

The Golden Thread

Understanding the capability and capacity of the UK built environment to deliver and retain digital information

 **GoldenThread**

i3PT |  **CIOB**

December 2020



I want the industry to both recognise and respond to the need for a digital Golden Thread of information that is an essential part of delivering the improvements in building safety that are needed to ensure there is never another tragedy like Grenfell Tower.

Foreword by **DAME JUDITH HACKITT DBE**

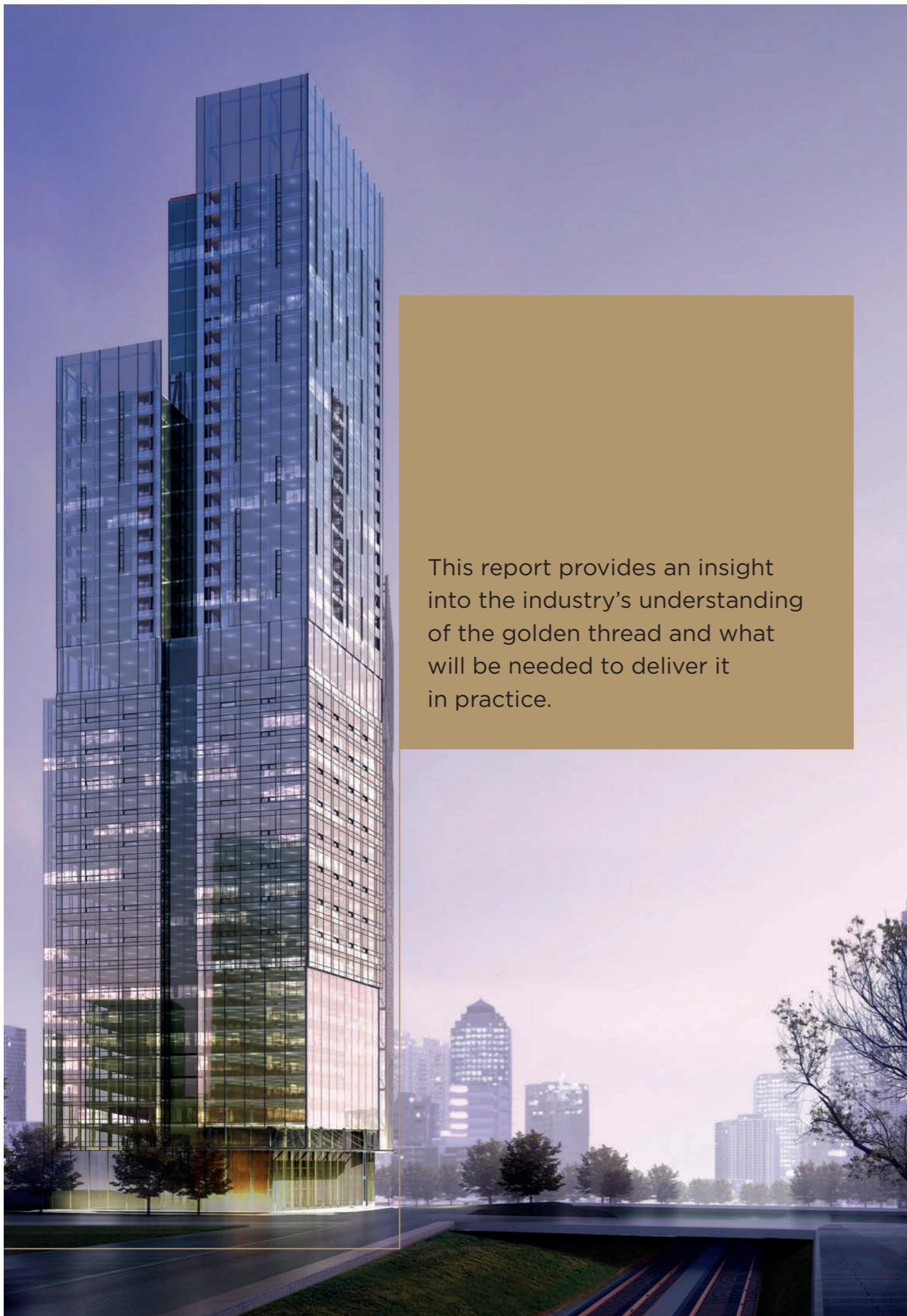


When I carried out an independent review of building regulations and fire safety in the wake of the Grenfell Tower fire, I was surprised to find the lack of complete, accurate or up to date information on the buildings the construction industry has created, which are then passed on to be owned and managed by others without knowing what they have.

In other sectors we take it as read that if there is a fault or a problem every single element of what has gone into that product can be traced and identified - from cars to food. Why is that not the case for the homes that we live in? Why is it that the "design" of a building often bears only a passing similarity to what is actually built and what is actually built doesn't get recorded? How can those who become the managers responsible for managing facilities do that if they do not know what they are working with? Modifications to a building, especially a complex one, can only be undertaken safely if you understand the key design, structural and safety features of what you start with.

It is against this backdrop that I want the industry to both recognise and respond to the need for a digital golden thread of information that is an essential part of delivering the improvements in building safety that are needed to ensure that there is never another tragedy like Grenfell Tower.





This report provides an insight into the industry's understanding of the golden thread and what will be needed to deliver it in practice.

Introduction by **PAUL NASH** MSC PPCIOB



When it was published in May 2018, the Building a Safer Future report highlighted the urgent need to change attitudes and behaviours towards building safety within the construction industry.

It was clear that the sector needed to adopt new ways of working if it was to ensure that the tragedy of Grenfell Tower was never repeated and that residents in higher risk buildings were safe, and could feel safe, in their homes.

One of the key recommendations of the report was the need for a digital golden thread of building information that was maintained throughout the lifecycle of a building.

This was a recognition of the fact that very often the information that was available to building owners and managers was incomplete, out of date and difficult to access.

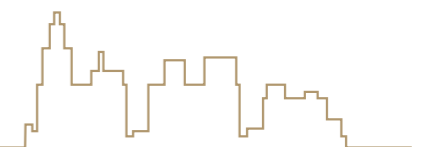
But how prepared was the industry to deliver the golden thread and what would be needed to make it happen?

These were the questions that the Chartered Institute of Building and i3PT Certification set out to answer earlier this year when they commissioned a survey to investigate the golden thread.

This report presents the findings of that survey and whilst it does not offer solutions, it does provide an insight into the industry's understanding of the golden thread and what will be needed to deliver it in practice.

Importantly it shows that whilst there is support for the golden thread there are barriers to adoption that will need to be overcome and for that we need to look to industry and government to lead the way.

I would like to thank everyone who took the time to respond to this survey and the team that have worked to review the survey responses and analyse the data which informed this report, with a special mention to Vicki Reynolds who has been the 'golden thread' that made it happen.



Executive Summary

The following is a summary of the findings of the survey undertaken by i3PT Certification and the Chartered Institute of Building to understand how prepared the UK’s built environment industry is to deliver a digital golden thread of information.

A detailed analysis of the data that has informed this report is presented under the following four headings.

Understanding

Most respondents were confident in their own understanding of the golden thread, however less than half believe that the appropriate people in their organisation share the same level of understanding.

Almost 80% do not feel that it is clear where to go for support, advice and resources relating to the golden thread.

87% of respondents believe that the requirement for a golden thread should be extended to cover a wider scope of buildings, specifically care homes, schools and hospitals.

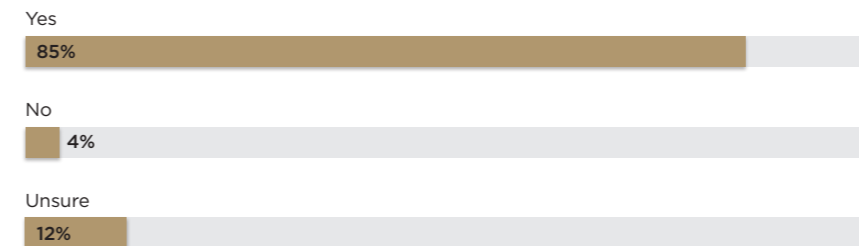
Responsibilities

There is no clear consensus over who owns project data at the design and construction stages of a project. Respondent groups appear more comfortable assigning ownership responsibilities to other parties, rather than taking on those responsibilities themselves.

There is agreement that the government should not be considered responsible for covering full costs for training, support and technical investments, and that cost should be shared between government, clients and project delivery teams.



Do you believe that a digital golden thread of information will enable better decision making and create a clearer chain of accountability across the built environment?



Capability

Almost 60% of respondents believe that the concept of a digital golden thread of information is aligned with the UK BIM Framework. The majority also believe that less than a quarter of projects in the UK are currently being delivered to the level of BIM required in the UK BIM Framework. Over 65% of respondents describe their in-house BIM capability as good or excellent.

Respondents estimate that it will take at least two years to implement a golden thread as business as usual for higher risk buildings in the UK.

Almost half of client and facilities management teams do not have the appropriate software and technical capabilities to check that information provided to them by the design and construction teams meet their information requirements and 35% are not confident that they could clearly specify the correct requirements at the outset of a project.

Blockers

75% said that industry culture is the biggest blocker to delivering a golden thread of information, whilst technology was of the least concern.

Respondents believe that legislation, more support and clearer communication are the actions needed to overcome blockers, whilst having more time to prepare, and more financial support are considered less important.

This report tells the story of an industry that understands the need for change and is cautiously hopeful that it can be achieved. When asked if a golden thread of information will enable better decision making and create a clearer chain of accountability across the built environment, 85% agreed.

A number of respondents provided supporting comments to their answers when filling in the survey and some of these comments have been included in the report to add further context to the data. Quotation marks have been used to indicate which text is a respondent comment.

All comments have been left anonymous, unless we have received explicit permission to reference the author.

A small number of respondents skipped questions in the survey. Where the total percentage count for any of the questions in this report falls below 100%, this can be considered the “did not respond” percentage.



SECTION 1

UNDERSTANDING



1.1 Definition

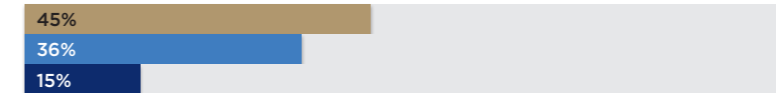
Respondents are more confident in their own understanding of the term golden thread, but less confident that others share the same level of understanding.

Despite this, over half do not believe that their organisation will need to hire new staff or consultants to deliver a golden thread.

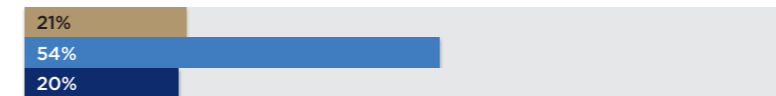
Do you feel confident that you understand what is meant by the term "digital golden thread of information"?



Do you believe that the appropriate people within your organisation understand what is meant by a digital golden thread of information?



Do you think your organisation will need to hire new staff or seek help from a consultancy specifically to understand and deliver the golden thread recommendations?



Yes No Unsure

“In business, the golden thread is setting a goal and plotting a course to achieve it. But this idea of information being passed from designers to contractors, to facilities managers as if it was a neat package, is over simplistic, it doesn't reflect reality.”

“A number of colleagues pay 'lip service' to the concept and are in agreement that it is important to the overall asset management process going forward, but are unsure how to deliver it and the potential cost and risk implications of getting it 'wrong'.”

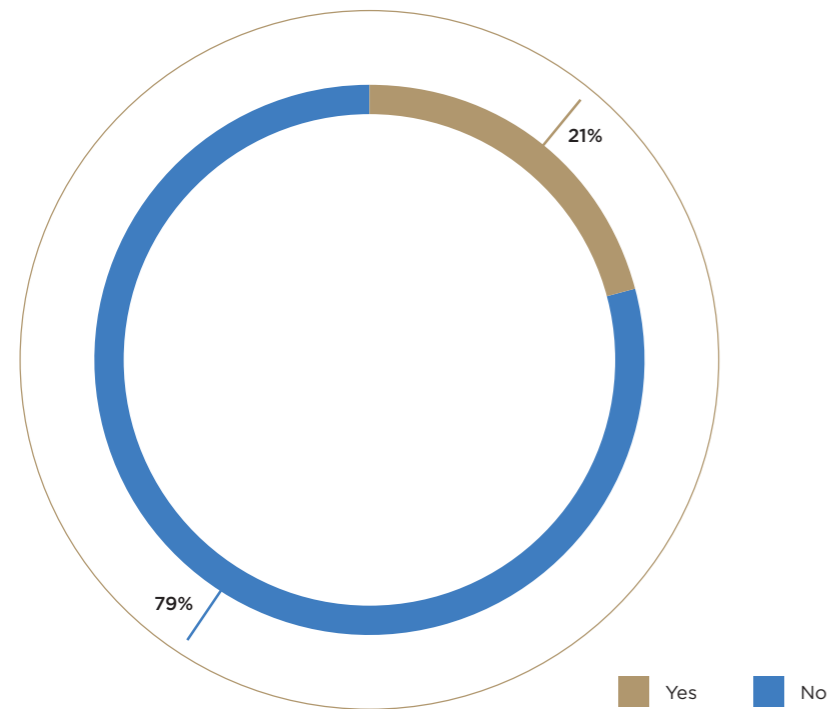
“It is of course possible to interpret it in different ways.”



1.2 Support

When asked if it was clear where to go for support relating to golden thread requirements, the majority said no.

Is it clear where in the industry organisations and individuals can go for support, advice and resources relating to the golden thread requirements?



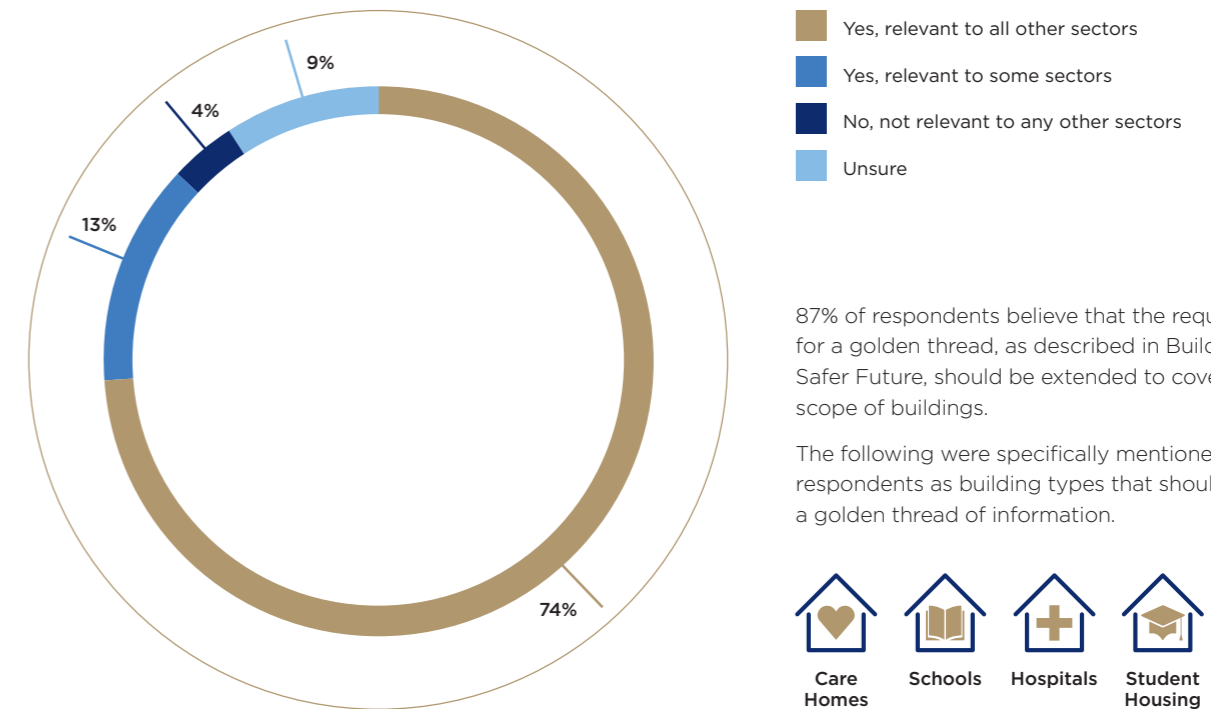
“I believe that there is a requirement for more information and support on the subject and clear definition on future mandates and requirements.”

“A simple diagram showing the requirements of the golden thread across the life of a project would be useful and easy guidance.”



1.3 Scope

Building a Safer Future was written specifically to respond to safety concerns in high risk residential buildings. Do you believe the recommendations in the report are relevant to other sectors of the built environment?



- Yes, relevant to all other sectors
- Yes, relevant to some sectors
- No, not relevant to any other sectors
- Unsure

87% of respondents believe that the requirements for a golden thread, as described in Building a Safer Future, should be extended to cover a wider scope of buildings.

The following were specifically mentioned by respondents as building types that should have a golden thread of information.



“NFCC (National Fire Chiefs Council) considers the current system to be broken as we regularly see buildings that are not fit for purpose, including those with serious defects that can result in situations where fire and rescue services consider prohibiting the use of the building. Additionally, height of a building is only one risk factor. There are other informing factors which are more relevant e.g. vulnerability of occupants, that need to be considered.”



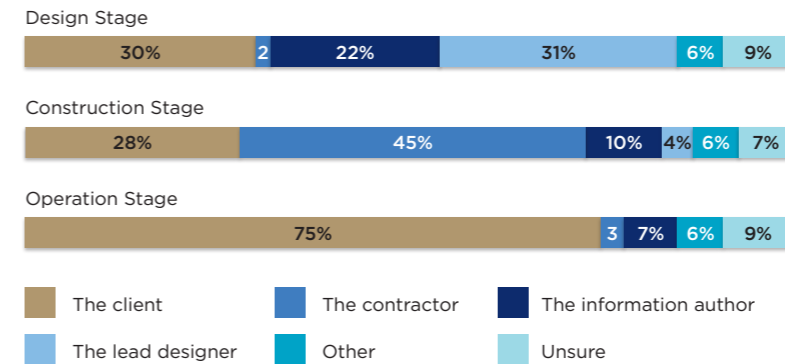
SECTION 2

RESPONSIBILITIES



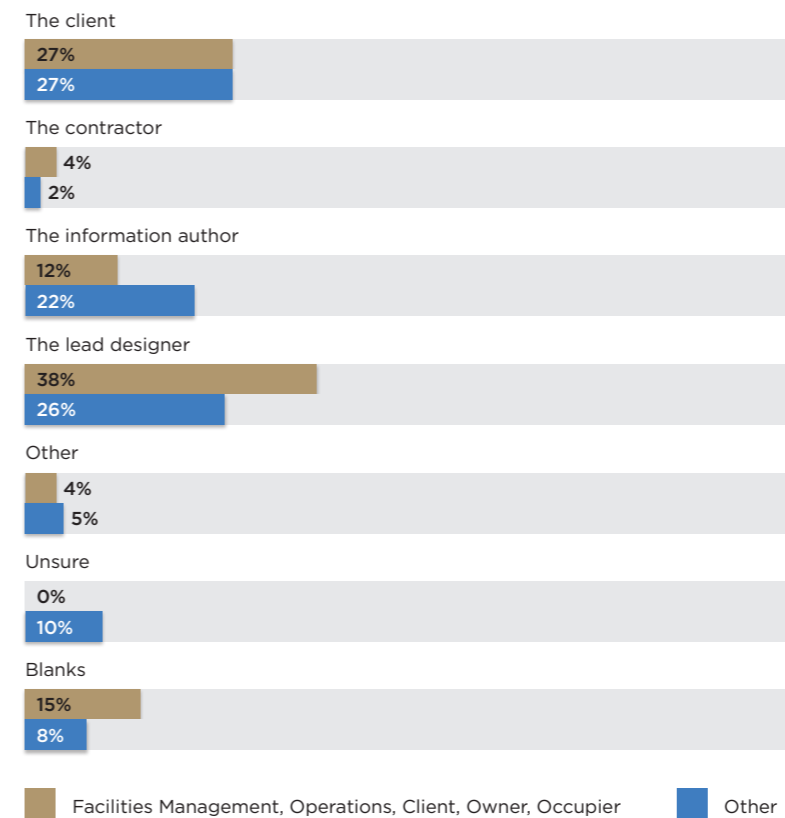
2.1 Data Ownership

Who owns the data and information relating to an asset at each stage of a project?



The following charts compare responses to the above question from project delivery teams (design teams, contractors, subcontractors, consultants, etc.) with post-handover teams (owners, facilities managers, asset operators, etc.) for each stage.

At the design stage?



There is no clear consensus on who owns project data at the design and construction stages.

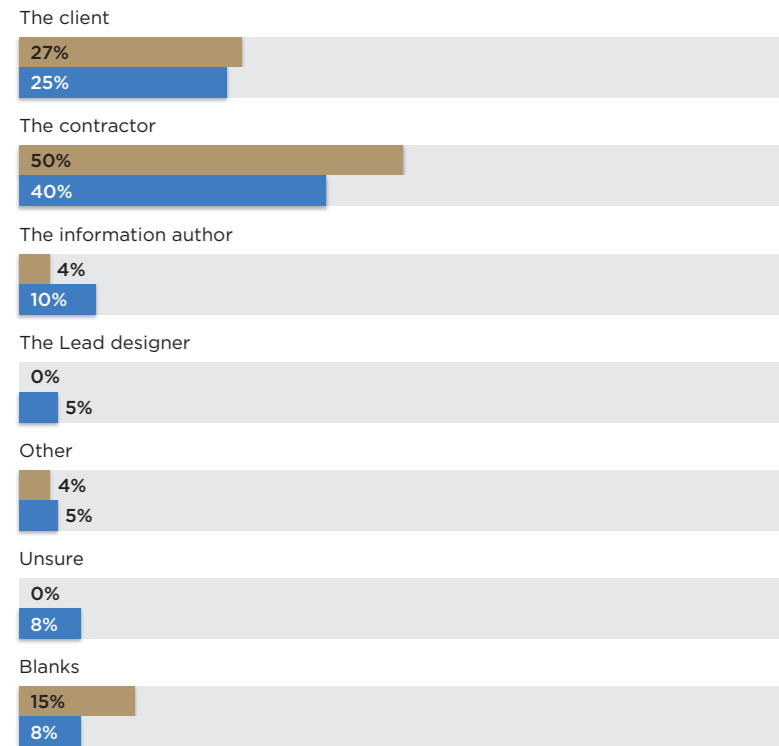
Respondent groups are more comfortable assigning ownership responsibilities for project stages that they are not involved in.

“Data (and information Documents, etc.) are not “owned” by any one person or organisation. They are owned and used by multiple organisations and people.”

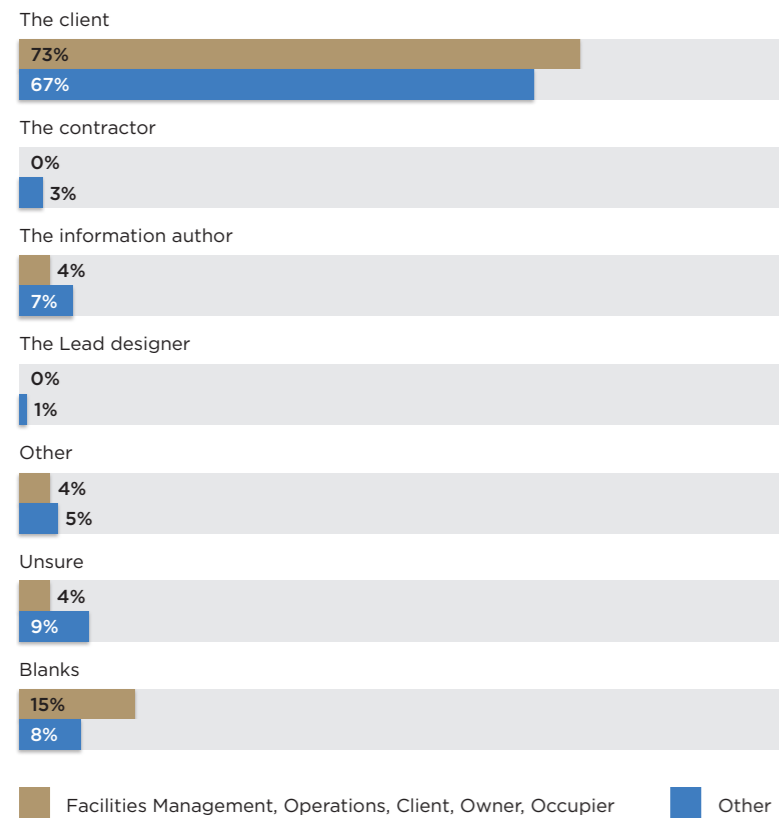
“The client has rights to all information at all stages, but copyright and liability remain with the authors.”



At the construction stage?



At the operation stage?

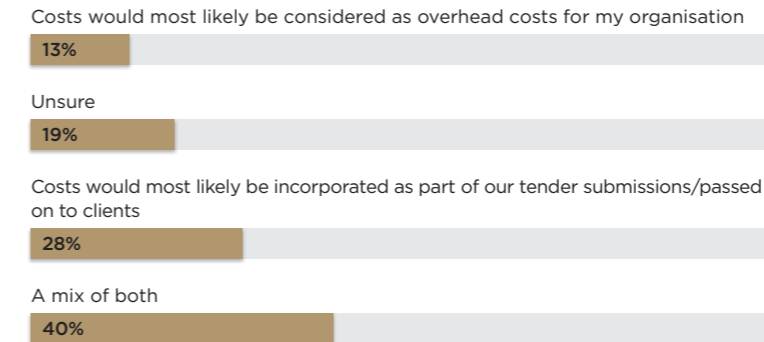


“It has to be collaboratively owned.”

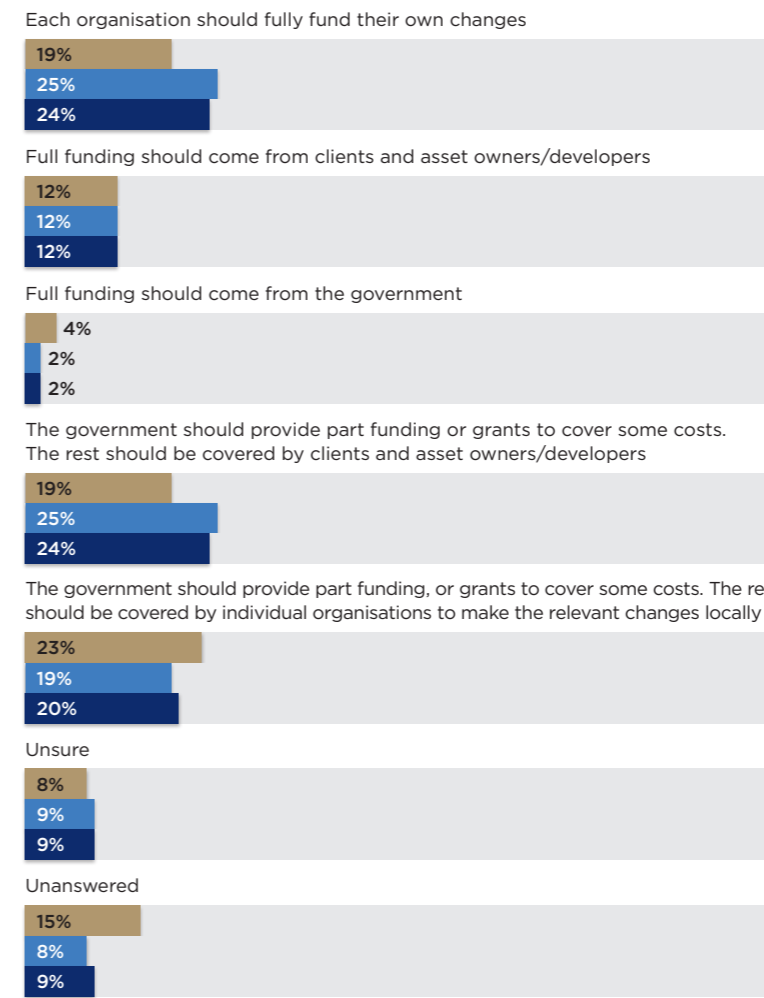
“This is a HUGE question with HUGE ramifications.”

2.2 Funding

Would your organisation be most likely to incorporate costs for implementing the golden thread requirements in to project tenders, or absorb them as part of overhead costs?



Who is responsible for funding any training, support, and appropriate technical investments needed to implement the golden thread requirements?



Respondents do not expect that full funding for implementing the golden thread should come from the government. However beyond that there is no clear consensus as to where funding should come from.

Facilities Management, Operations, Client, Owner, Occupier

Other

All

SECTION 3

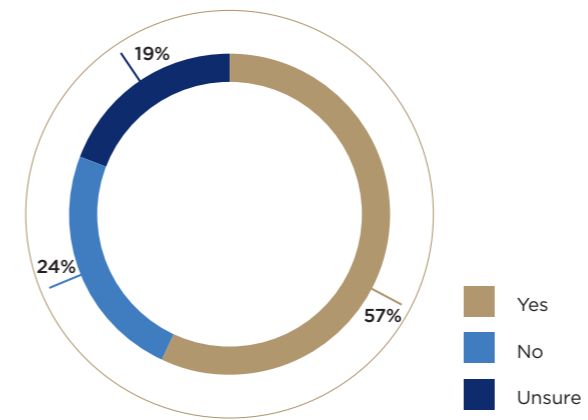
CAPABILITY



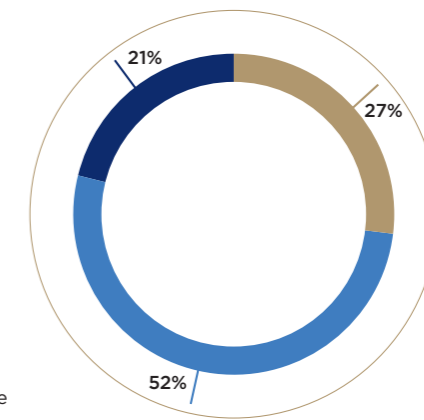
3.1 Digital

Almost 60% of respondents believe that the golden thread requirements are aligned with the UK BIM Framework.

Does the concept of a digital golden thread of information align with the UK BIM Framework standards and guidance?

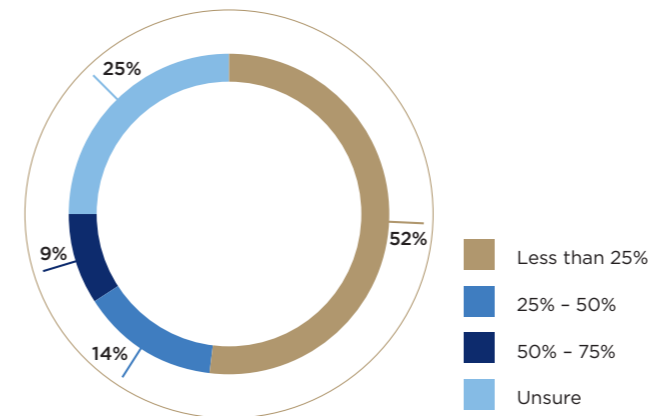


The government's Building a Safer Future report states that information and data must be available to those who are authorised to use it in a secure and accessible format. In your experience, does the industry have the appropriate security-compliant technology infrastructure and process in place to ensure this?



Over half of respondents do not believe that the appropriate technology infrastructure and processes are in place to make information available to those who need it in a secure format. This question received more additional comments than any other question in the survey.

In your experience, what percentage of projects in the UK are currently being delivered in line with industry BIM standards and the UK BIM Framework?

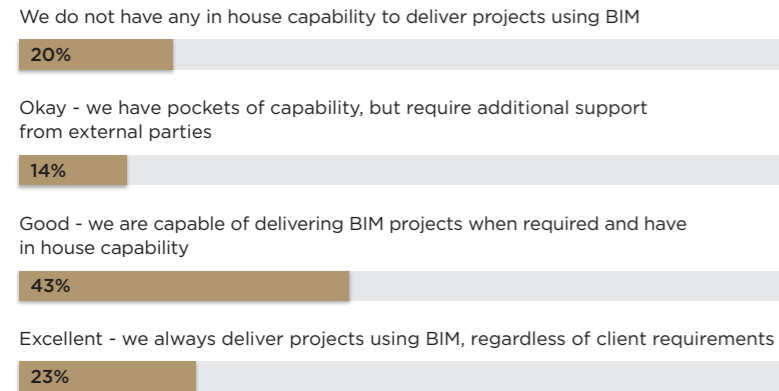


“There are secure platforms available, however, there isn't a robust process in place.”

“Technology is available, but it is not used widely.”

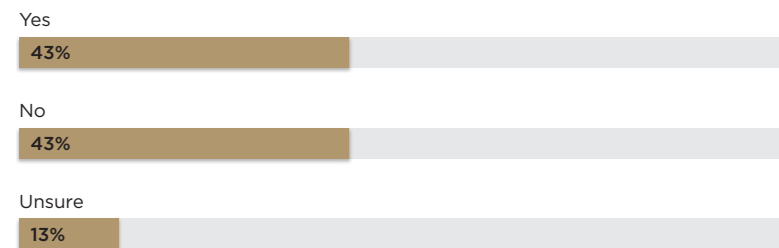


How would you describe your organisation's BIM capability?

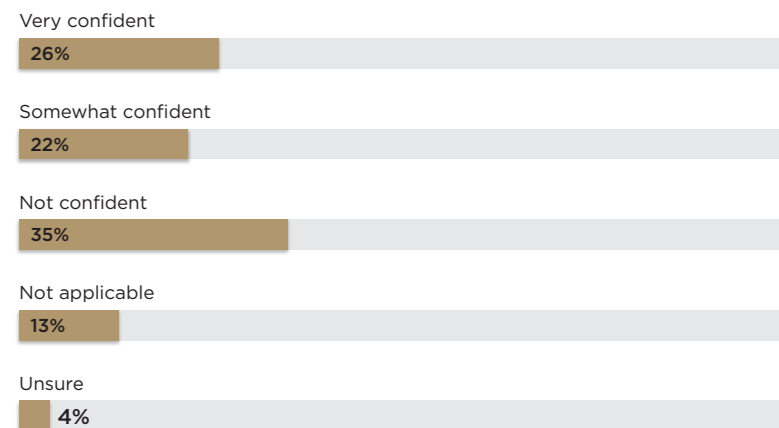


The following two questions were asked to clients, asset owners and facilities managers.

Does your organisation have the hardware, software and technical capability to check that information provided by the design and construction teams meets all the projects information requirements?



How confident are you that your organisation could clearly specify golden thread requirements to your supply chain at the contract initiation stage of any high rise residential projects?



Over half of respondents believe that less than 25% of UK projects are being delivered in line with the UK BIM Framework.

In comparison, 66% describe their organisations BIM capability as either Good or Excellent.

“There is still resistance to BIM for projects that are small or not deemed to be beneficial such as mainstream housing developers.”

“The production of models in 3D is now more than 25%, but the use of information attached to BIM objects is not yet 25%.”

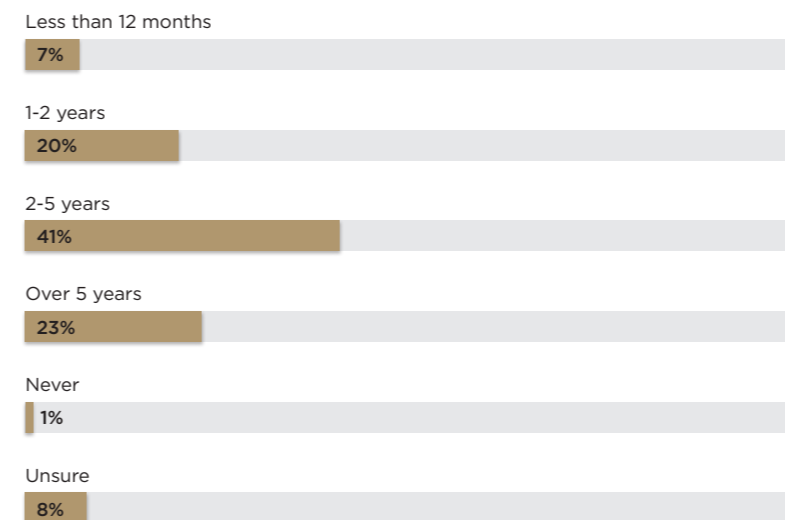
45% of asset owners and facilities management teams do not have the appropriate software and technical capabilities to check that information provided to them by the design and construction teams meet their information requirements, with 35% not confident that they could clearly specify the correct requirements at the outset.

When project delivery teams were asked how confident they are that clients could clearly specify golden thread requirements, 59% state that they are not confident, and that most of the time asset information requirements are not provided or are unclear.

3.2 Time

Respondents estimate that it will take at least two years to implement golden thread as business as usual for high risk residential projects in the UK.

Realistically, how long do you think it will take the industry to implement the changes necessary to deliver and maintain a digital golden thread of information as business as usual on all high rise residential projects?



Asset owners were also asked how long it would take them to update missing golden thread information for all their existing assets. 30% said that it would take over 2 years, whilst 20% answered that they do not plan to carry out the task at all.

“Procurement is the Achilles heel - where contracts are written by lawyers who have no knowledge and experience of... the principles of an integrated project team approach.”

“So far we have taken a top down approach. If a 'golden thread' is described clearly and mandated the capability/technology already exists to roll it out immediately. The culture 'ignorance and indifference' is the biggest shift required.”

SECTION 4

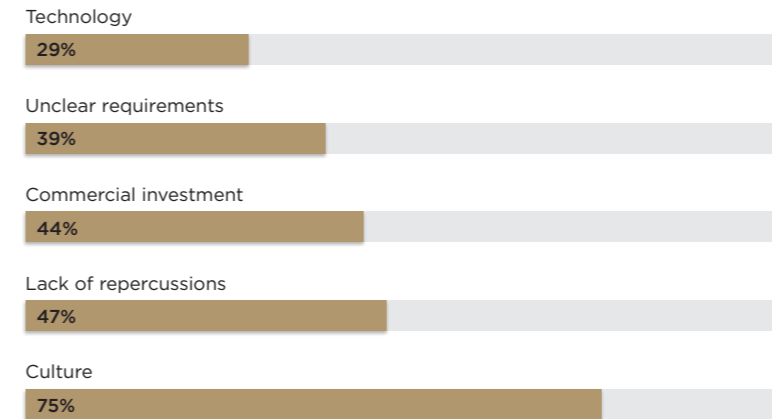
BLOCKERS



4.1 Blockers

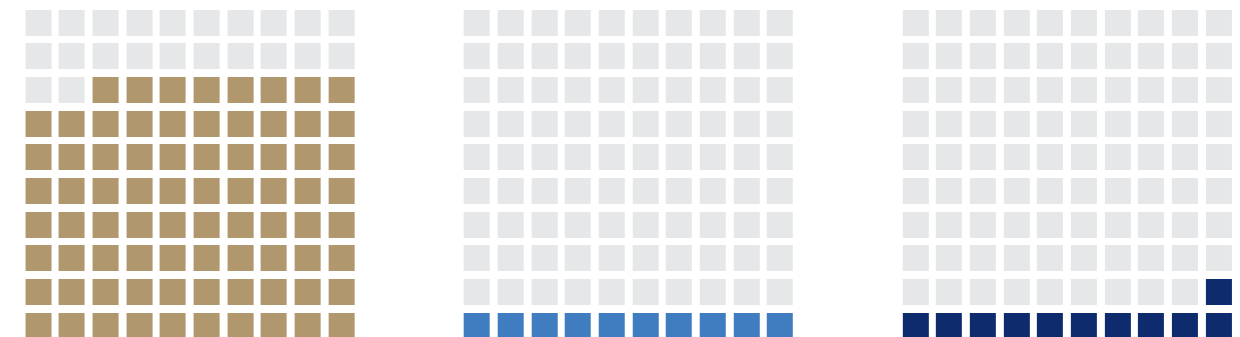
Three quarters of survey respondents believe that culture is the biggest blocker when implementing the changes needed to successfully deliver a golden thread of information.

Which of the following do you foresee as blockers to the industry when implementing a digital golden thread of information? Please choose all that apply



“Alongside support and guidance this legislation is a good start, but more stringent methods may be required and additional measures will be required as technology progresses. This legislation is a good step, but shouldn’t be the end of the road or a silver bullet to fix the industry.”

Do you feel that legislation like this is the most effective way to improve behaviour?



78% said Yes

10% said No

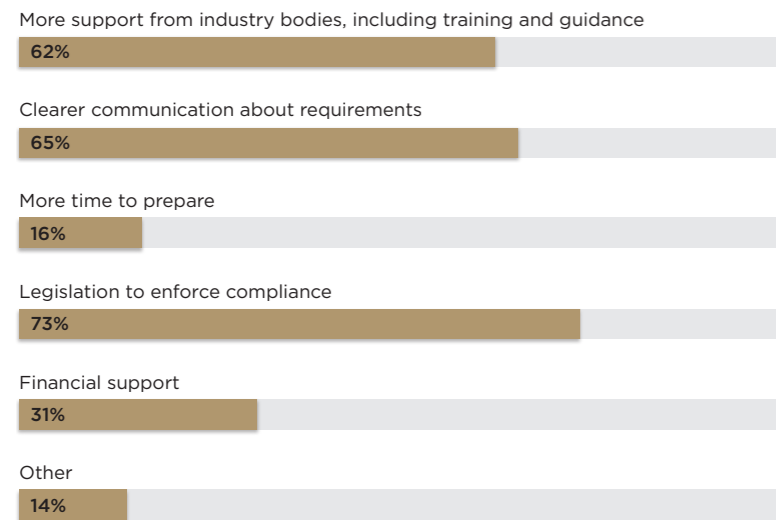
11% were Unsure



4.2 Solutions

Respondents believe that legislation, more support and clearer communication are the actions needed to overcome blockers, whilst having more time to prepare and more financial support are considered less important.

What action is needed to ensure the industry can overcome these blockers? Please choose all that apply.



Whilst there is support for the golden thread there are barriers to adoption that will need to be overcome, and for that we need to look to industry and government to lead the way.

“Not being able to proceed past a gateway without proving compliance introduces a commercial (£) driver to comply with regulation. This will be game-changing.”

“As an industry, we have demonstrated quite thoroughly that unless robust external gateways are enforced, we can't be trusted to maintain the safety of the premises that we are working on. The commercial pressures to cut corners or to proceed before the necessary safety checks have been completed are too irresistible.”



KPMG has provided a review role on the methodology and presentation of analysed data in this report.*

We would like to thank the following organisations for their support and assistance throughout this research:



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Although we endeavour to provide accurate and timely information, the information contained herein is accurate only as of November 2020 and we cannot provide any guarantee of assurance that it will continue to be accurate in the future.





FOR MORE INFORMATION

Please send any queries or comments relating to this research to the email address below:

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