the Australian region, my role is to **Supervise and Guide** Digital Practice Leaders at HDR. I am responsible for **Implementing** and advising leadership on the corporate **BIM Strategy**, interacting with **Various Disciplines** and advising on BIM matters at all levels.



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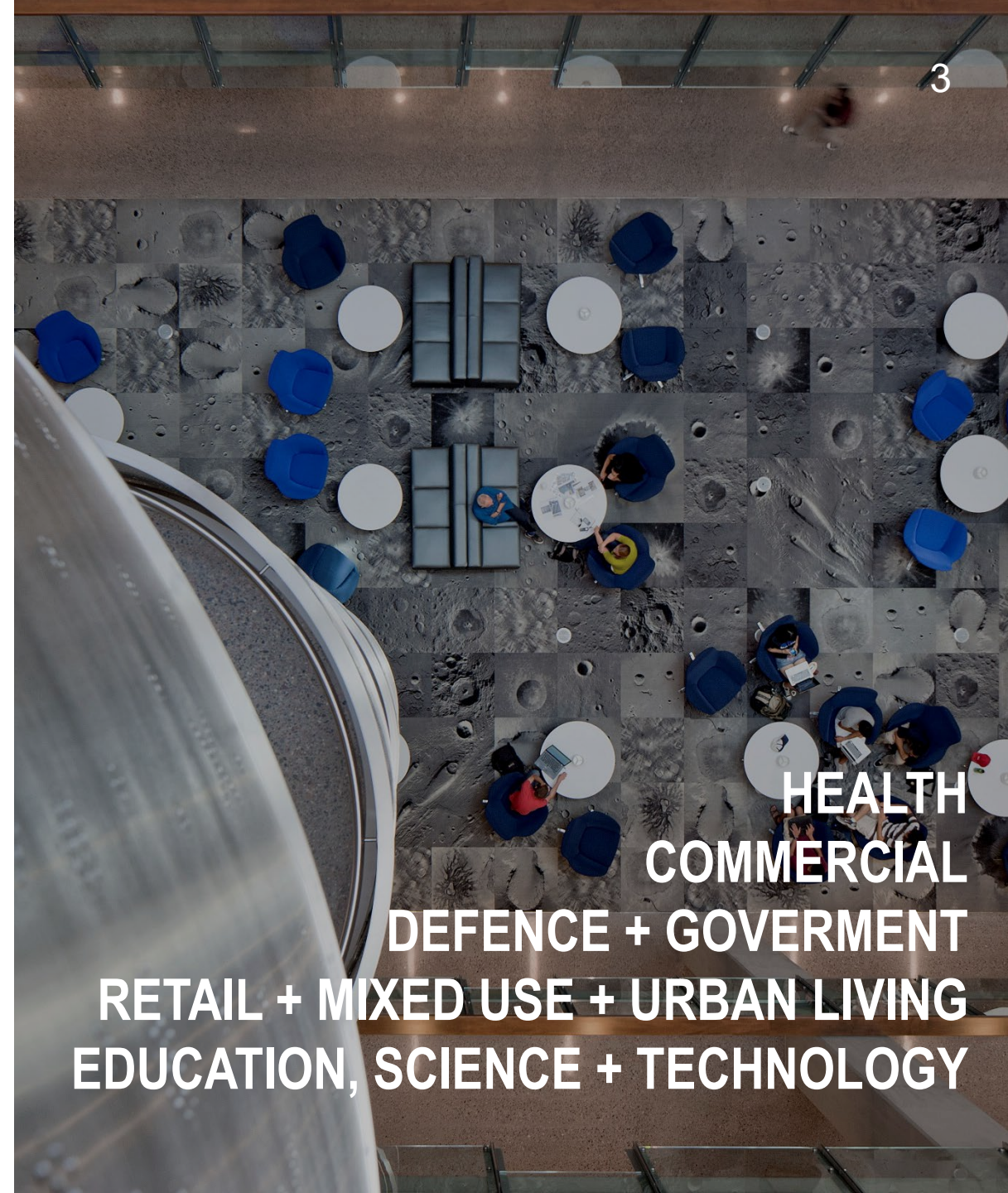
<https://www.linkedin.com/in/holger-de-groot-11741336/>



# HDR Profile

HDR is a creative firm for **architecture and engineering** with experience spanning **over 40 years in the Australian market**.

With more than **10,000 employees worldwide** in more than **200 offices around the globe**, we have access to highly informed best practice, innovative future-thinking and top talent from around the world, allowing us to contribute world-class intellect, expertise and specialist knowledge to our projects.



HEALTH  
COMMERCIAL  
DEFENCE + GOVERNMENT  
RETAIL + MIXED USE + URBAN LIVING  
EDUCATION, SCIENCE + TECHNOLOGY

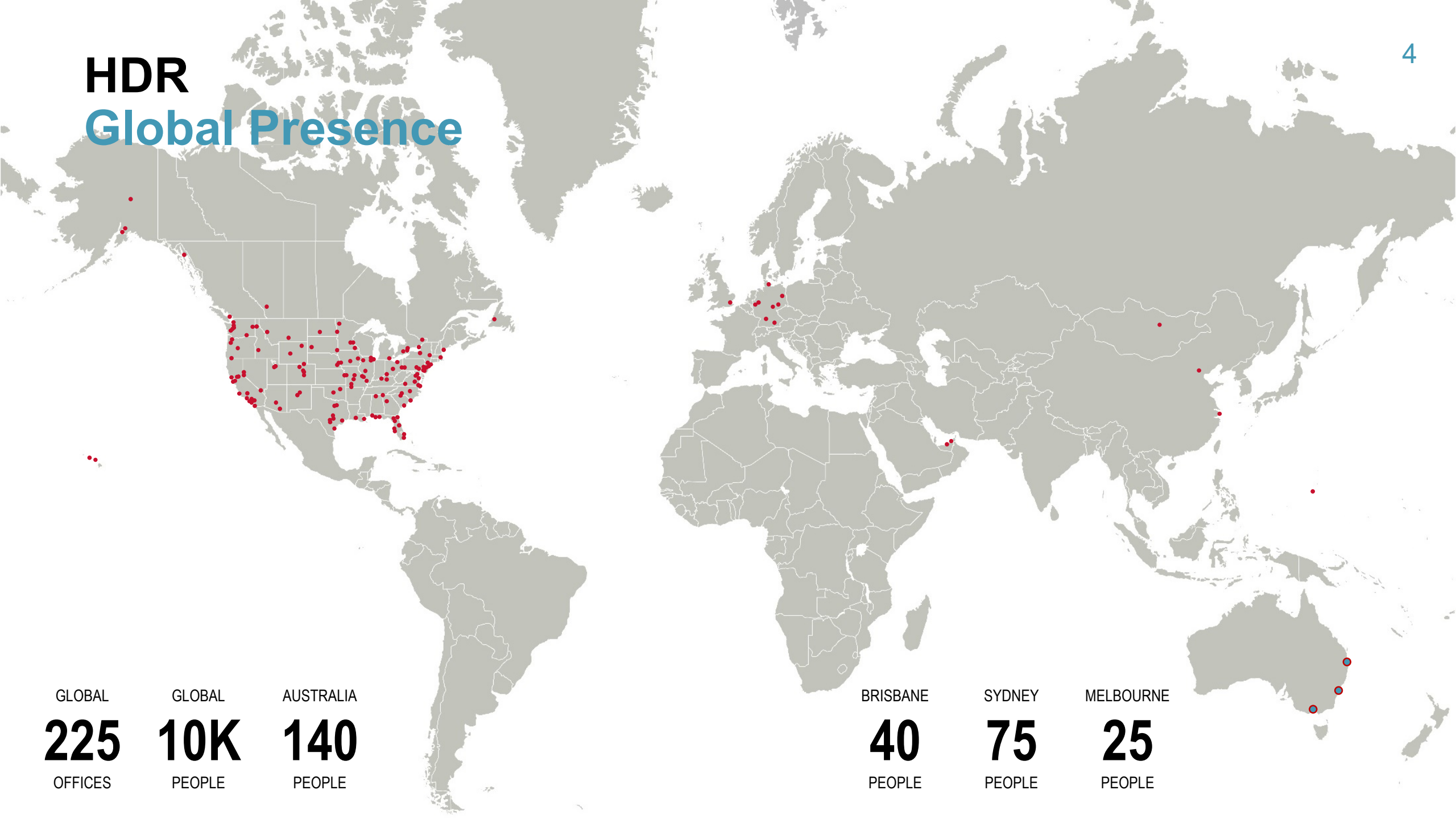
# HDR

## Global Presence

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GLOBAL	GLOBAL	AUSTRALIA
<b>225</b>	<b>10K</b>	<b>140</b>
OFFICES	PEOPLE	PEOPLE

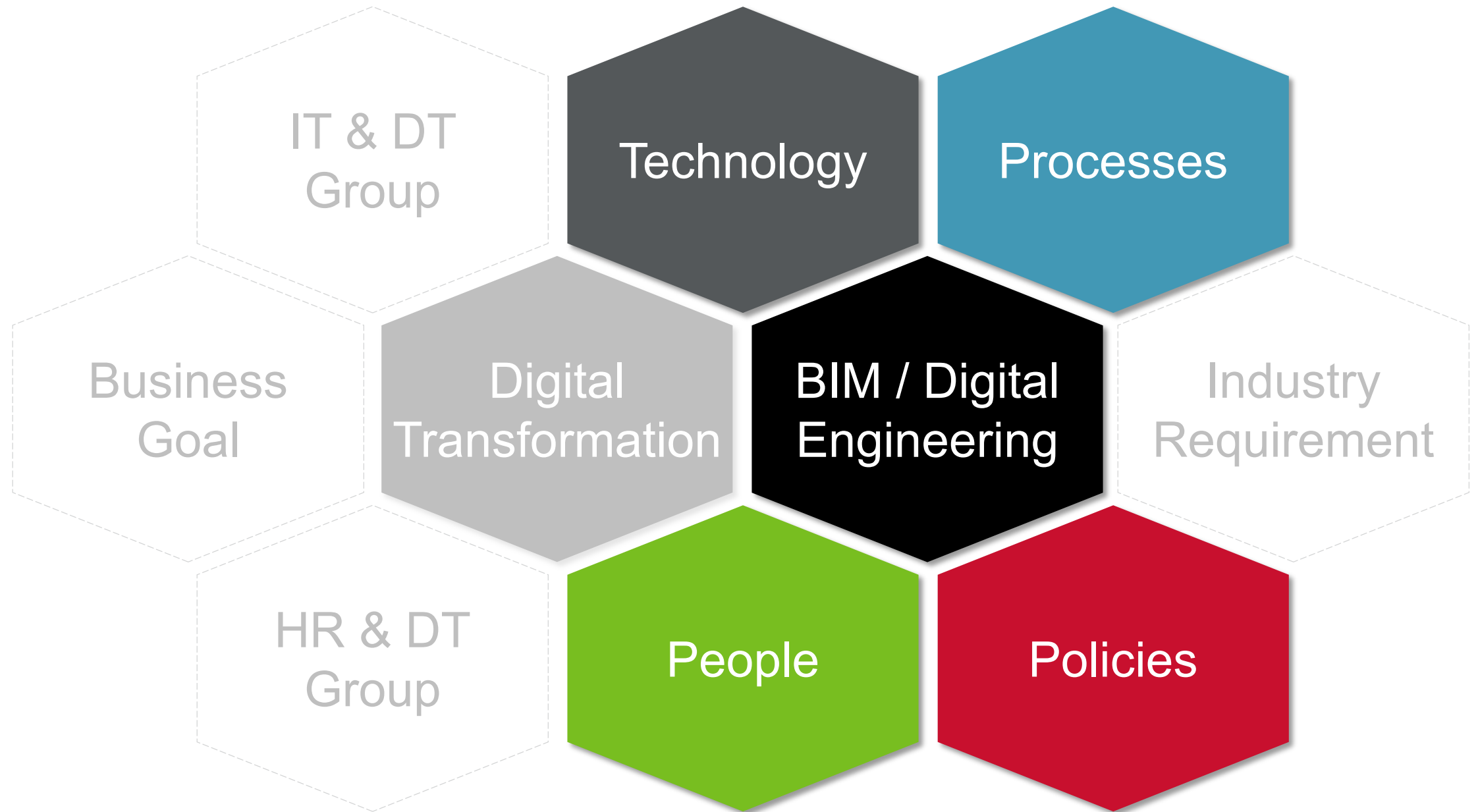
BRISBANE	SYDNEY	MELBOURNE
<b>40</b>	<b>75</b>	<b>25</b>
PEOPLE	PEOPLE	PEOPLE



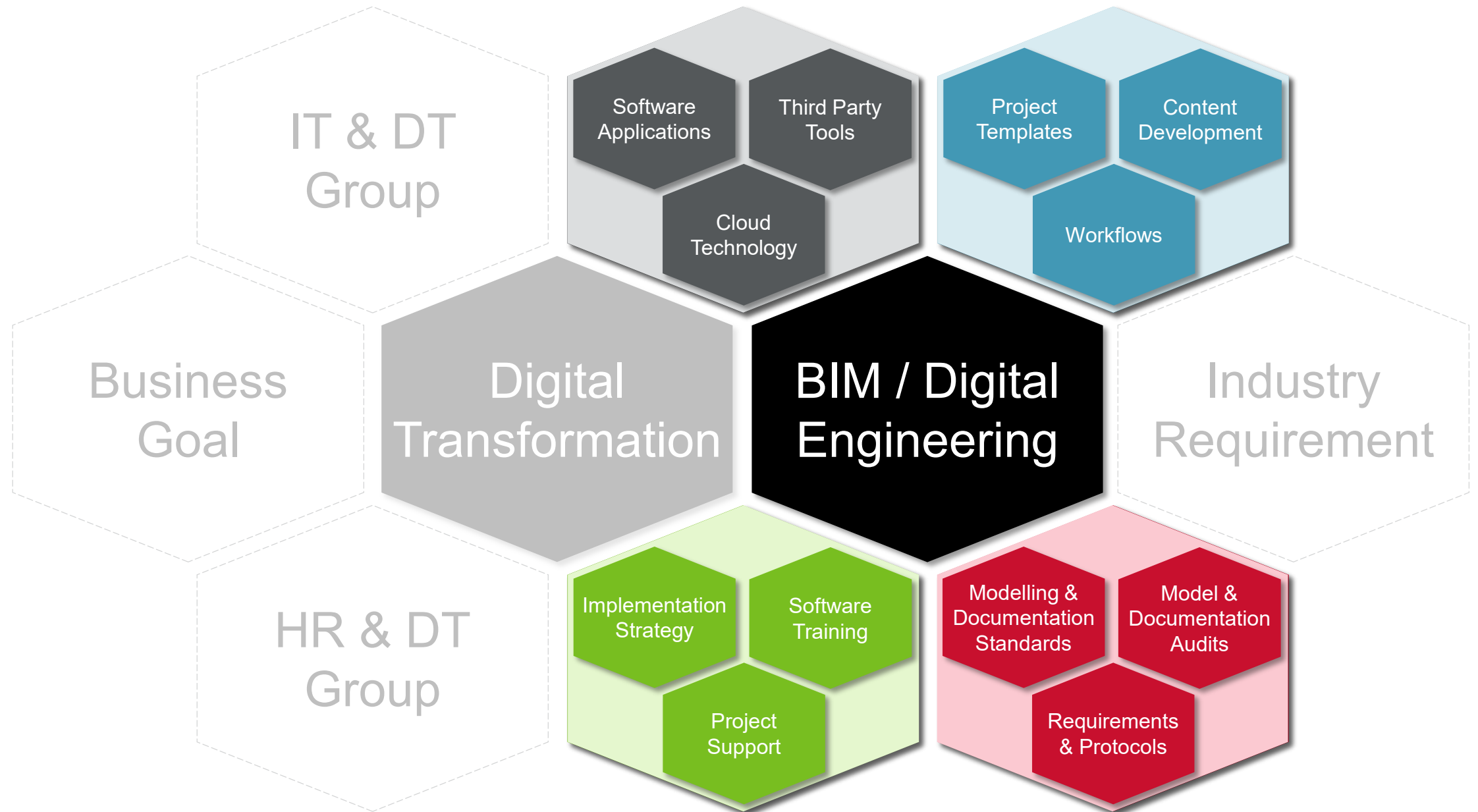


A man in a dark suit stands with his back to the camera, his hands clasped behind him. He is looking at a wall that is entirely covered with a dense pattern of interlocking gears of various sizes. The gears are rendered in shades of gray and white, creating a complex, mechanical texture. The floor is a light blue-gray color with a subtle wood grain pattern. The overall image conveys a sense of complexity, engineering, and the interconnectedness of systems.

# BIM and Digital Engineering



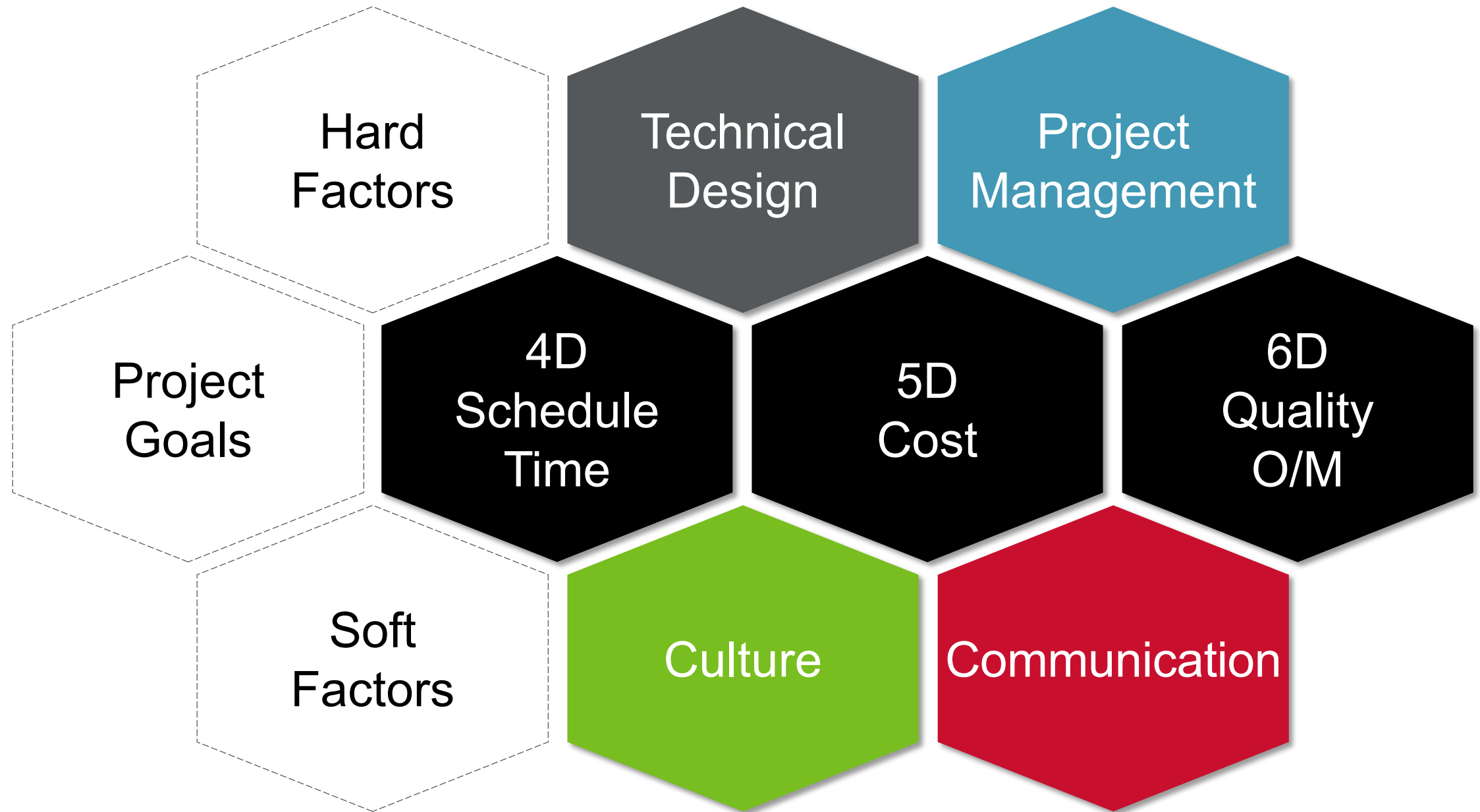


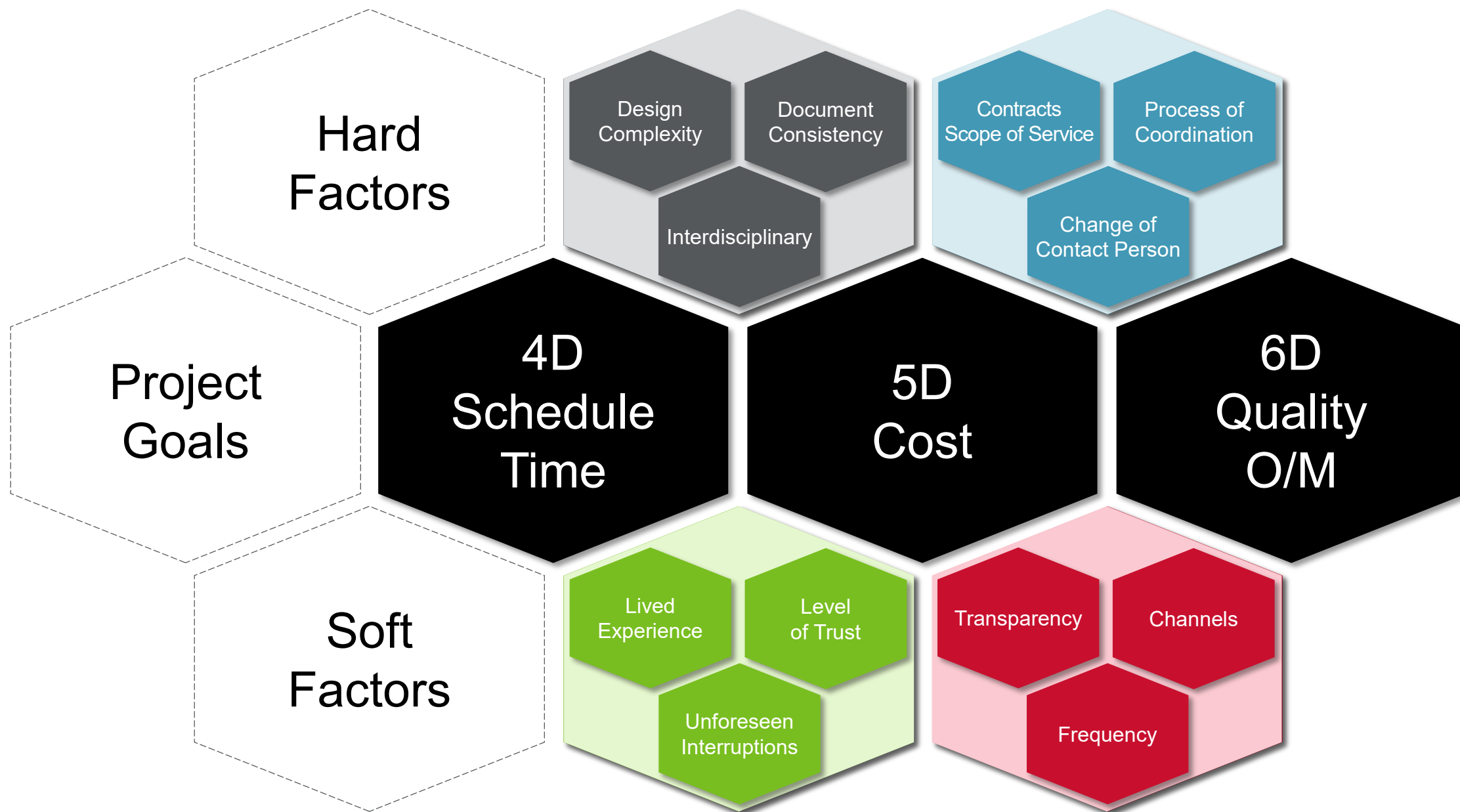




# **Project Goals and Challenges**



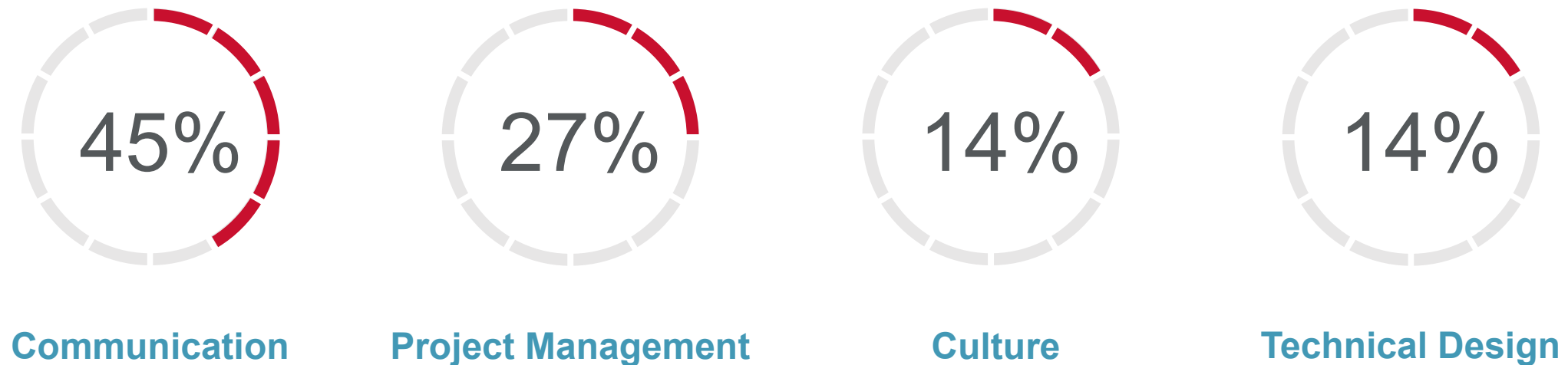






# What is the biggest Challenge?

Communication is the centre of all project processes. The purpose of communication is information transfer.



The data is based on a scientific survey which was undertaken by the Institute of Construction Management and Digital Engineering (ICoM) in 2017, involving project leaders in the field of Architecture, Engineering and Construction as well as Infrastructure and Civil Engineering.



## Project Lifecycle Management

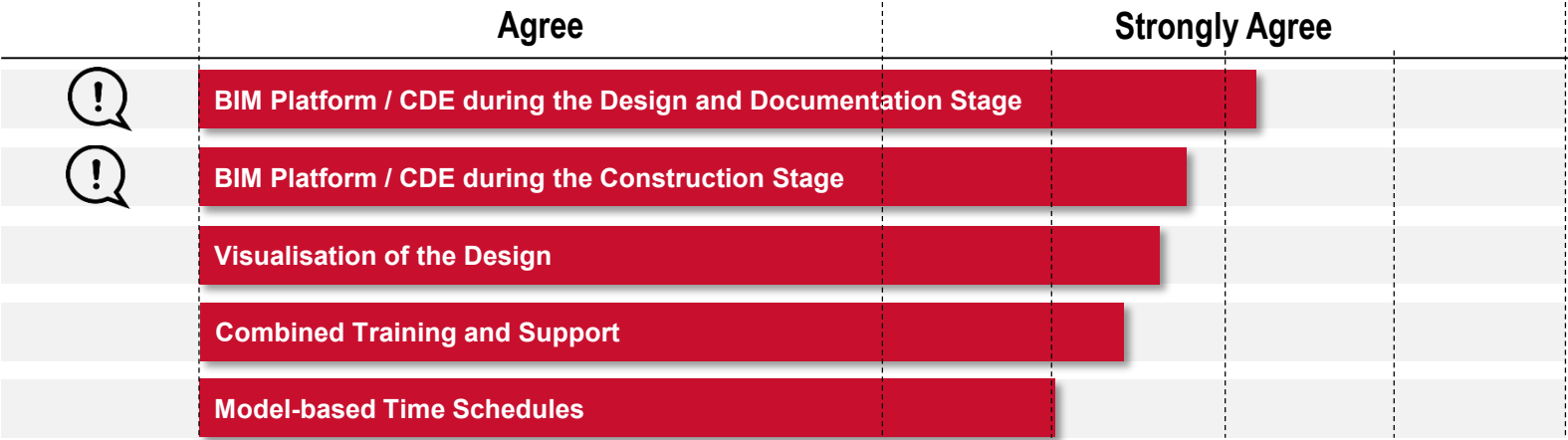


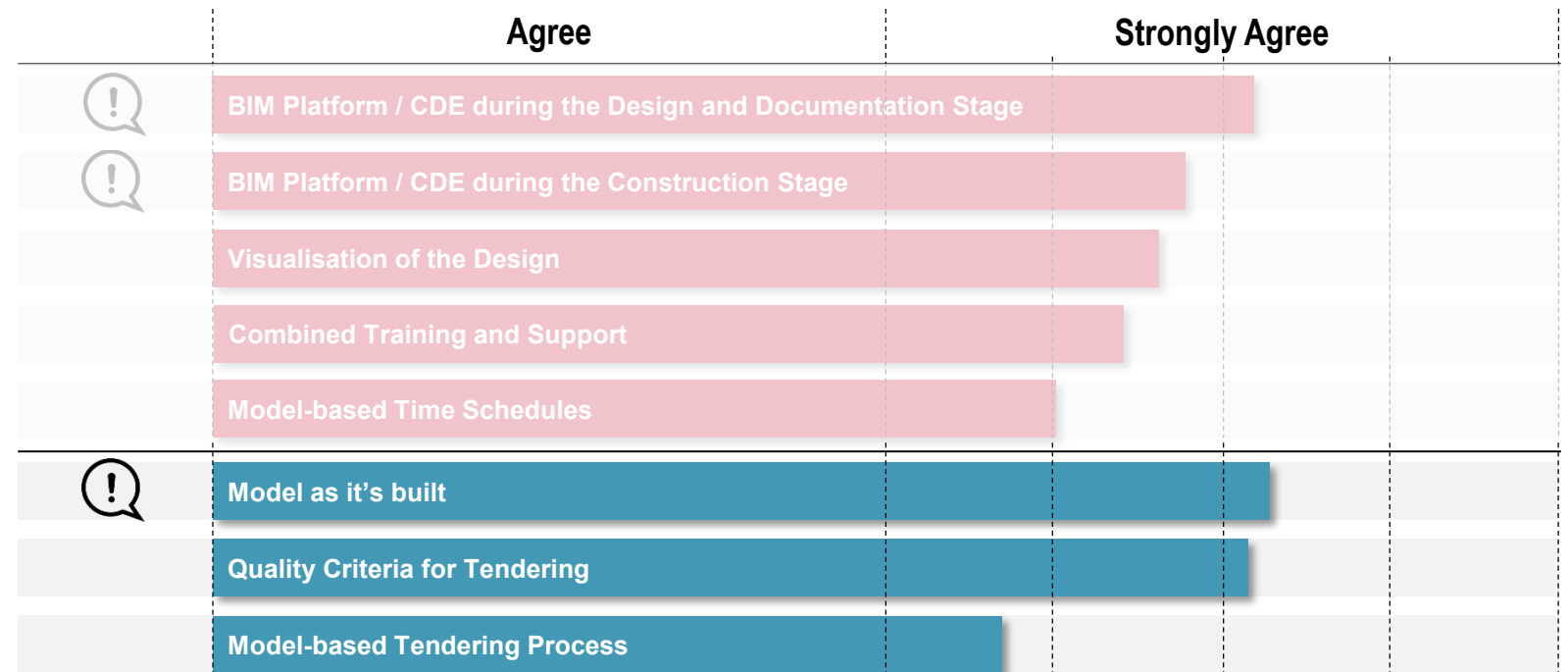
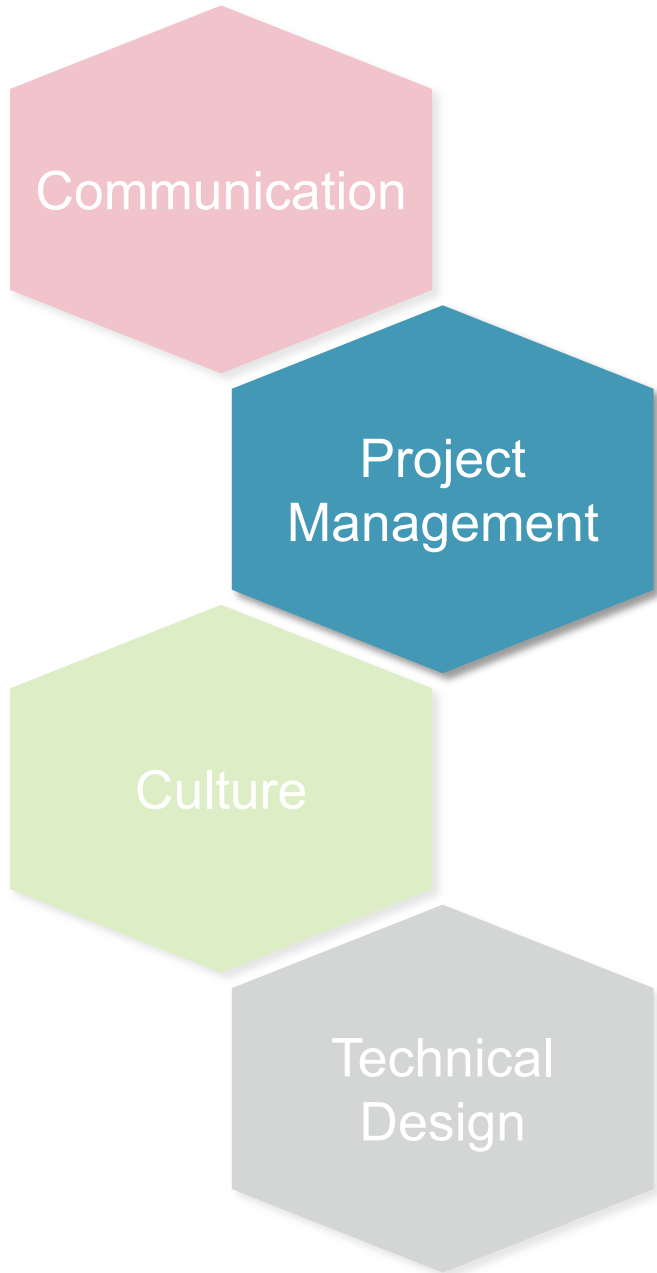
Communication

Project Management

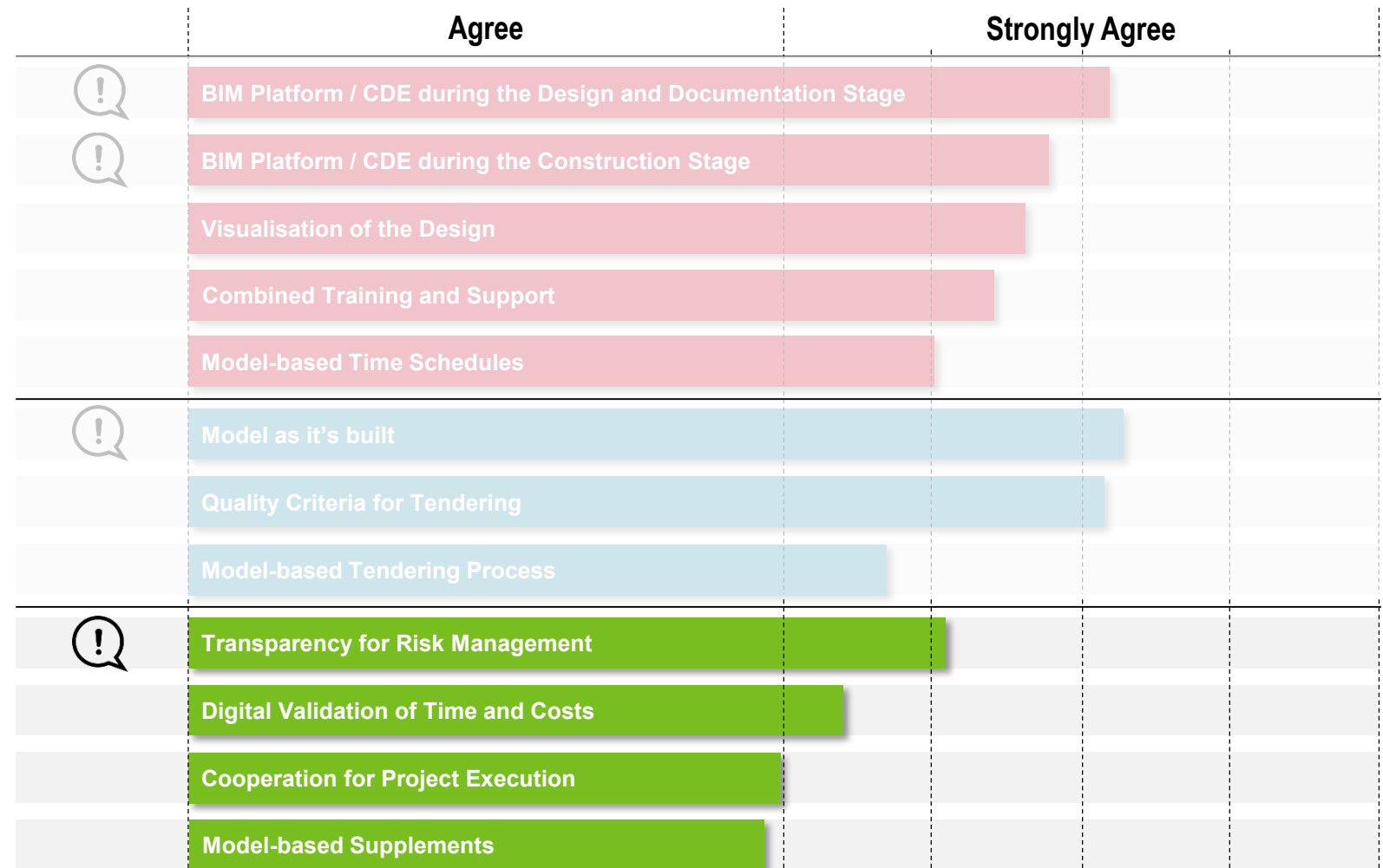
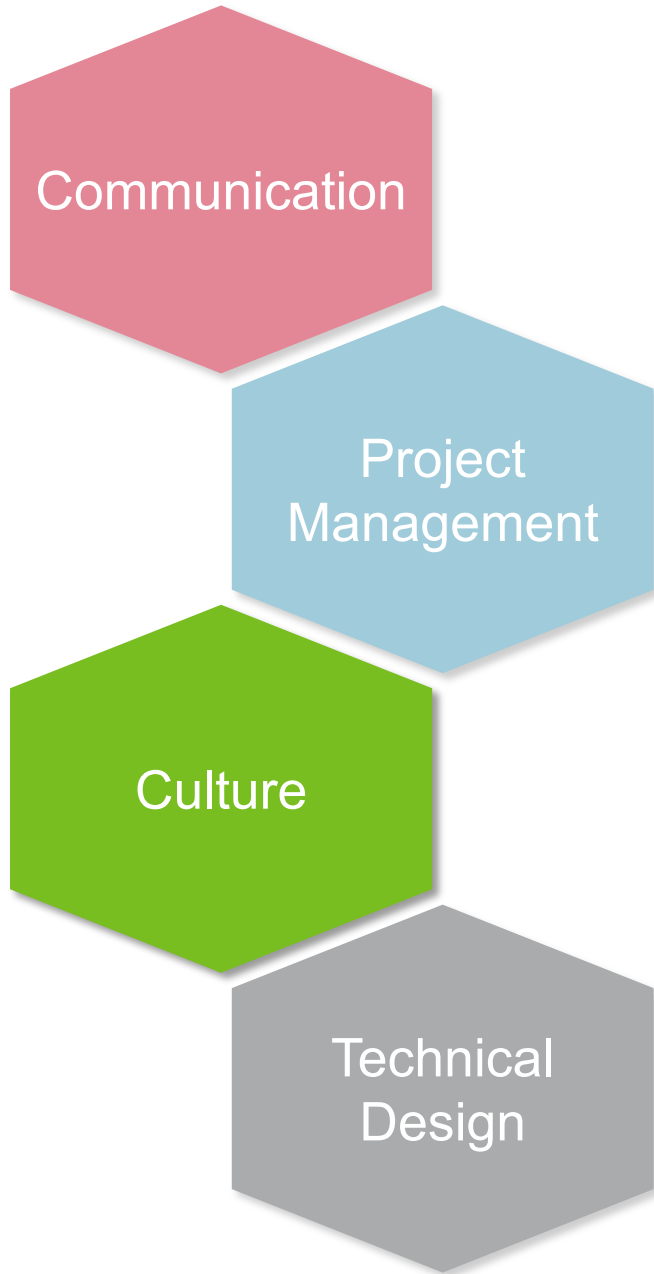
Culture

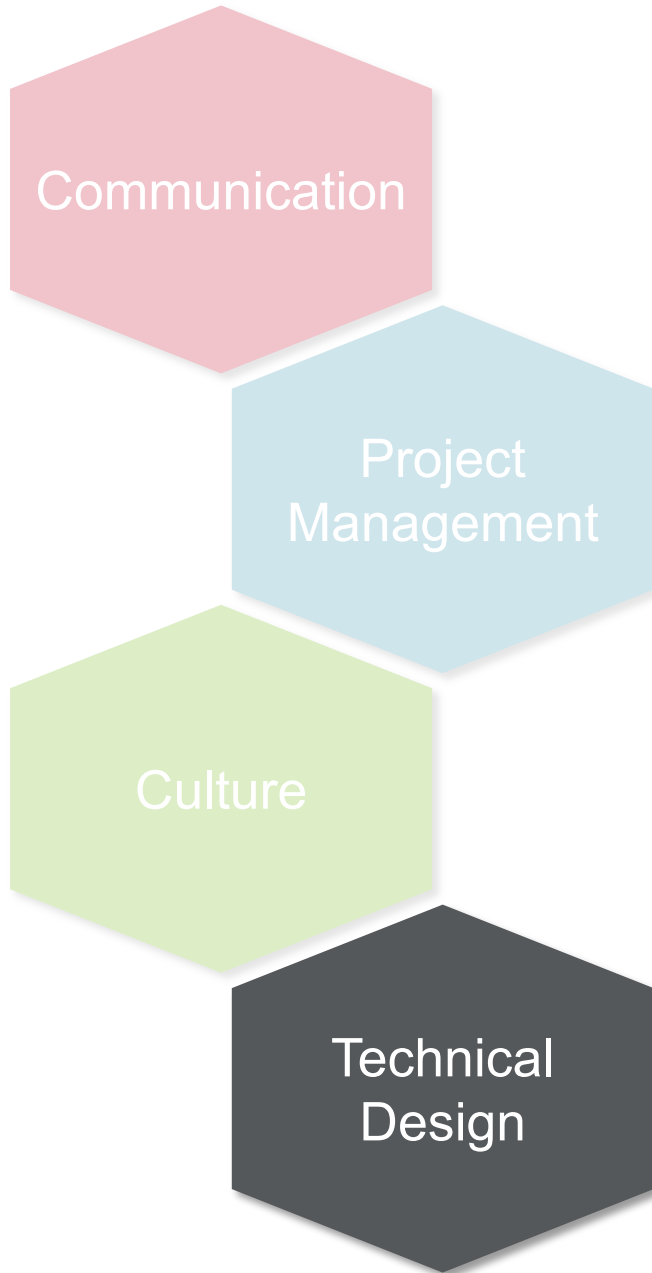
Technical Design











	Agree	Strongly Agree	
! BIM Platform / CDE during the Design and Documentation Stage			
! BIM Platform / CDE during the Construction Stage			
Visualisation of the Design			
Combined Training and Support			
Model-based Time Schedules			
! Model as it's built			
Quality Criteria for Tendering			
Model-based Tendering Process			
! Transparency for Risk Management			
Digital Validation of Time and Costs			
Cooperation for Project Execution			
Model-based Supplements			
! Model-based 3D Coordination			
! Defined Exchange Information Requirements & BIM Management Plan			
Data-Drop Points / Virtual Design Reviews			

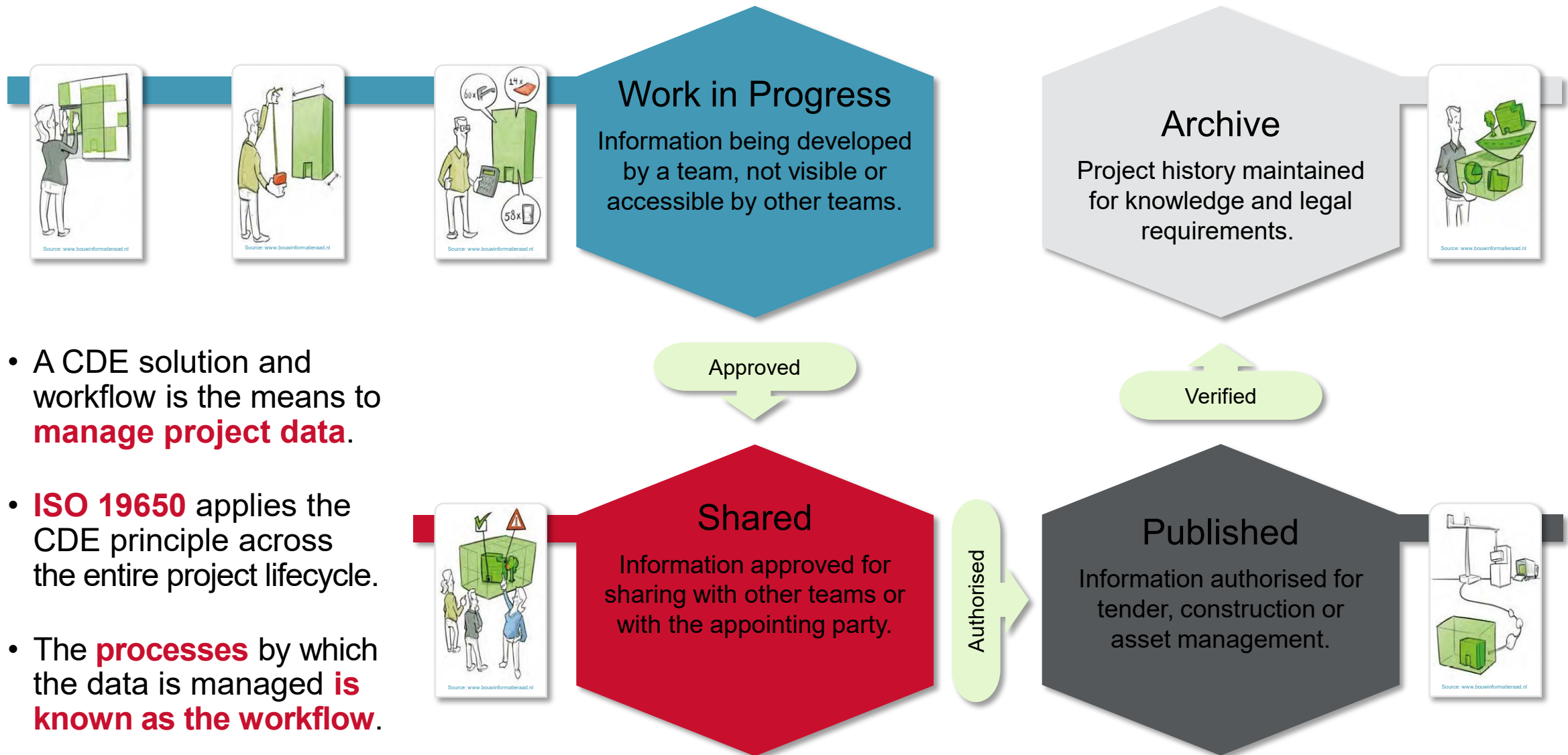


A close-up photograph of a network patch panel. Several Ethernet cables are plugged into the ports. In the foreground, a blue RJ45 connector is visible, with a yellow cable behind it. To the right, a white cable with a beige RJ45 connector is plugged in. Below that, an orange cable with an orange RJ45 connector is visible. The background is a soft-focus green wall.

**Common Data Environment**

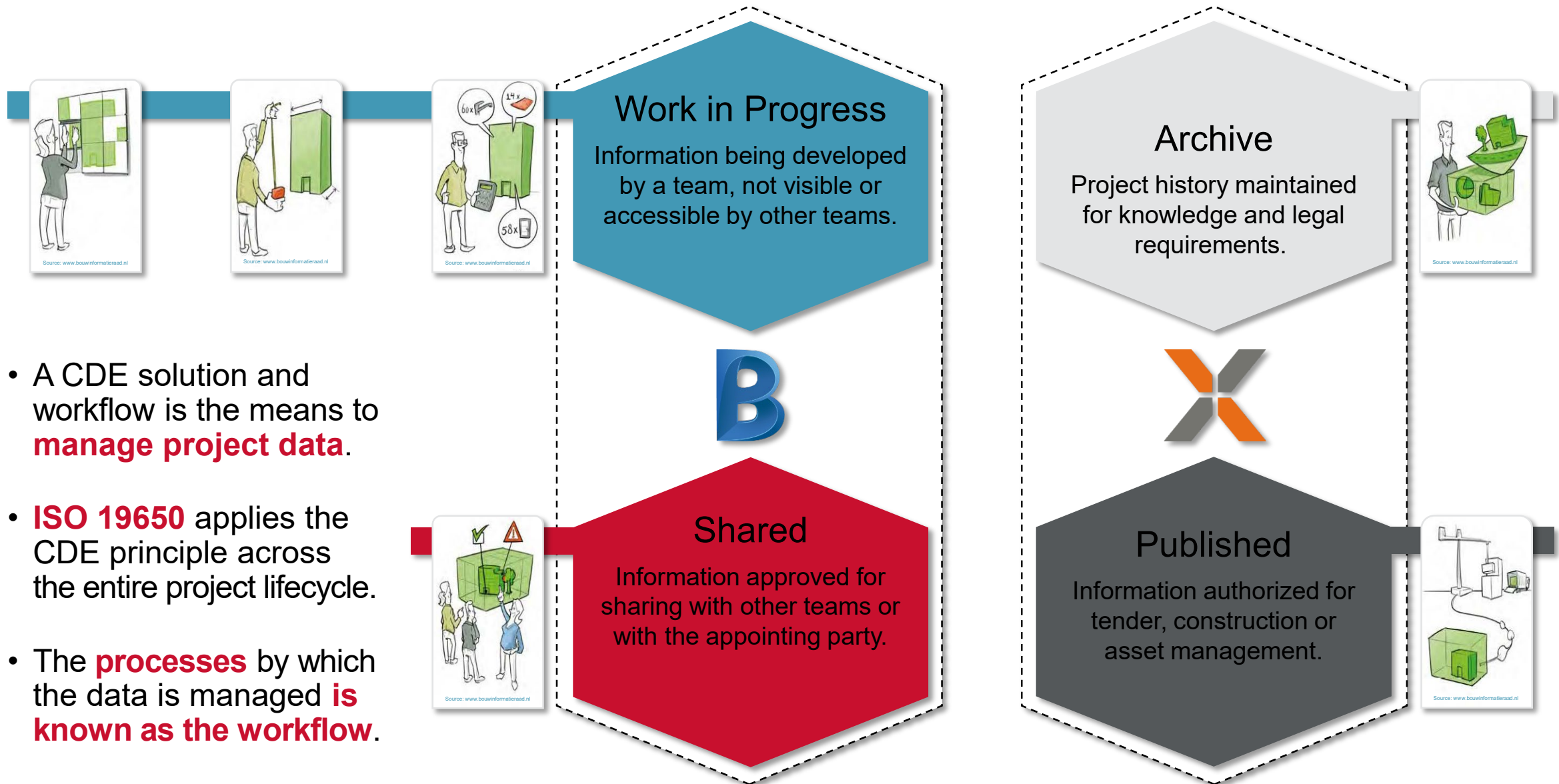
# Common Data Environment - Solution and Workflow

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# Common Data Environment - Solution and Workflow

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- A CDE solution and workflow is the means to **manage project data**.
- **ISO 19650** applies the CDE principle across the entire project lifecycle.
- The **processes** by which the data is managed **is known as the workflow**.



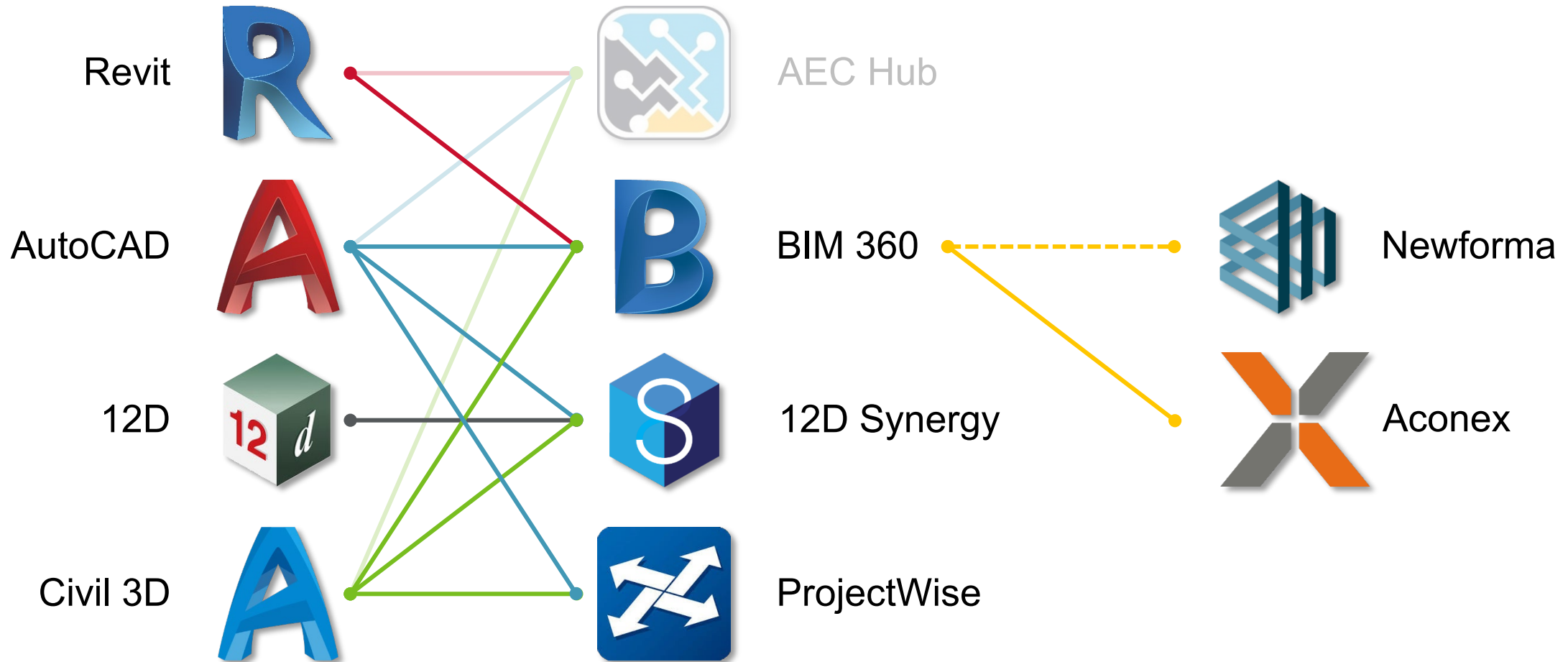
# Common Data Environment - Cloud-based Collaboration

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## Authoring Software

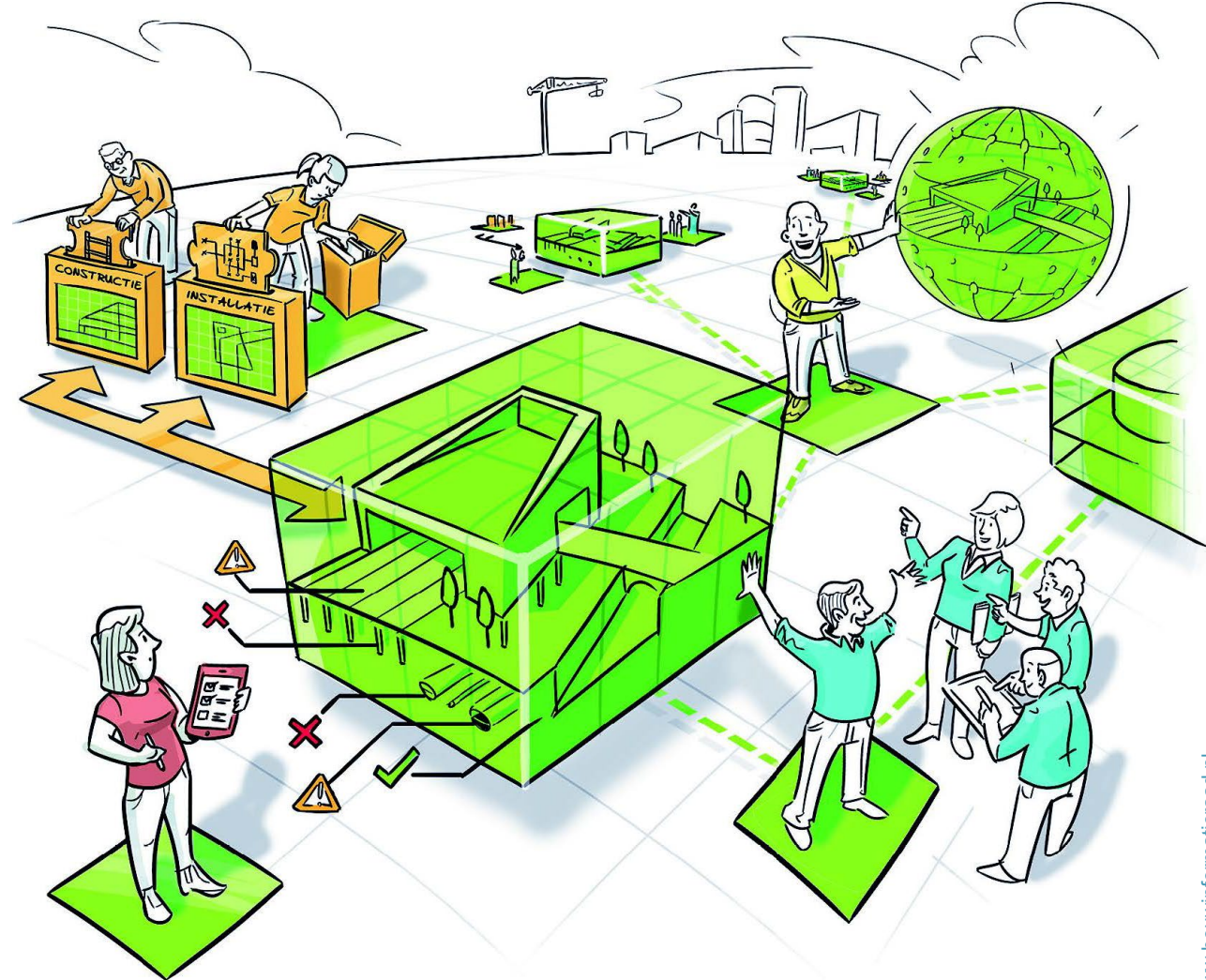
## CDE (WIP & Shared)

## CDE (Published & Archived)



# Common Data Environment - Cloud-based Collaboration <sup>21</sup>

- Enables BIM processes and the desire for **connectivity**.
- Helps you to **improve communication** with extended project stakeholders.
- Helps you to **reduce project errors** and to minimise data friction.
- Allows you to **work from anywhere** to boost productivity.
- Allows you to reduce costs by **co-locating project teams** virtually.



## BIM Supporting Documents





# BIM Supporting Documents for Collaboration

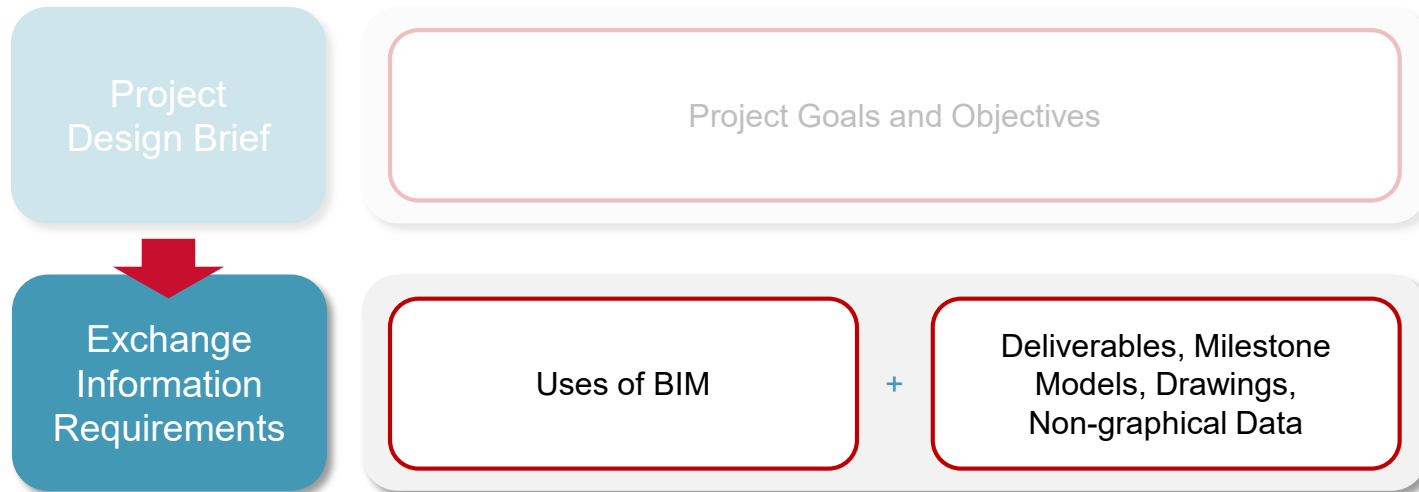
Project  
Design Brief

Project Goals and Objectives

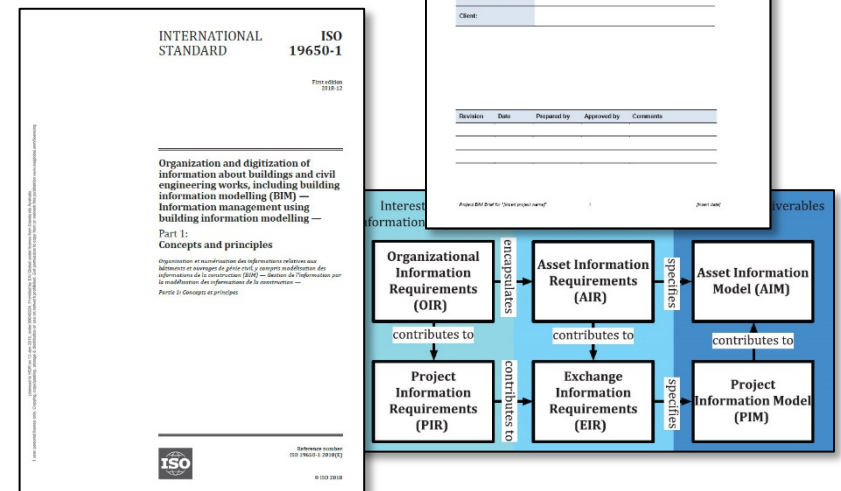
A Project **Design Brief** needs to be provided for example as **part of the tender package**.

# BIM Supporting Documents for Collaboration

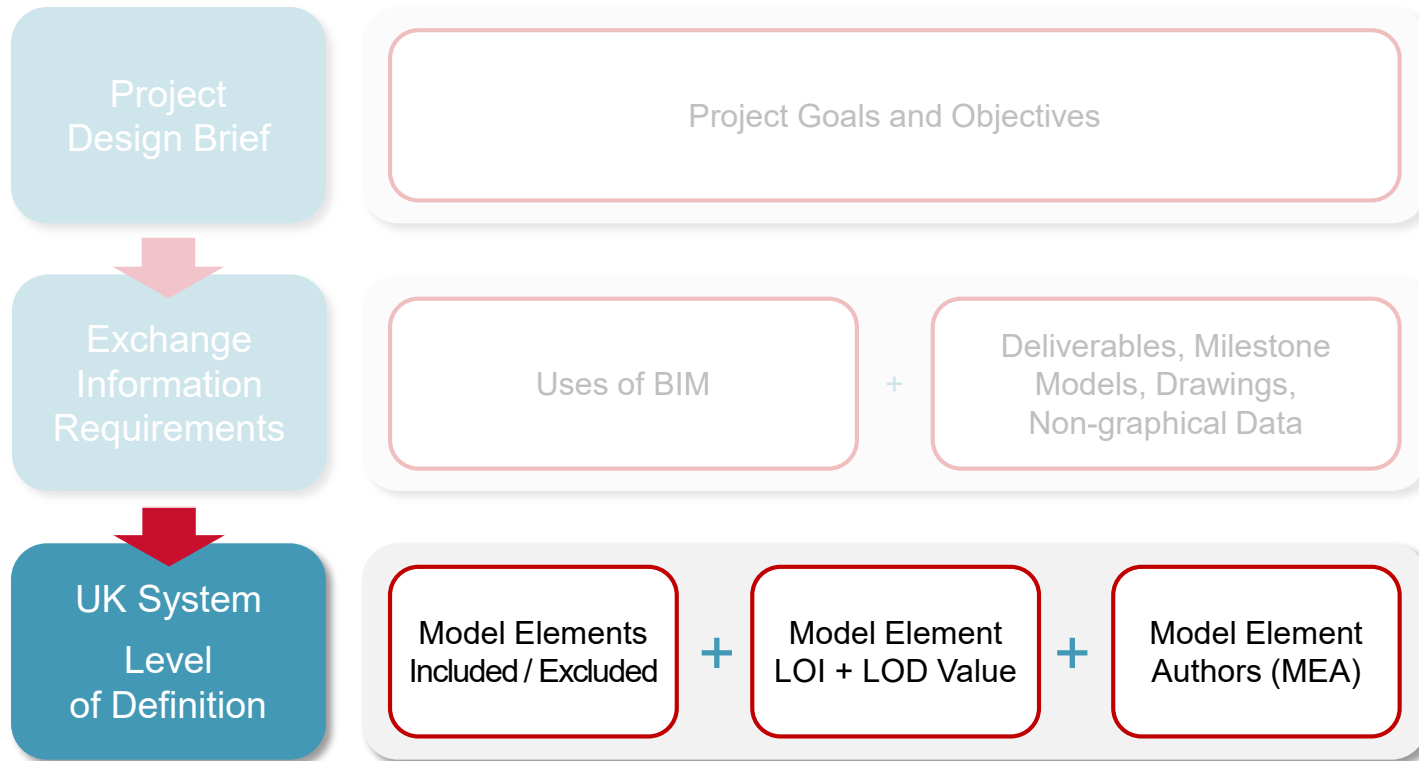
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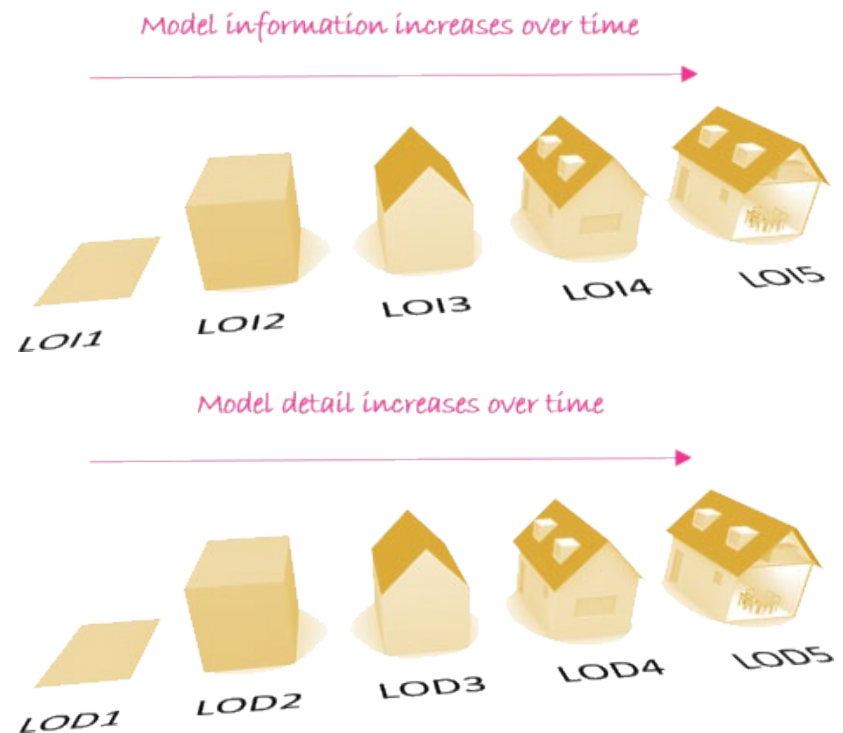
To identify the true **requirements of the user** and make sure the project solution has the right **qualities and capabilities**.



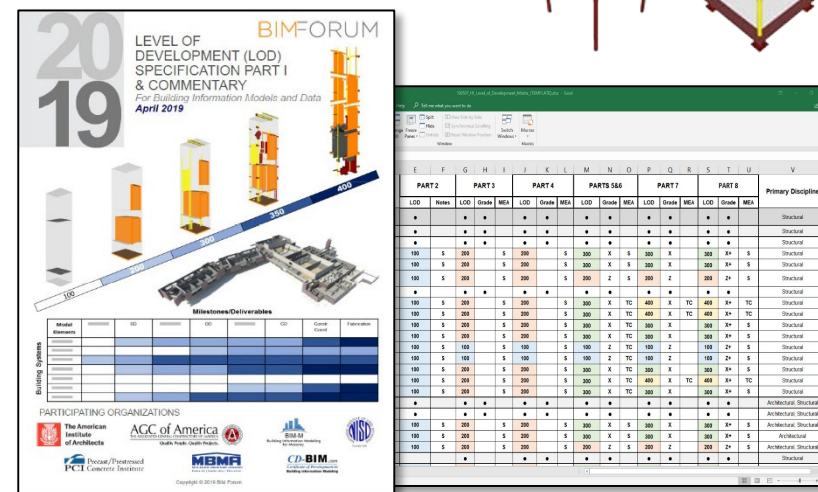
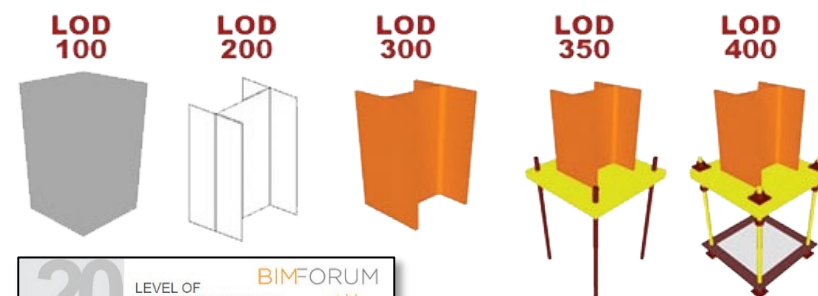
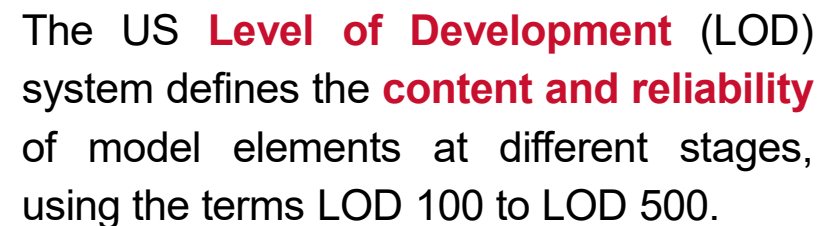
# BIM Supporting Documents for Collaboration



The UK **Level of Definition** system is aligned to the **Digital Plan of Work** and defined by **Level of Model Detail** (LOD) and **Level of Model Information** (LOI).

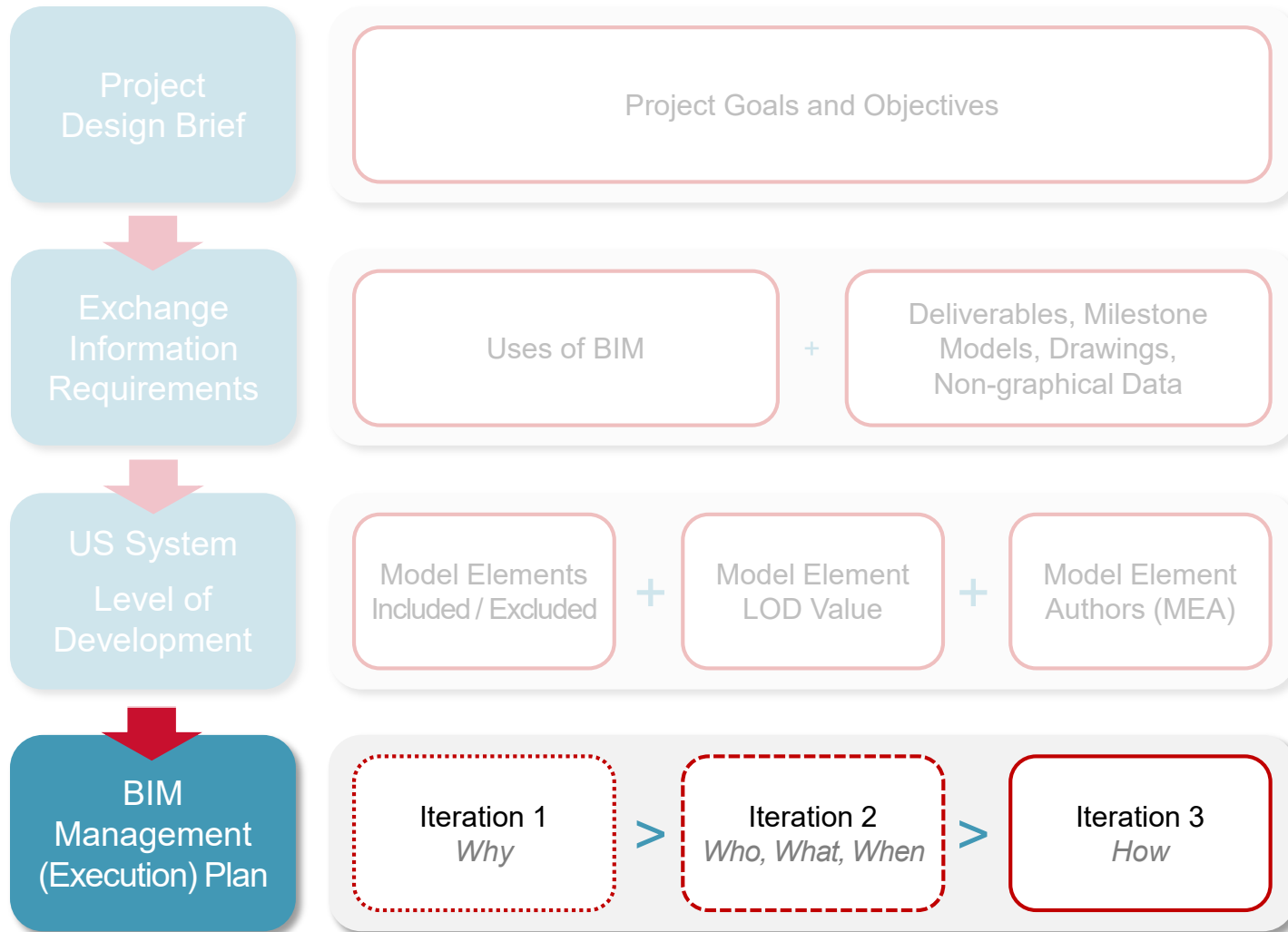




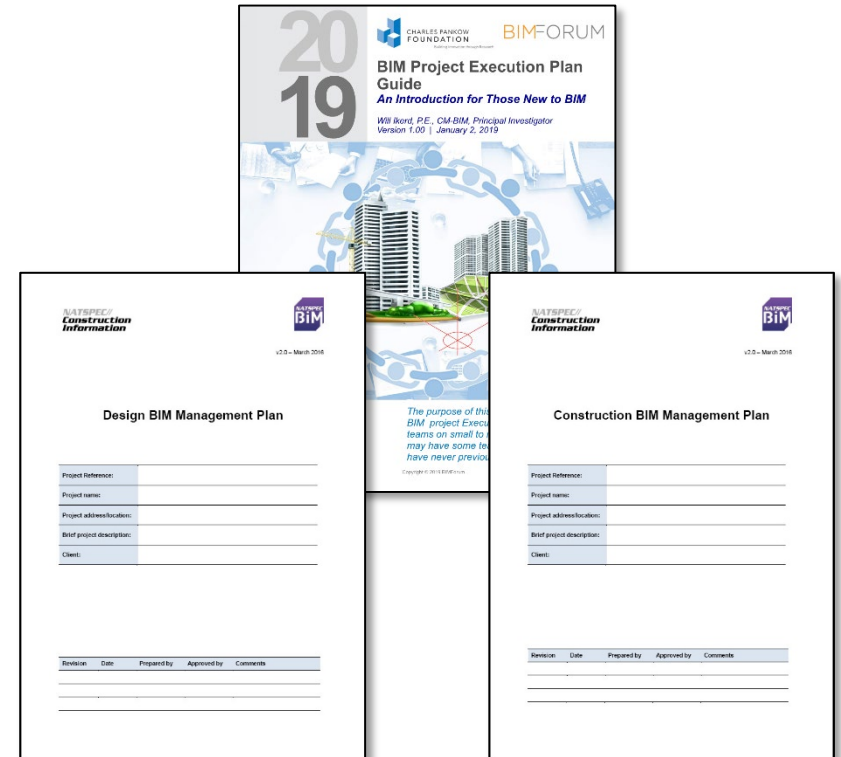


# BIM Supporting Documents for Collaboration

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To **plan and organize the work**, to mobilize the right resources, and to **coordinate and control development**.





## Lessons Learned



# Lessons Learned

## Communication is the Key

A level of transparency in communication will not only improve the entire project lifecycle management, but it can also make a project run more efficiently.

## Common Data Environment

A CDE is critical to drive collaboration, providing the ability to create, share, and manage project information among internal and external teams.

## BIM Supporting Documents

A BMP is a living document, helping all project members to manage their responsibilities and expectations through effective communication.





# Any Questions?



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