BIM Adoption by Product Manufacturers

Survey conducted Winter 2015/16

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In its Construction Strategy 2016-20 the Government states that the majority of departments have already met the requirements for BIM Level 2, with all on target to meet the April 2016 mandate for centrally procured public sector projects to require the use of BIM Level 2. It has now committed to gradually move to BIM Level 3 to allow adoption at a later date. With this level of commitment, it is crucial for manufacturers to have a BIM content strategy.

BIM4M2 consists of people and organisations concerned with BIM for manufacturers (the organisations) and manufacturing (the process). Developed to support the work of the BIM Taskgroup, BIM4M2 was formed by the Construction Products Association (CPA), but is separate to and independent from it. Members include a healthy mix of manufacturers (SMEs and multi-nationals), consultants and content providers

The group comprises three working groups; Education, Product Data Templates and Promotions with a Supporters Group to assist as necessary.

This is the second report commissioned by the BIM4M2 working group to inform priorities and decision making. The findings show that many manufacturers either already offer BIM content or will be by 2017.

The main barriers to providing BIM content are time and resource required, creating an understanding of the issues in the business and understanding the software options and information to provide. BIM4M2 is working to try and help simplify this through its online facility The Curve and its initiative with Product Data Templates.

To follow the activities of the group you can subscribe to the occasional newsletter, follow the Company LinkedIn page or follow us on Twitter.

Chris Witte
Chair: BIM4M2

2. Management Summary & Conclusions

Respondents

A total of 60 individuals responded to the survey. The majority (80%) of respondents were manufacturers, mostly holding positions of Technical (40%), Marketing (15%), BIM Manager (13%) or General Management (13%).

Respondent organisations had a wide spread of sizes, from the SME with less than 60 employees (22%) to the corporate employing more than 1200 (26%).

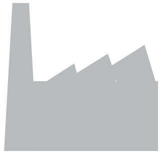
In addition to the UK (89%), 59% of respondents sell into other European countries, 34% into the Middle East and 21% to the USA.

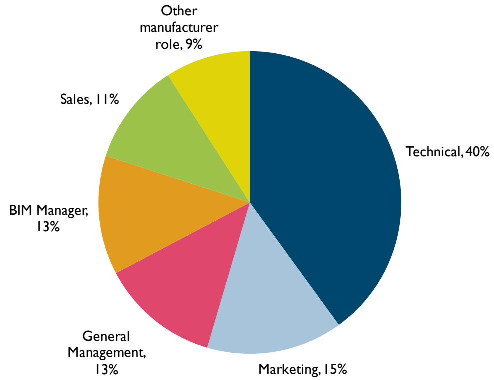
A wide range of product categories were represented, the largest (31%) offering Building Areas, Systems and Materials, followed by Structural Frames and Walls (22%).

There is a wide range of sectors respondents promote their products to, with Contractors being the largest (80%), then Clients (73%) closely followed by Architects (72%) and Engineers (62%).

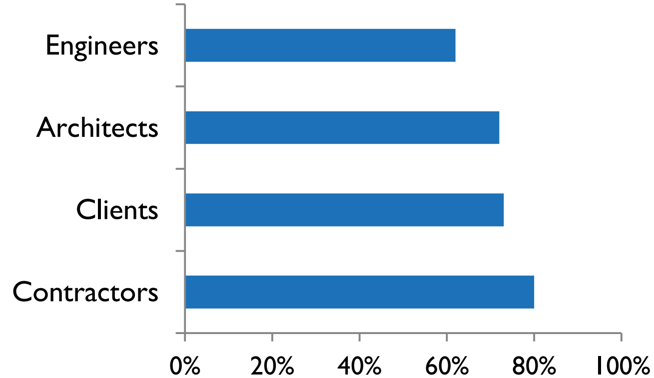
80% of respondents are manufacturers

31% of respondents manufacture products for Building Areas, Systems and Materials





There is a wide range of sectors respondents promote their products to, the main ones being:



59% sell into other European countries

BIM Investment Decisions

Of those that completed the survey, 7% had no plans to introduce BIM, 35% plan to introduce BIM (mostly before 2017) and 58% already offer BIM.

The key functions involved in the decision to invest in BIM are Technical (80%), Marketing (76%), Sales (57%) and Finance (28%).

The key reasons for deciding to invest in BIM are Market Demand (44%) followed by Better Business Opportunities (28%).

Explanations for these reasons included '*BIM is the Future*', the '*Government 2016 mandate*' and '*BIM is an industry development that will not be going away*'. Reasons for planning to invest in BIM include '*BIM is a differentiator*', '*it will become mandatory in 2016*' and '*to keep up with the pace of the industry*'.

- have no plans to introduce BIM
- plan to introduce BIM (mostly before 2017)
- already offer BIM

TECHNICAL and **MARKETING** have the main influence on the decision to invest. Followed by Sales and Finance.

Key Reasons for Investing in BIM:

44% Market Demand

28% Better Business Opportunities

'BIM is the Future'

'to keep up with the pace of the industry'

'Government 2016 mandate'

'BIM is an industry development that will not be going away'.

'BIM is a differentiator'

'it will become mandatory in 2016'

BIM Investment Decisions cont.

BIM is seen as an important differentiator for business by all of those already offering, with 73% strongly agreeing and nobody disagreeing.

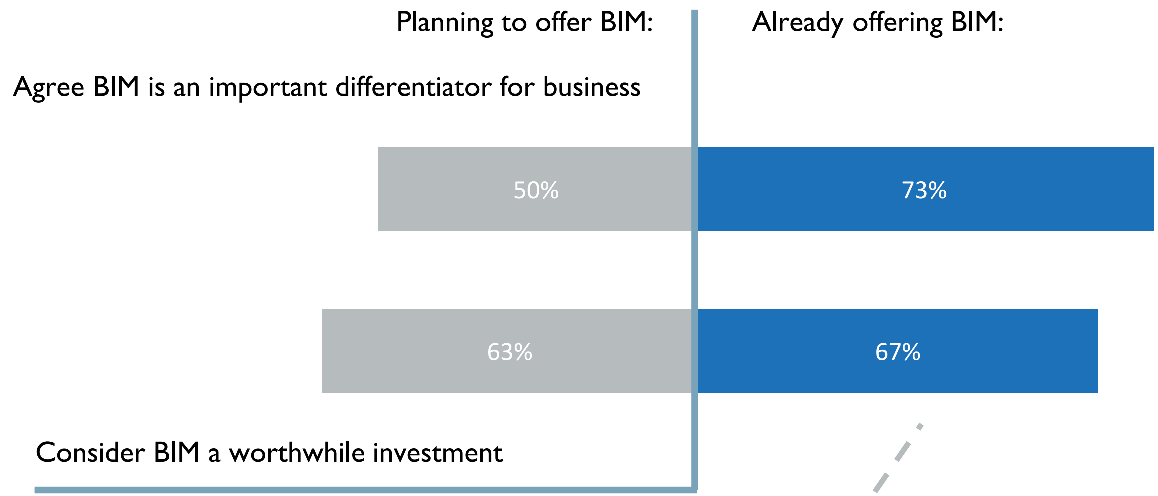
However of those planning to invest 50% strongly agree BIM is an important differentiator with the remaining 50% being split between slightly agree (44%, and slightly disagree (6%).

BIM is definitely considered a worthwhile investment by 67% of those already offering BIM, and 63% of those planning to invest.

Yet 20% of those already offering BIM say it remains to be seen if it will be worthwhile. This is 25% for those planning to invest.

BIM has helped 60% of those already offering BIM to secure business, with 37% unsure whether it has helped or not and 3% say it has not.

Just 13% of respondents have case study examples of how BIM has helped to secure business.



60%

of those already offering BIM agree BIM has helped secure business

BIM Investment Decisions cont.

For those not planning to invest the main reasons given by respondents for not investing in BIM is the cost of investment, a lack of information for manufacturers, and not enough interest for BIM objects.

The main barriers to providing BIM content, seen by those already offering BIM, are creating an understanding of BIM amongst colleagues, time and resource required and knowing the level of detail and information to provide.

For those planning to invest the key barriers to providing BIM content are time and resource required, creating an understanding of the issues in the business and understanding the software options.

Reasons for not investing in BIM:

'No "UK" BIM Families for fire doors , signage, Emergency lighting etc....'

'Does not appear that BIM Objects are necessary for the products that we manufacture'

'Cost and lack of interest/understanding from fire installation companies and lack of useful information for manufacturers'

'Lack of information'

Key barriers to providing BIM content are

Planning to offer BIM:	Already offering BIM:
Time and Resource	**Creating an understanding in the business**
Creating an understanding in the business	**Time and Resource**
Understanding software options	**Knowing the level of information to provide**

BIM Information Requests & Information Formats

Almost half of respondents (44%) receive requests for eTendering or eProcurement, with a further 24% only selling by distribution and 33% not receiving requests at all.

37% say the amount of eTendering or eProcurement requests have increased in the last year, with the remainder (63%) saying it has remained the same.

Respondents who already offer BIM are asked for BIM objects regularly by Architects or Engineers 40% of the time and by Contractors 23% of the time. Just 10% of building owners ask for BIM objects regularly.

Requests for BIM information is seen to have increased by 65% in the last 12 months, only 4% say that requests have decreased.

Alongside this, those planning to invest are occasionally asked by Contractors for BIM objects 50% of the time, and are regularly asked by Designers 6% of the time. Other roles in the supply chain asking for BIM objects are Clients, Facility Managers, Housebuilders and Distributors.

44% of respondents receive requests for eTendering or eProcurement

65% say requests for BIM objects has increased in the last 12 months

Asked for BIM objects regularly by:

Planning to offer BIM:

6% Designers

Already offering BIM:

40% Architects or Engineers

23% Contractors

50%
Are occasionally asked by Contractors for BIM objects

BIM Information Requests & Information Formats cont.

The two main formats for which BIM objects are offered is Autodesk Revit (90%) followed by IFC (42%).

65% of respondents do not plan to offer BIM in any other software formats than they already do. 15% plan to offer BIM with Graphisoft ArchiCAD.

BIM Provision

The most applied BIM concept and standards are Library objects BS 8541 (17%), followed by Product Data Templates (14%) and PAS 1192-2:2013 (13%).

The most understood concepts and standards are Product Data Templates (34%) and COBie (32%).

The concepts and standards respondents are most aware of are PAS 1192-3:2014, PAS 1192-5 & PAS 1192-2:2013. It is understood that structured information and data to PAS 1192-2:2013 is the main piece of information needed to support the Government's 2016 BIM requirements.

90% AUTODESK REVIT

42% IFC

65% of respondents do not plan to offer BIM in any other software formats

Most applied BIM concept and standards are:

17% Library objects BS 8541

14% Product Data Templates

13% PAS 1192-2:2013

It is understood that structured information and data to PAS 1192-2:2013 is the main piece of information needed to support the Government's 2016 BIM requirements.

BIM Provision cont.

On average 52% of respondents who already offer BIM have their product range available as BIM objects, with 87% planning to extend their range available.

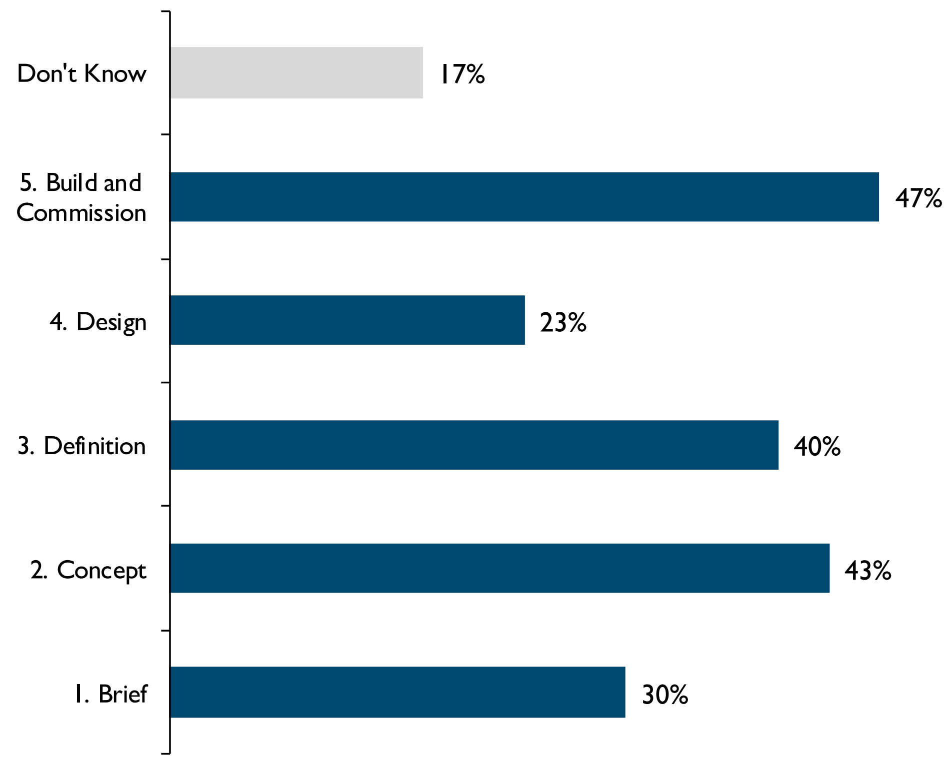
63% of respondents provide their BIM objects in accordance with PAS 1192-2:2013, while 30% don't know whether their objects meet this standard.

The majority of respondents' BIM content supports a maturity of Level 2 (79%), with just 10% supporting level 3. The highest level of development that BIM content is currently provided to is level 5 – build and commission (47%)

17% of respondents do not know what level of development they currently provide BIM content to.

52% of respondents, who already provide BIM, on average have their product range available as BIM objects

42% of respondents provide their BIM objects in accordance with PAS 1192-2:2013

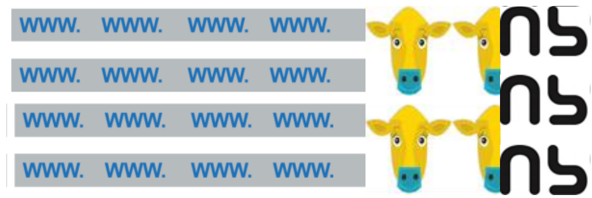


BIM Provision cont.

Just under half of respondents develop their BIM objects using either external hosting sites (48%) or internal resource (45%). The key place respondent's BIM objects are available is their website (80%), followed by The BIMstore (30%) and The National BIM Library (20%).

87% of those who already offer BIM have a person responsible for BIM and 56% of those planning to invest also have a person responsible.

Key places BIM objects are available:

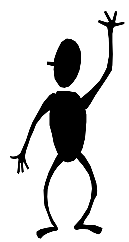


Website 80%

BIM Store 30%

The National BIM Library 20%

Person responsible for BIM:



87% of those that already offer BIM have a person responsible for BIM

56% of those planning to invest in BIM have a person responsible for BIM

Fig 3.1: Respondents' business activity
Base: 56

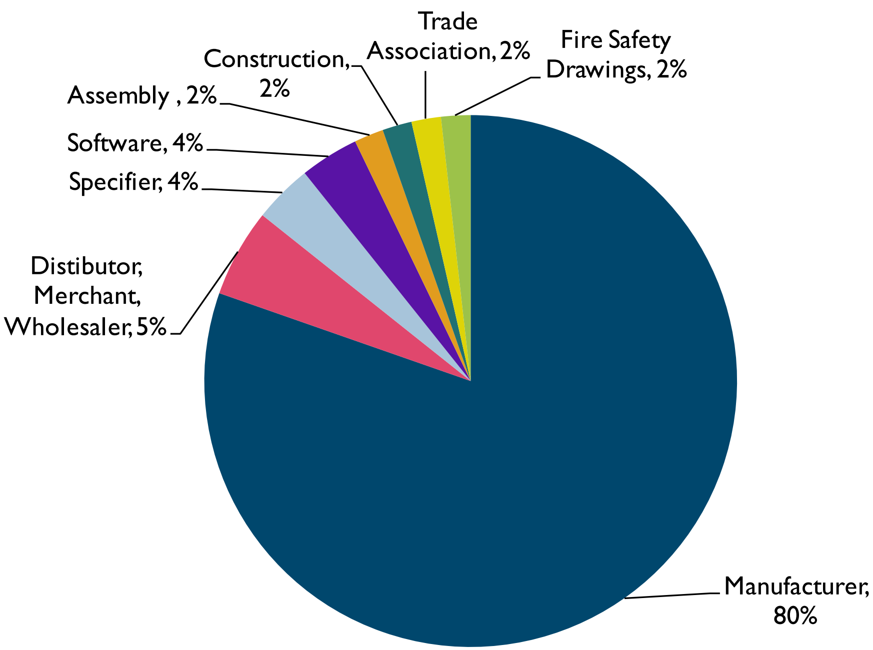


Fig 3.2: size of respondents' company
Base: 58

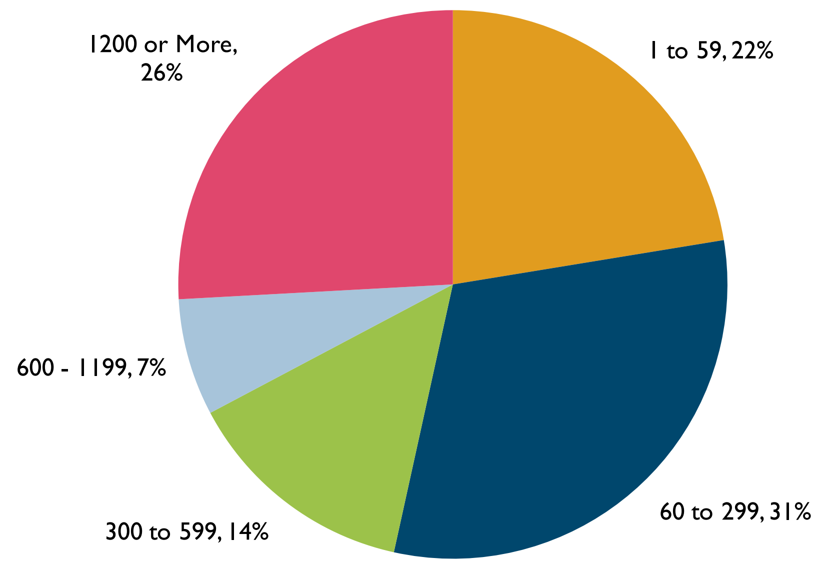


Fig 3.3: Respondents' job function
Base: 55

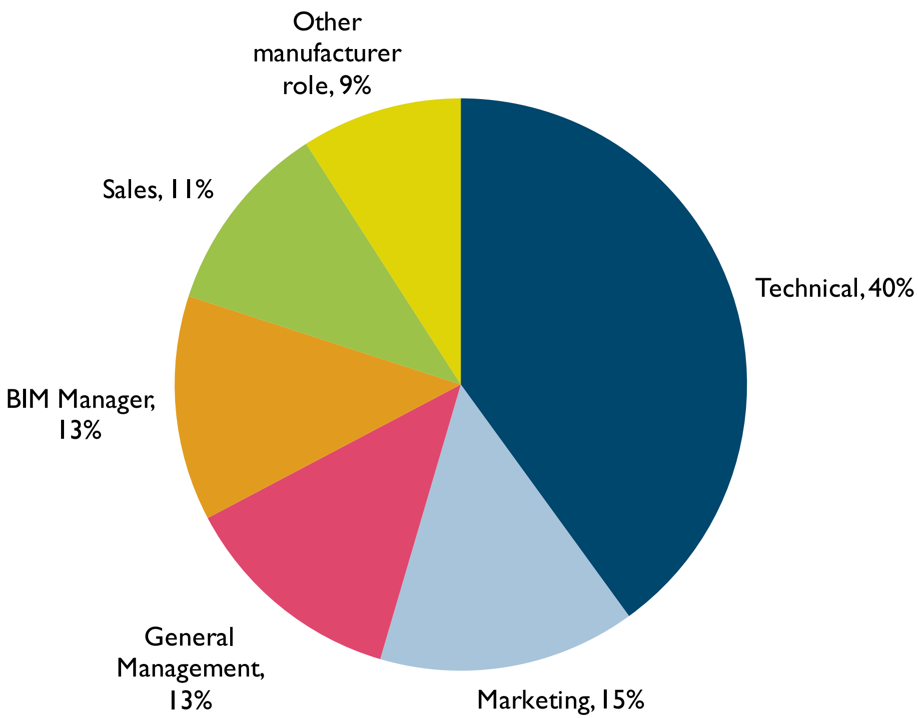


Fig 3.4: Sector respondents promote to
Base: 60

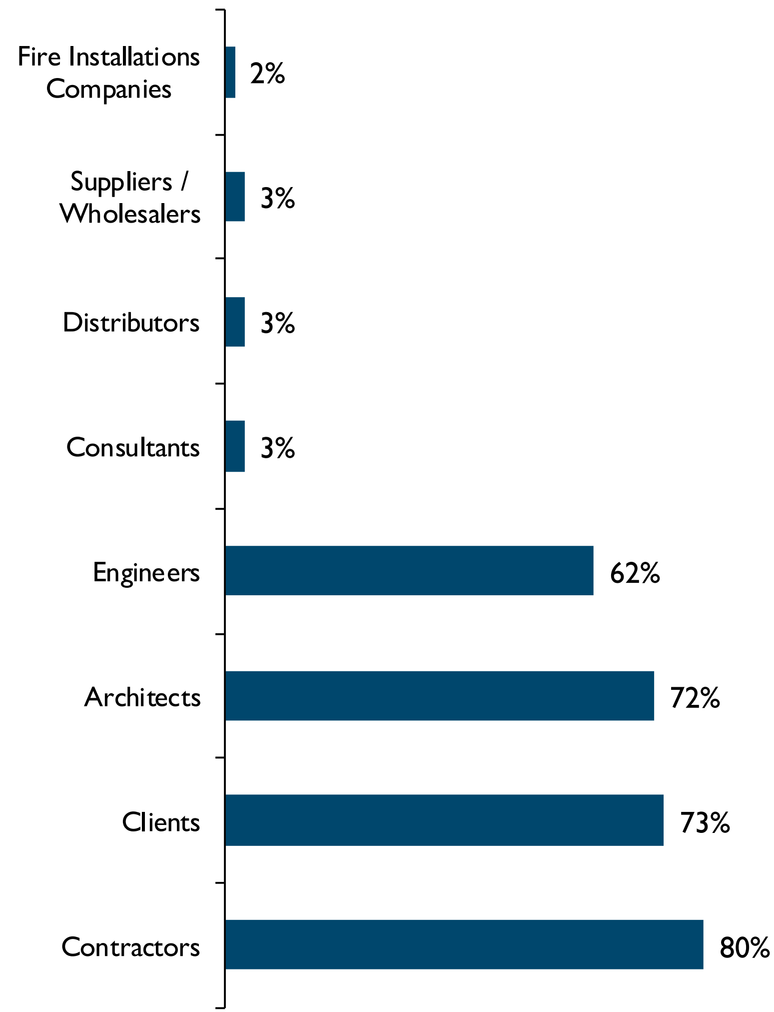


Fig 3.5: Categories of products respondents manufacture
Base: 54

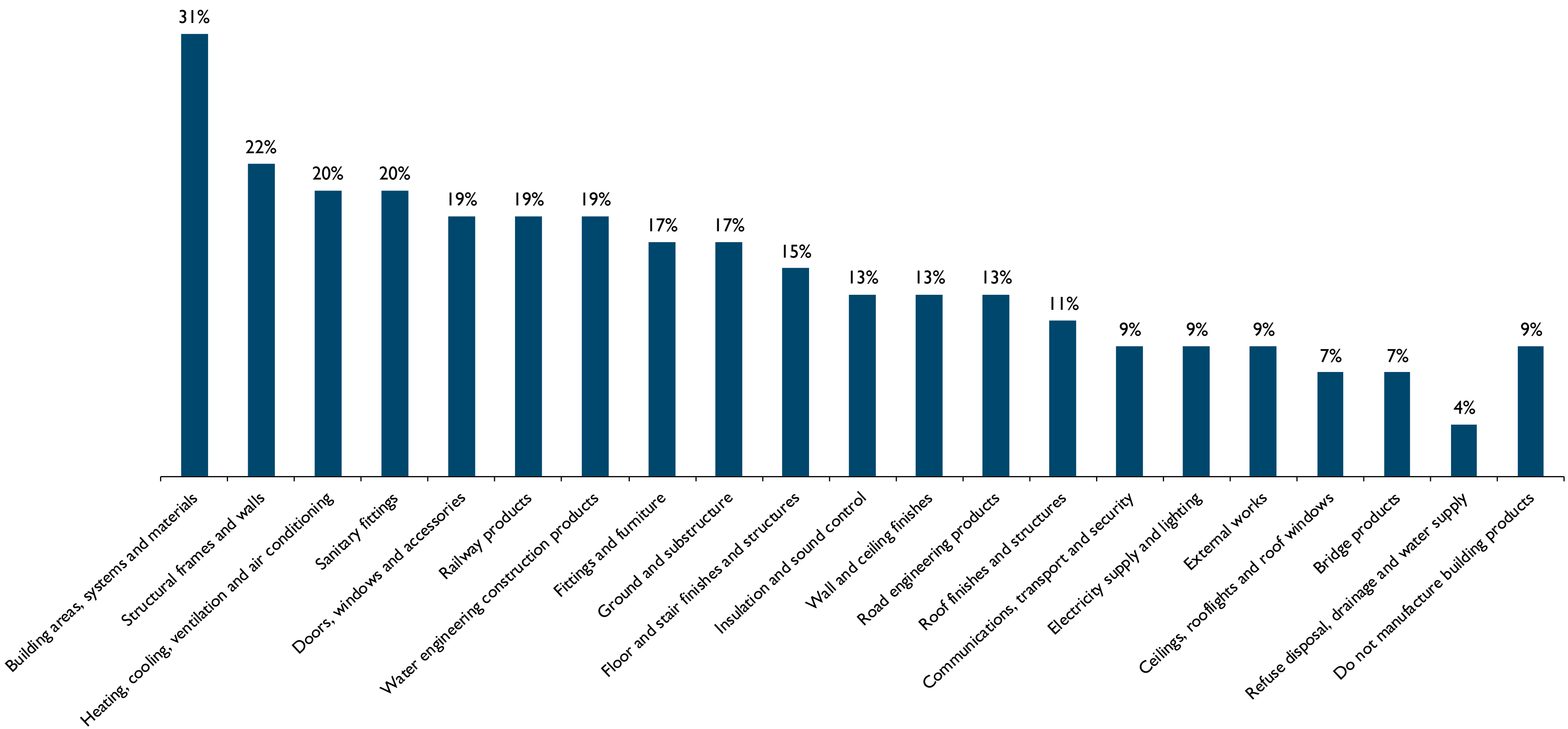


Fig 3.6: Regions respondents sell into
Base: 56

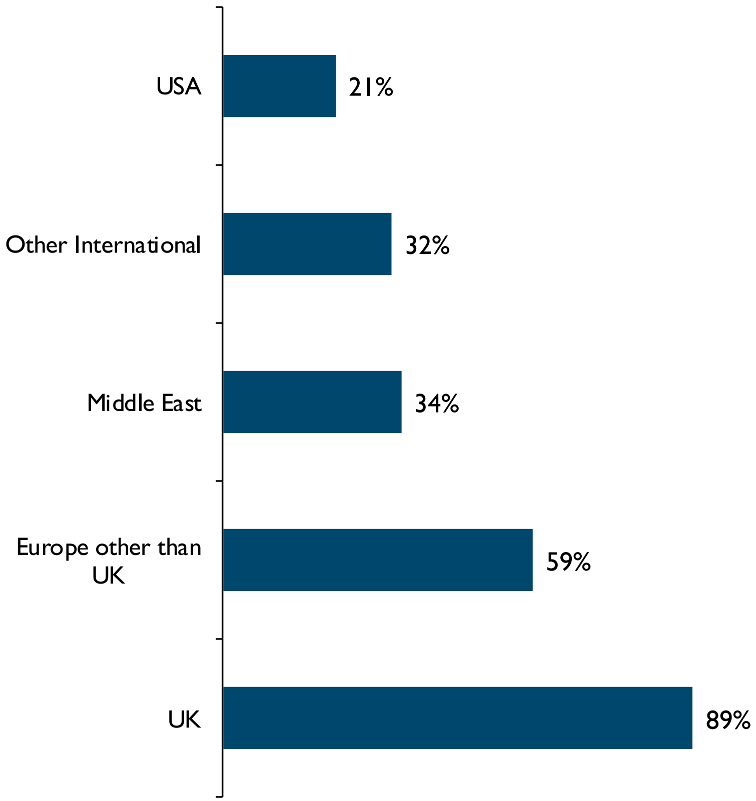


Fig 4.1: Summary of reasons given for deciding to invest in BIM - Unprompted
Base: 25

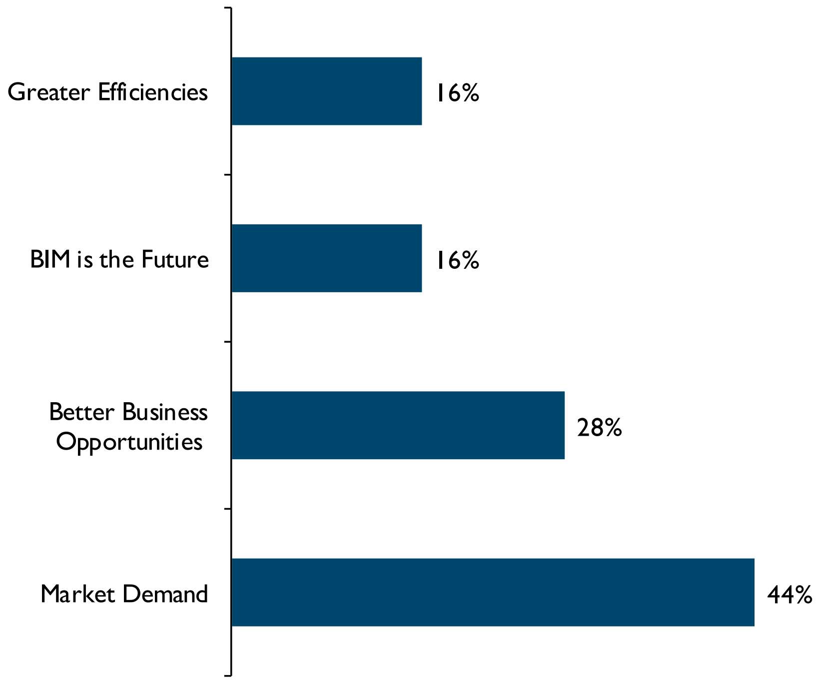


Table 4.2: Reasons for deciding to invest in BIM - Unprompted

- 2016 mandate. Advantage over competitors. Company is technology leader in field
- Because it is 'The Future'
- Beginning to receive enquiries from customers involved in BIM projects, some demand coming from client/end-user
- BIM is an industry development that will not be going away and will significantly change the way in which we all do business. It will also present opportunities to demonstrate the characteristics of our products that can improve the built environment
- Demand
- Design efficiencies and sales potential
- Focussed on healthcare market
- Improve manufacturing process
- Increase chances of our products being specified and to keep up to date with technological changes in the way specifiers require product data
- Major contracts in the public sector
- Market demands
- Market forces
- Market leader and early adopter
- Our competitors have
- Perceived loss of market share if we didn't
- Platform for future development
- Request from customers; New customer engagements
- Seen as an opportunity to provide useful and accurate data to our customers on our products to enable them to make informed decisions about building design, construction and operation
- To allow our products to be used by specifiers within a BIM platform environment and to enable our products to be included within the 2016 deadline for Government funded projects
- To be ahead of the game and differentiate ourselves from our competitors
- To go up the learning curve and potentially to lead our sector rather than follow
- To make our product data and designs accessible to engineers and architects
- To promote our Products through Architects & Engineers
- To provide a uniform, free central library of BIM resources for our members' products
- To win BIM projects
- We are a BIM software vendor

Fig 4.3: BIM is seen as an important differentiator for our business – Already offering BIM
Base: 30

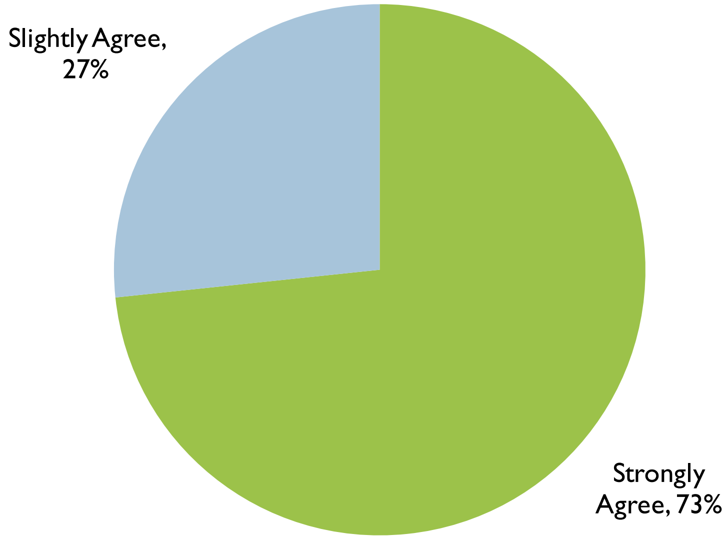


Fig 4.4: Functions involved in the decision to invest in BIM objects – Already offering BIM
Base: 30

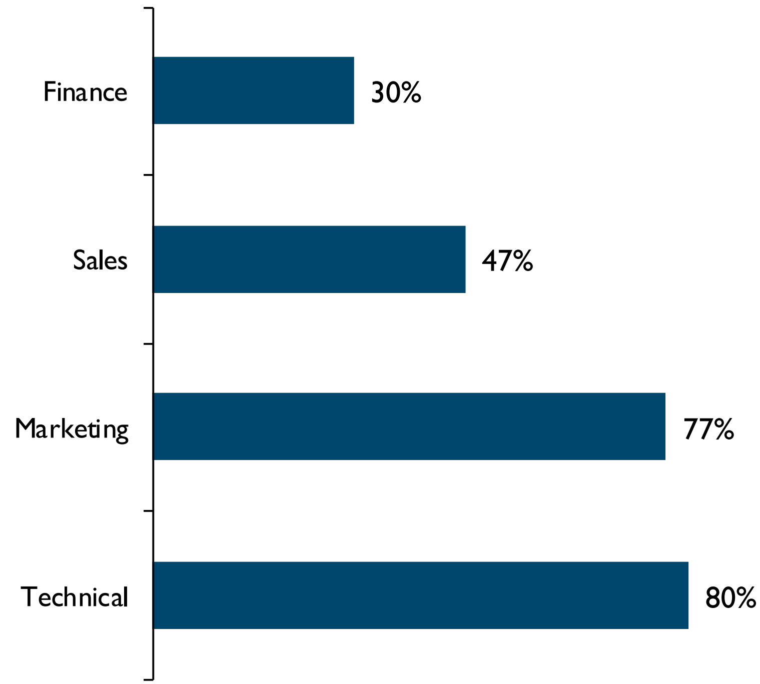


Fig 4.5: Average barrier the following is to providing BIM content – Already offering BIM
Base: 30

1 = No Barrier   10 = Significant Barrier

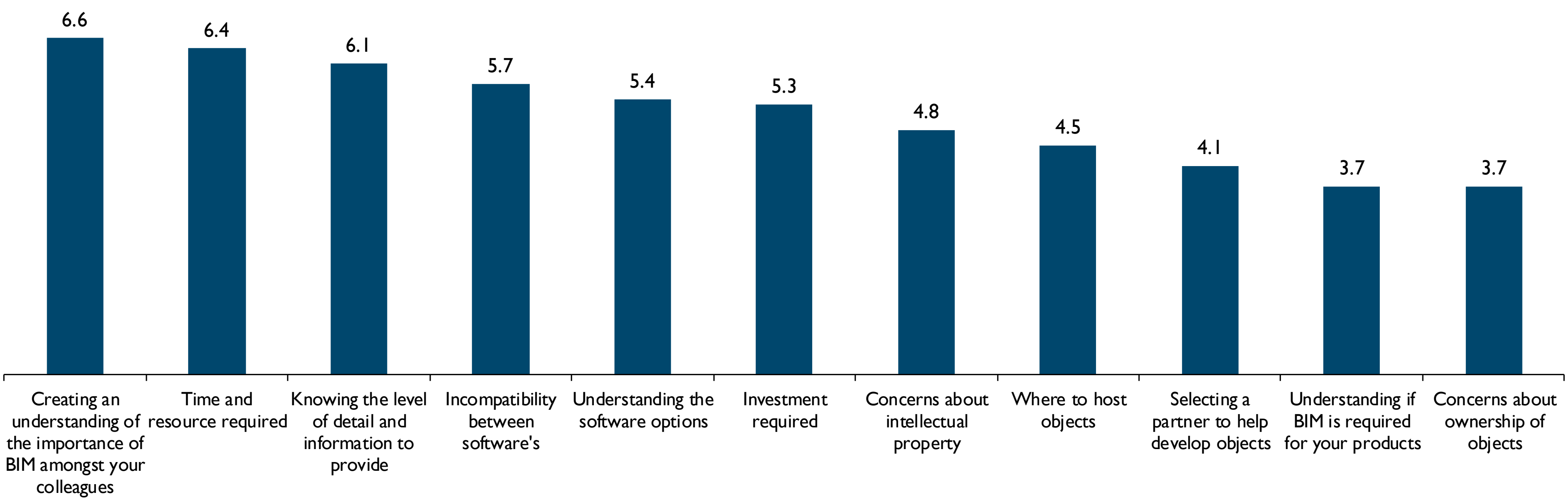


Table 4.6: Other barriers to providing BIM content – Already offering BIM, Unprompted

- BIM objects that can be used in other European markets other than the UK and an understanding on what standards they use elsewhere. Having the objects available in other languages.
- Creating an understanding of the importance of BIM across our sector to drive a consistent and collaborative approach
- Capacity. Intelligent. Time implementation.
- Competing data templates and object 'standards'. Miss-selling of benefits by some content providers
- How BIM models are actually used
- How Families are named
- Lack of industry demand, and lack of client demand outside of the public sector contracts
- Miss-information about BIM and IFC
- Nesting objects / assemblies - how far to go?
- Software not supporting European design standards Speed of change in software.
- Subordinate system suppliers not starting their BIM journey

Fig 4.7: Has offering BIM helped to secure business? – Already offering BIM
Base: 30

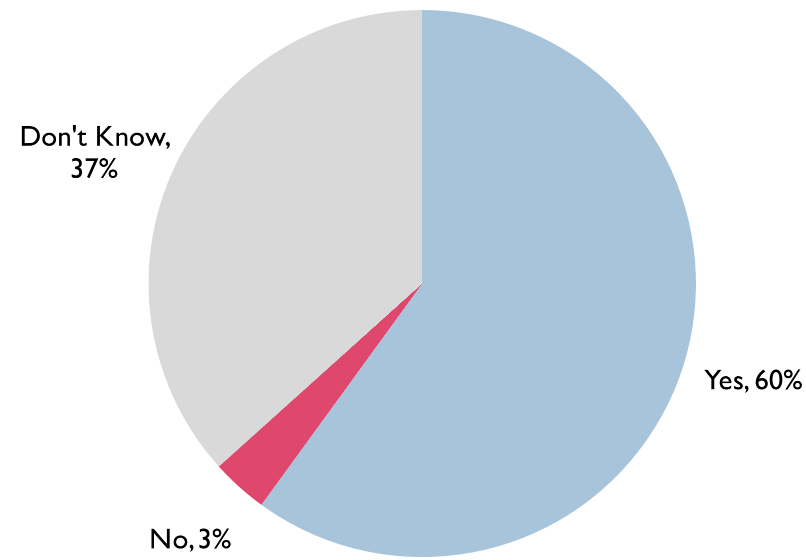


Fig 4.8: Is BIM considered to be worthwhile investment – Already offering BIM
Base: 30

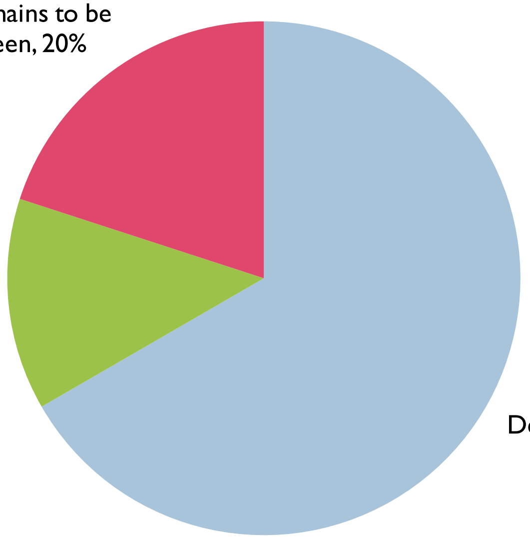


Table 4.9: Reasons given for thinking BIM is a worthwhile investment – Already offering BIM, Unprompted

Definitely

- We have secured new work by offering services others cannot.
- Demands on clients and the business needs
- Increases our credibility as the market leader
- We wouldn't have been tendered for a large health estate, multi-site refurb project in London without being able to offer BIM objects for the project's BIM team
- It is clear it is needed. If we didn't have it we would lose orders. Our early embrace has also ensured we have an advantage over competitors
- We are getting ahead of the deadline as we speak
- It is important to be active at the start of this journey and to educate and inform the market
- Maintains market position of a leader and gained work that may not have been gained otherwise
- Increased efficiency within the business
- Got request for new projects because of BIM
- BIM is a tool for now but with real potential for the future. we are a company that invests in the future of technology and to maintain good commercial visibility it is important to be proactive. plus we are a company who mission statement is " helping people make the most of their energy" any way we can be involved in processes that better monitor and manage energy or the streamlining of processes to improve energy consumption, we are all for it
- Removing the external influencing factors it has provided the opportunity to understand our own internal processes and identify benefits
- You have to go up the learning curve, and you can't do that without making a commitment

Table 4.10: Reasons given for thinking BIM is a worthwhile investment – Already offering BIM, Unprompted Cont.

Possible

- Time will tell on the take-up by customers (in volume), at present the uptake is quite small (info is obtained via our website, so we can accurately monitor the hits for BIM info)
- As an apprentice I am new to the business and am still learning aspects of BIM, which will be one of my main roles within the company
- Early days
- Cannot trace where our objects have been used and if they have been added to specifications. Feedback on who has downloaded our objects and which projects they are used on is limited

Remains to be seen

- We only have a small number of specifications on BIM projects so far
- Still very low demand at the moment
- Too early to quantify we will see in 2016 when law changes for all government contracts of work where it is compulsory
- No formal 'BIM' follow up on won / lost orders

Fig 4.11: Respondents who have case study examples of how BIM has helped to secure work – Already offering BIM
Base: 30

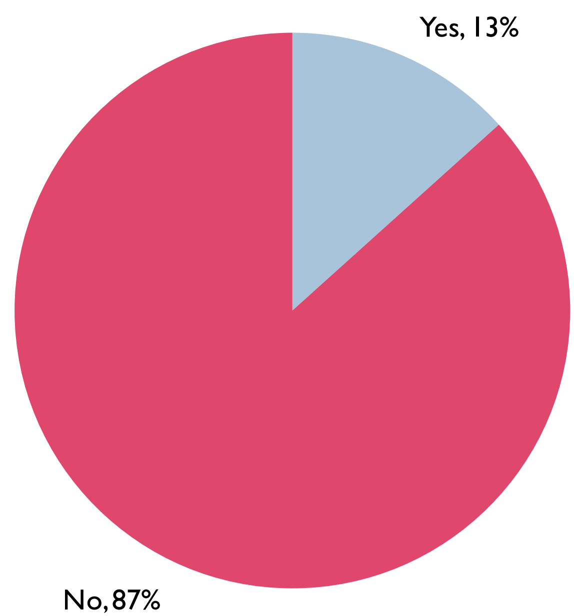


Table 4.12: Reasons given for planning to invest in BIM - Unprompted

- As a differentiator, marketing tool but more importantly to offer the correct level of information required
- Because it will becomes mandatory in 2016
- Design and manufacturing automation
- It is a key part of our ability to do business in the future
- It is important to our clients globally and we need to be able to respond to clients needs
- It will be a requirement for the future and hopefully assist with information management between all stakeholders
- So as not to potentially miss out on any sales opportunities.
- So we stay ahead of our competition
- The industry is moving towards using BIM.
- To be considered by sub contractors for work and to improve specification with architects. First mover advantage with our traditional competition.
- To keep up with pace of industry
- To promote our level of expertise and to appeal and satisfy engineers, clients and contractor needs
- To support environmental manufacturers in delivering BIM information
- Workflow efficiency

Fig 4.13: Timescales of planning to invest in BIM
Base: 16

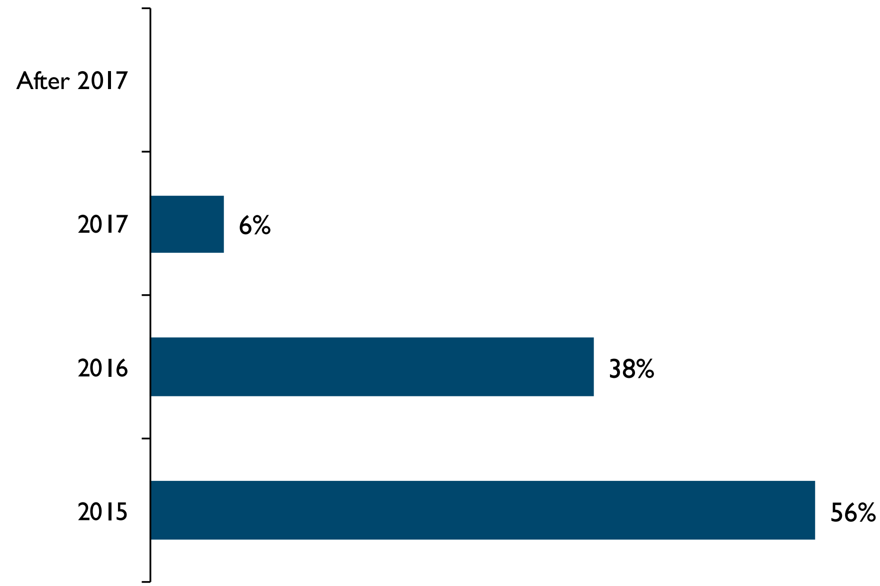


Fig 4.14: Functions involved in the decision to invest in BIM objects – Planning to invest
Base: 16

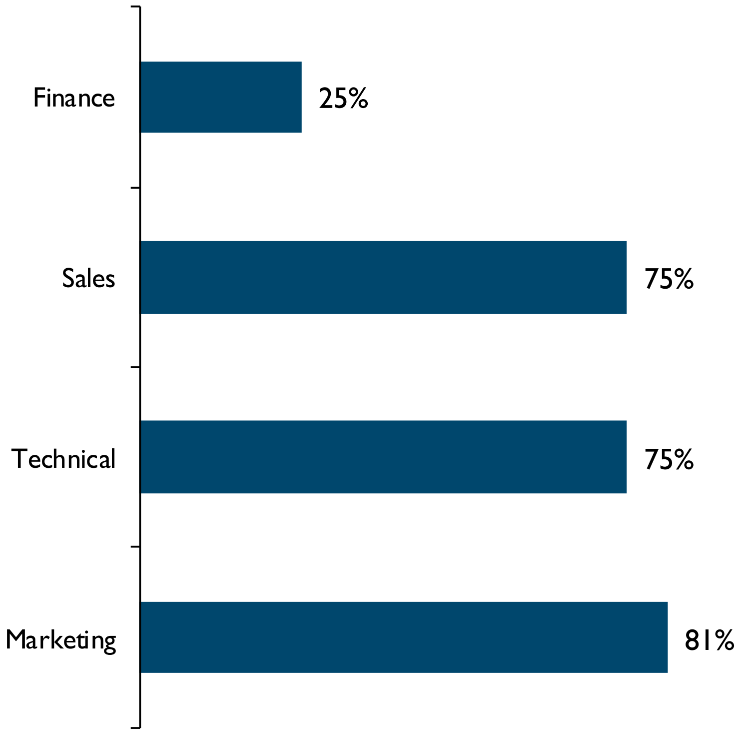


Fig 4.15: Average barrier the following is to providing BIM content – Planning to invest
Base: 16

1 = No Barrier 10 = Significant Barrier

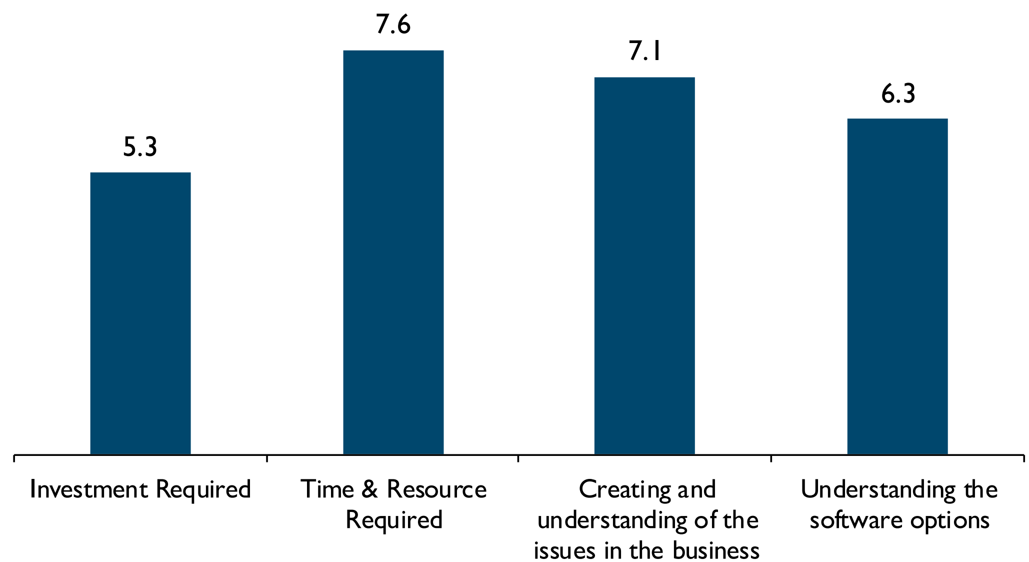


Fig 4.16: BIM is seen as an important differentiator for our business – Planning to invest
Base: 16

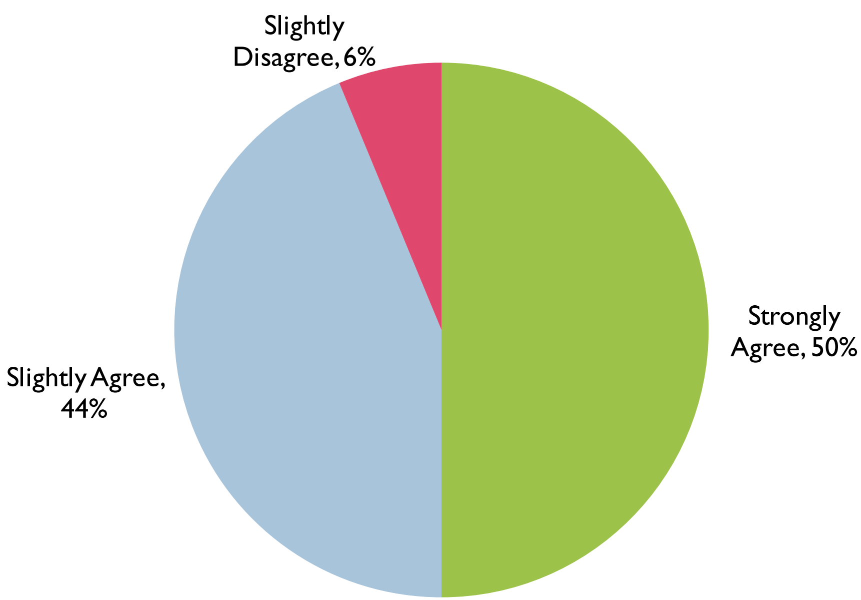


Fig 4.17: Is BIM considered to be worthwhile investment – Planning to invest
Base: 16

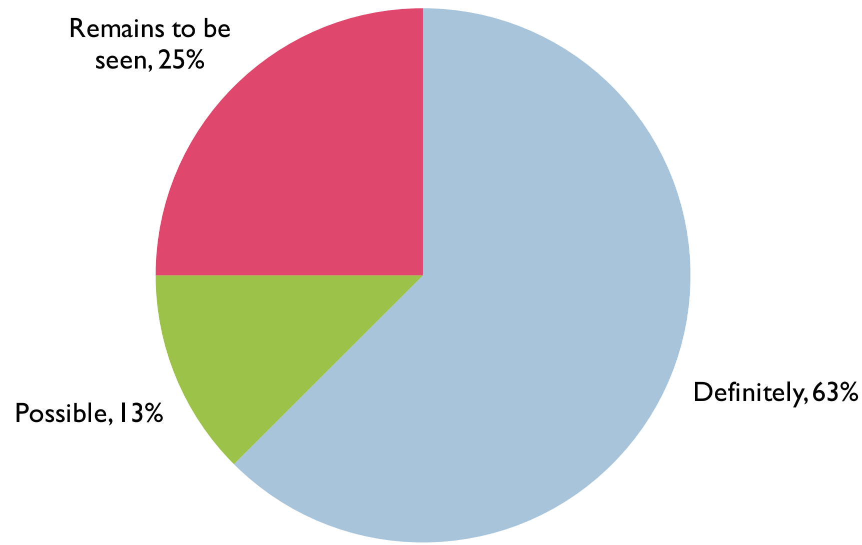


Table 4.18: Principle reasons for not developing BIM objects – No plans to invest, Unprompted

- Cost and lack of interest/understanding from fire installation companies and lack of useful information from manufacturers . No "UK" BIM Families for fire doors, signage, Emergency lighting etc....
- Lack of information
- Does not appear that BIM objects are necessary for the products that we manufacture

Fig 4.19: Average influence the following factors have been in the decision not to implement BIM

Base: 3

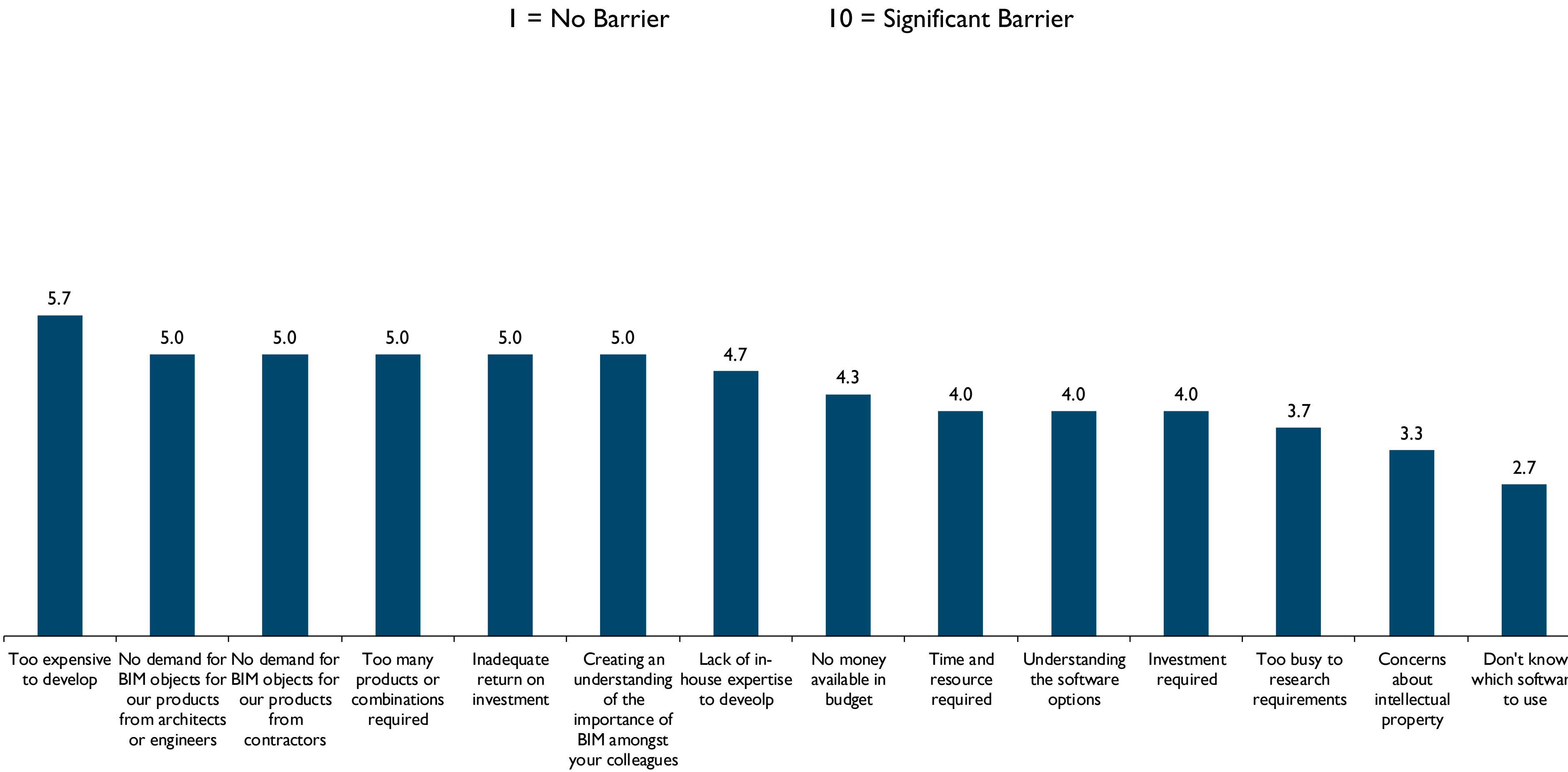


Fig 5.1: Respondents who receive requests for eTendering or eProcurment
Base: 55

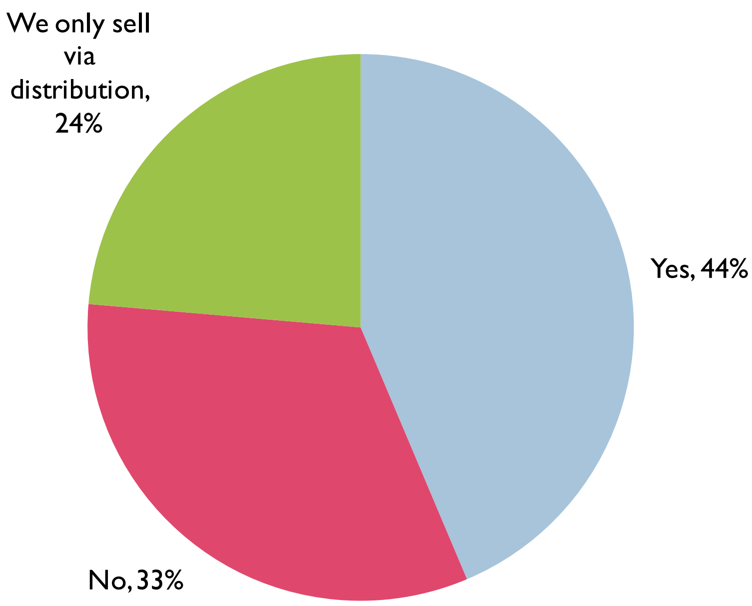


Fig 5.2: How requests for eTendering or eProcurment have changed in the last 12 months
Base: 35

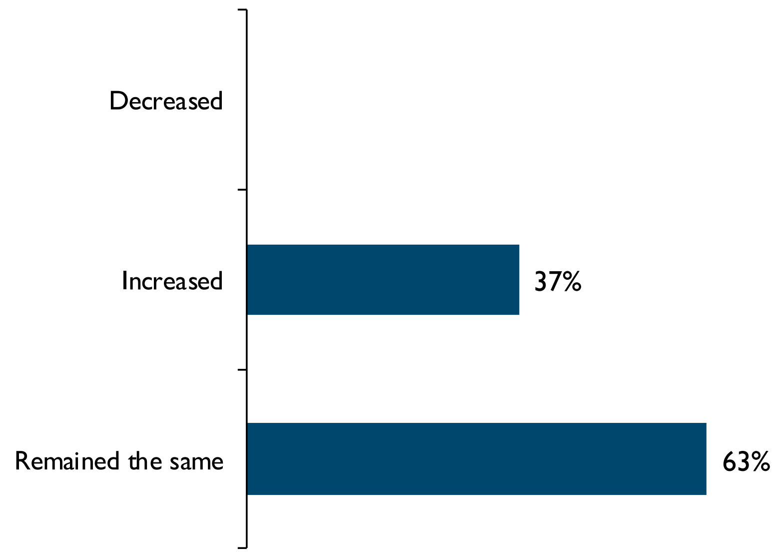


Fig 5.3: How requests for BIM information has changed in the last 12 months
Base: 55

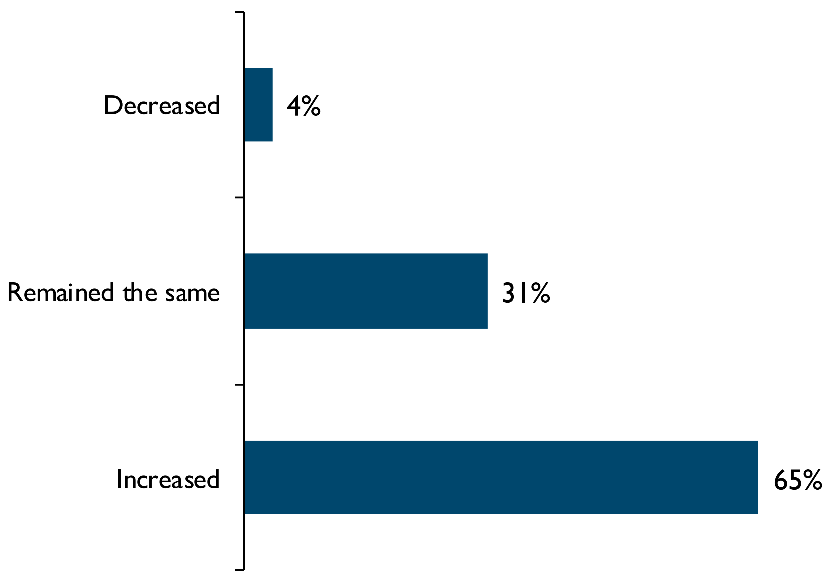


Fig 5.4: Frequency of being asked for BIM objects – Already offering BIM
Base: 31

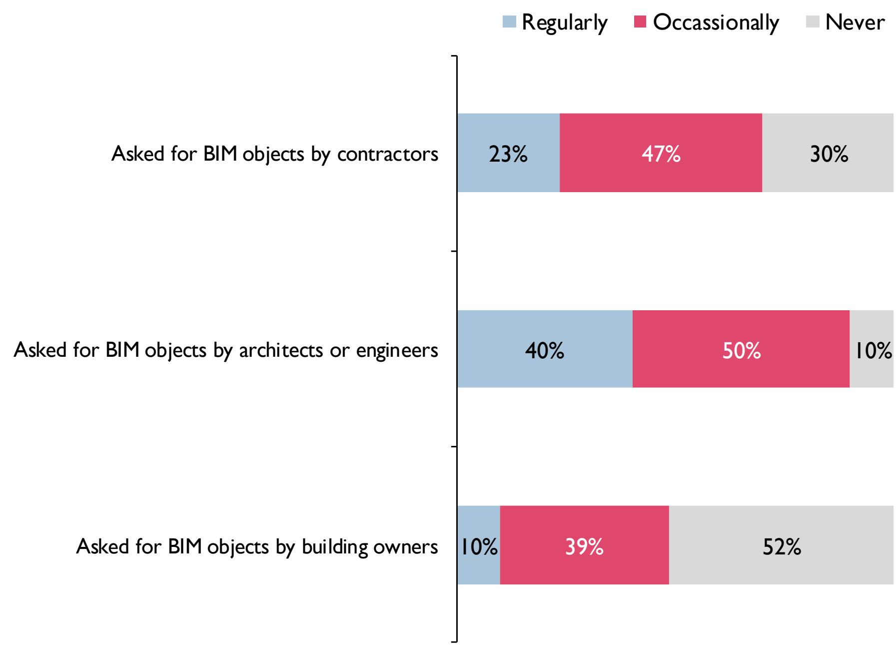


Fig 5.5: Frequency of being asked for BIM objects – Planning to invest
Base: 16

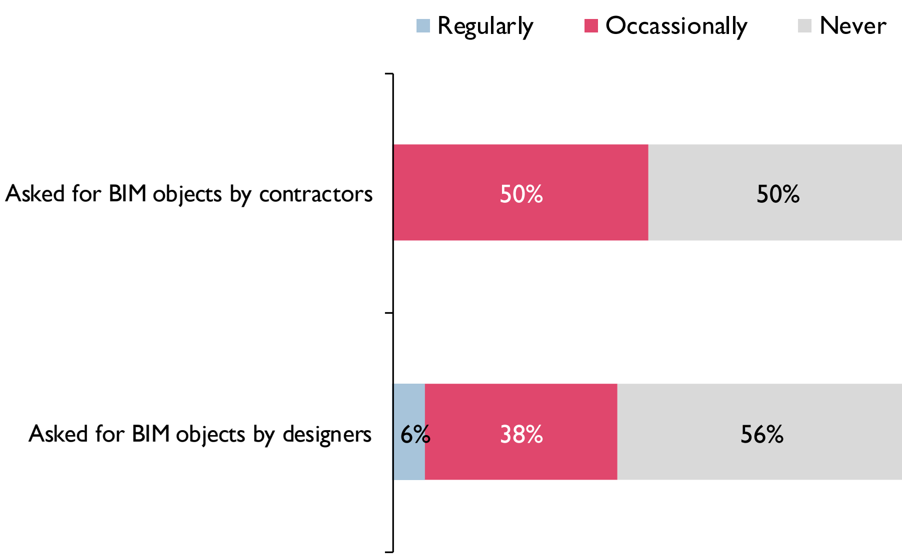


Table 5.5: others in the supply chain asking for BIM objects

Already Offering BIM

- Clients
- Distributers of our products
- Facility Managers
- Housebuilders
- Not that I can think of
- Not that I'm aware. it has been driven by Engineering and marketing
- Service companies
- Some larger contractors
- subcontractors, FM
- third party suppliers (Pods & IPS manufacturers) & Online library providers.
- some MEP consultants

Planning to invest

- BIM has not been widely introduced in my country.
- Not as yet
- not at the moment
- Quality Assurance
- We are currently undertaking research to identify the needs of our clients
- Yes our suppliers

Fig 6.1: Respondent familiarity with BIM concepts & standards
Base: 56

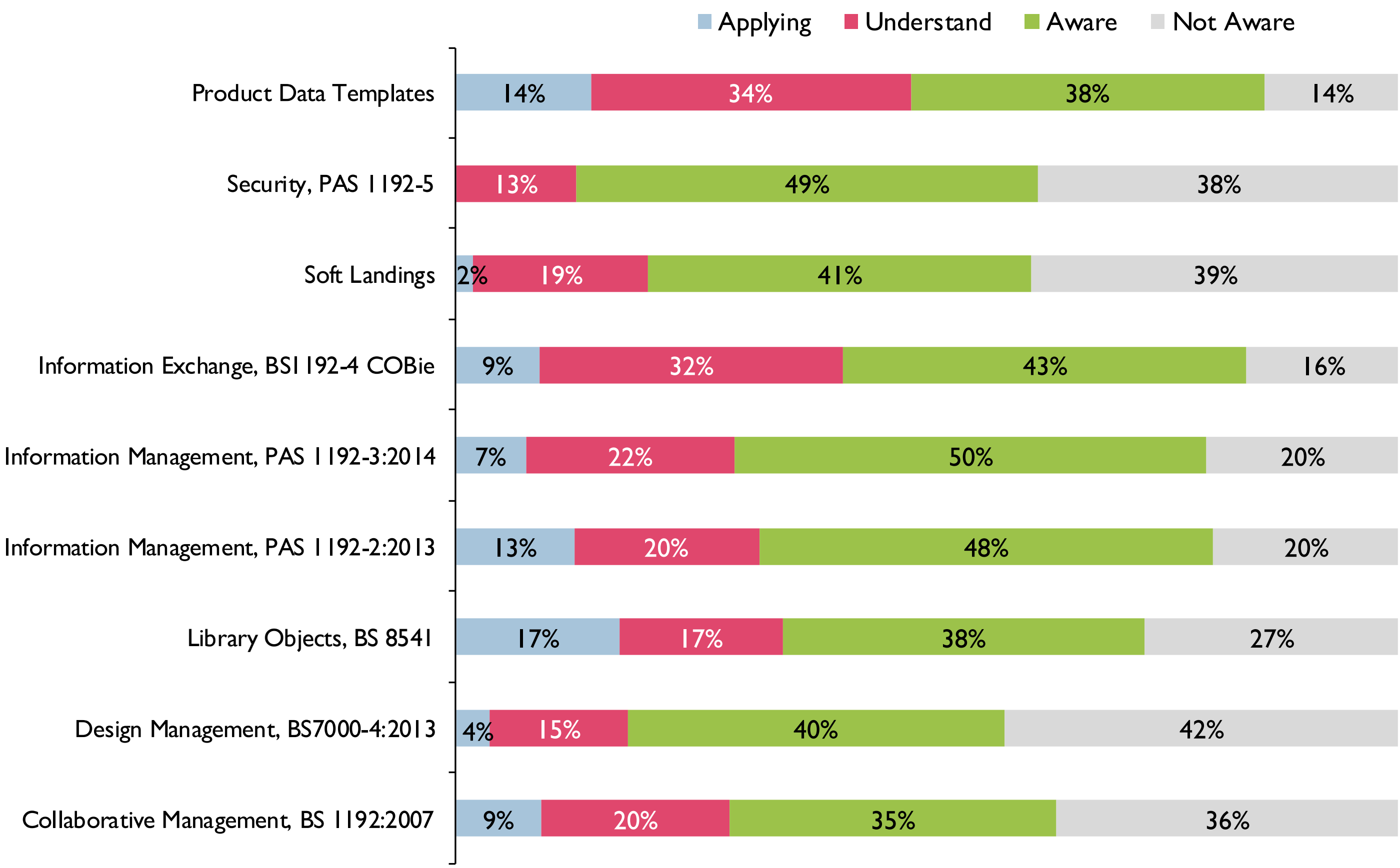


Fig 6.2: Understanding of what is needed to support UK Governments 2016 requirements
Base: 55

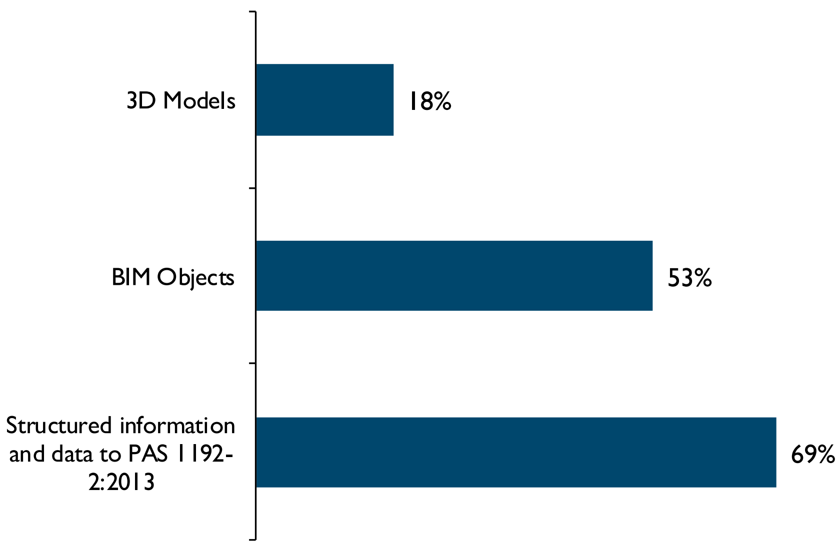


Fig 6.3: Respondents currently offering BIM content for products
Base: 57

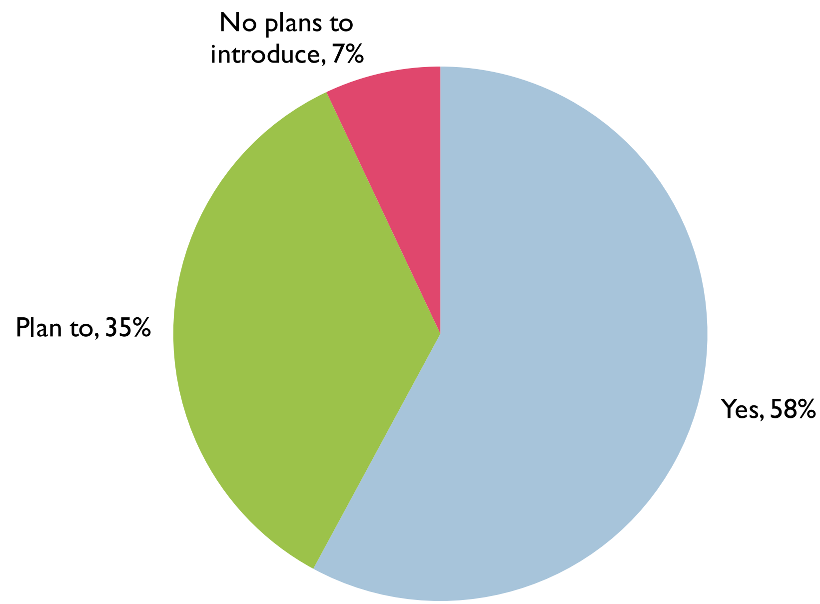
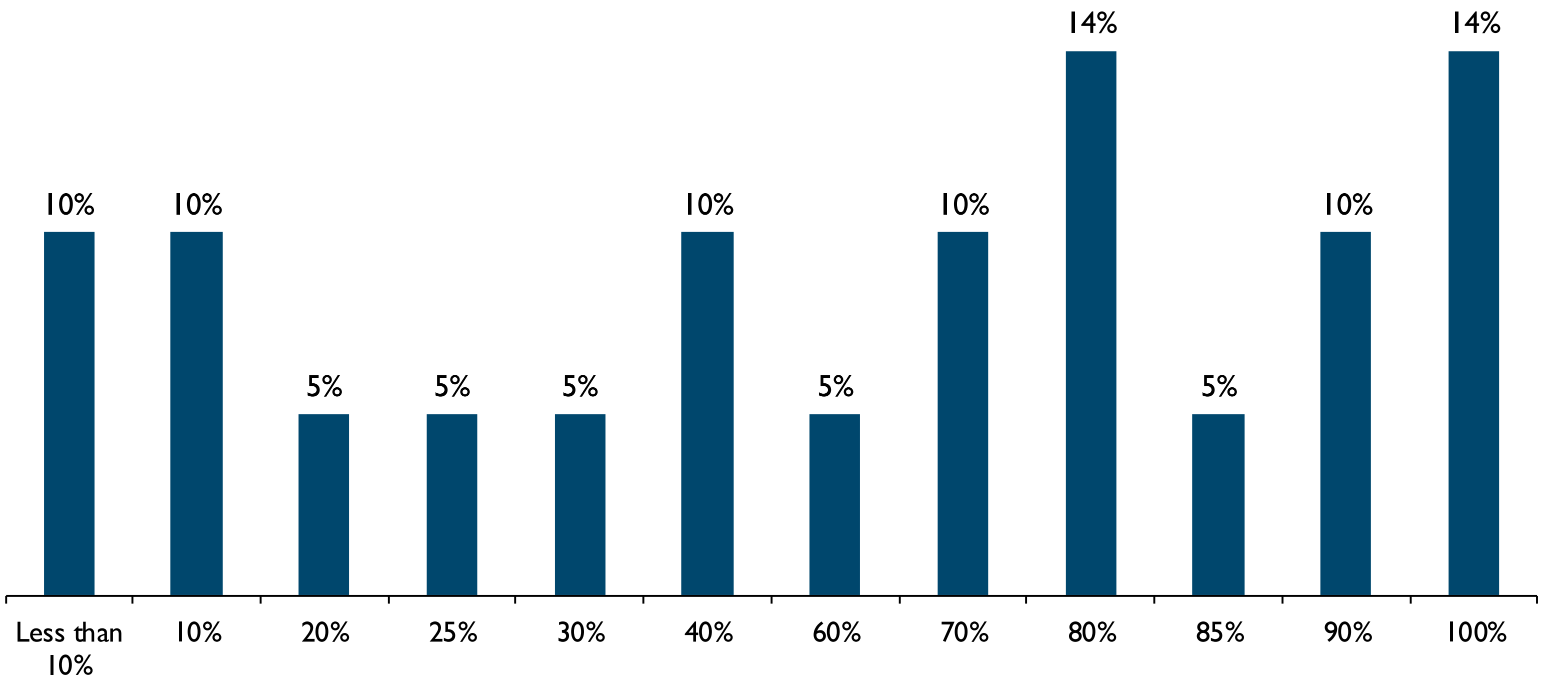


Fig 6.4: Percentage of respondents product range that is available as BIM objects – Already offering BIM
Base: 21



AVERAGE = 52%

Fig 6.5: Respondents' plan to extend range of products available as BIM objects – Already offering BIM
Base: 30

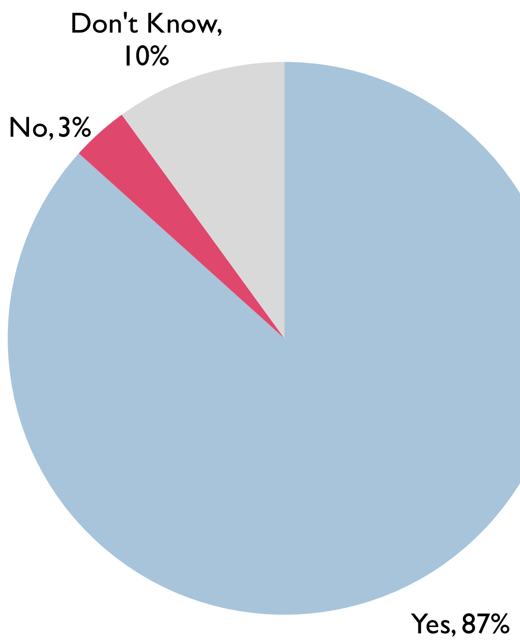


Fig 6.6: Respondents' provision of BIM objects in accordance with PAS 1192-2:2013
Base: 30

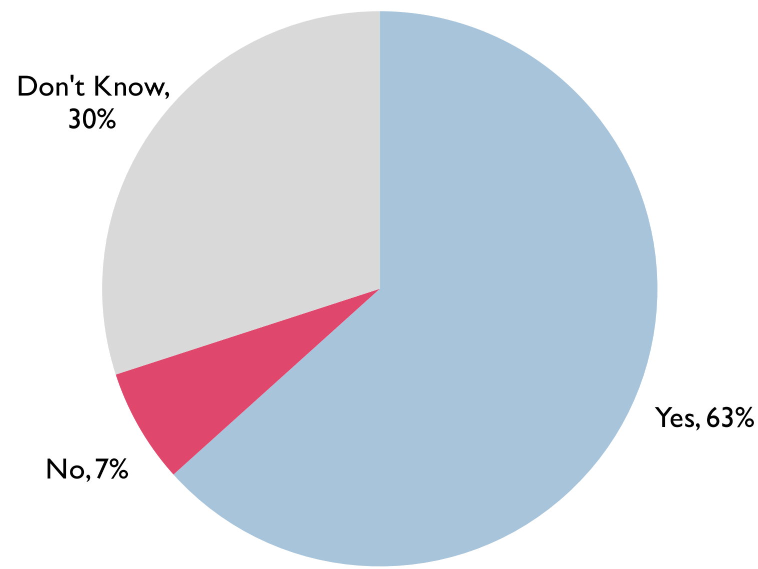


Fig 6.7: Highest level of BIM maturity that respondents BIM content supports – Already offering BIM
Base: 29

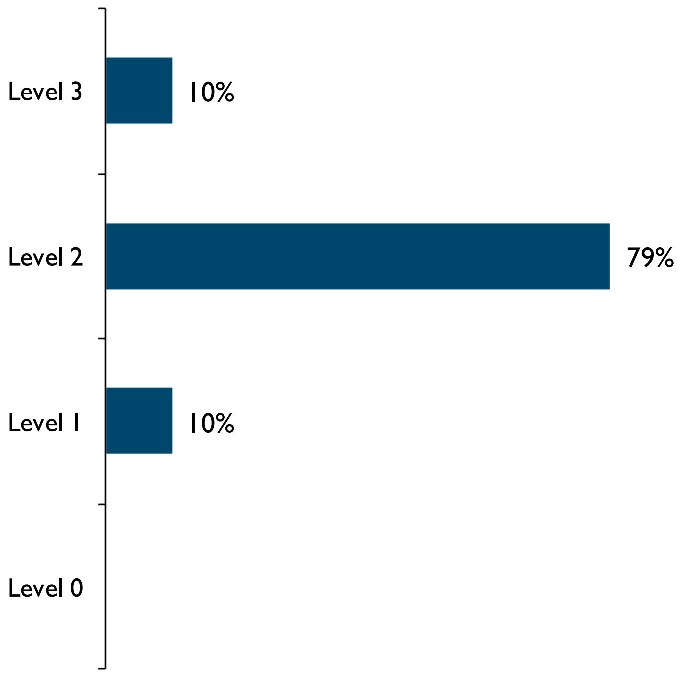


Fig 6.8: Level of development respondents currently provide BIM content to – Already offering BIM
Base: 30

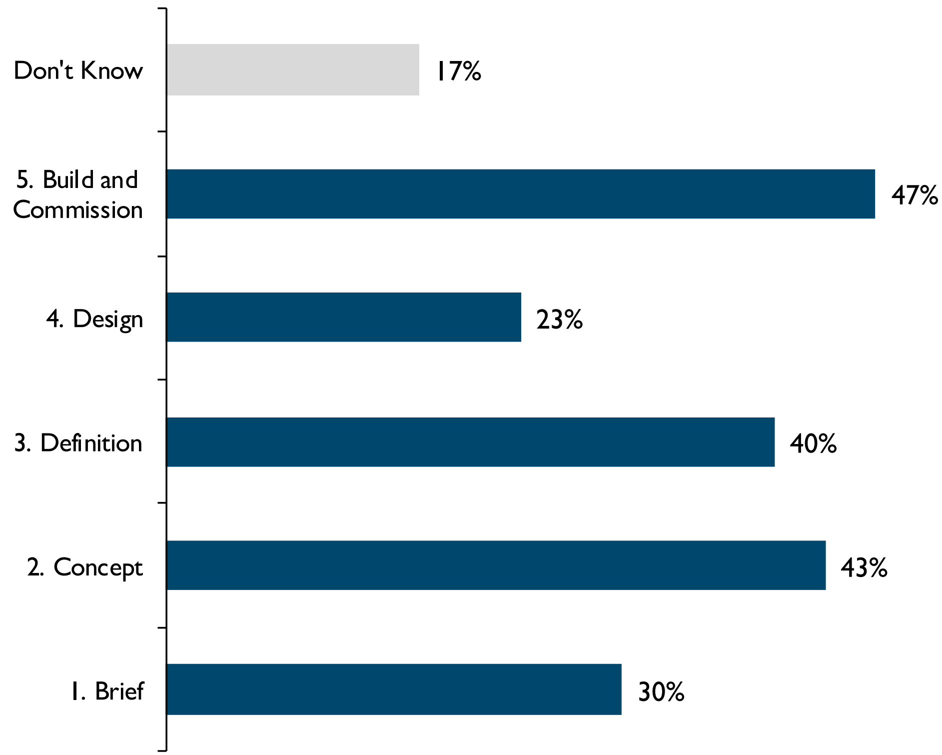


Fig 6.9: How respondents develop BIM objects – Already offering BIM
Base: 29

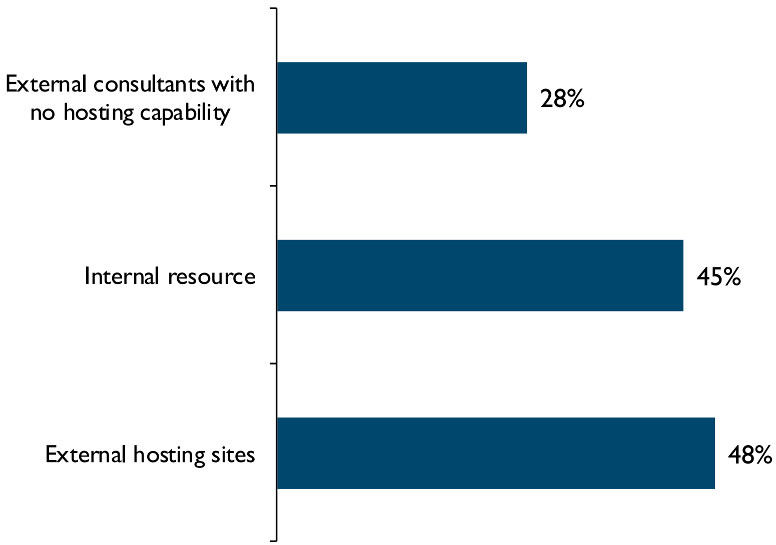


Fig 6.10: Places respondents BIM objects are available – Already offering BIM
Base: 30

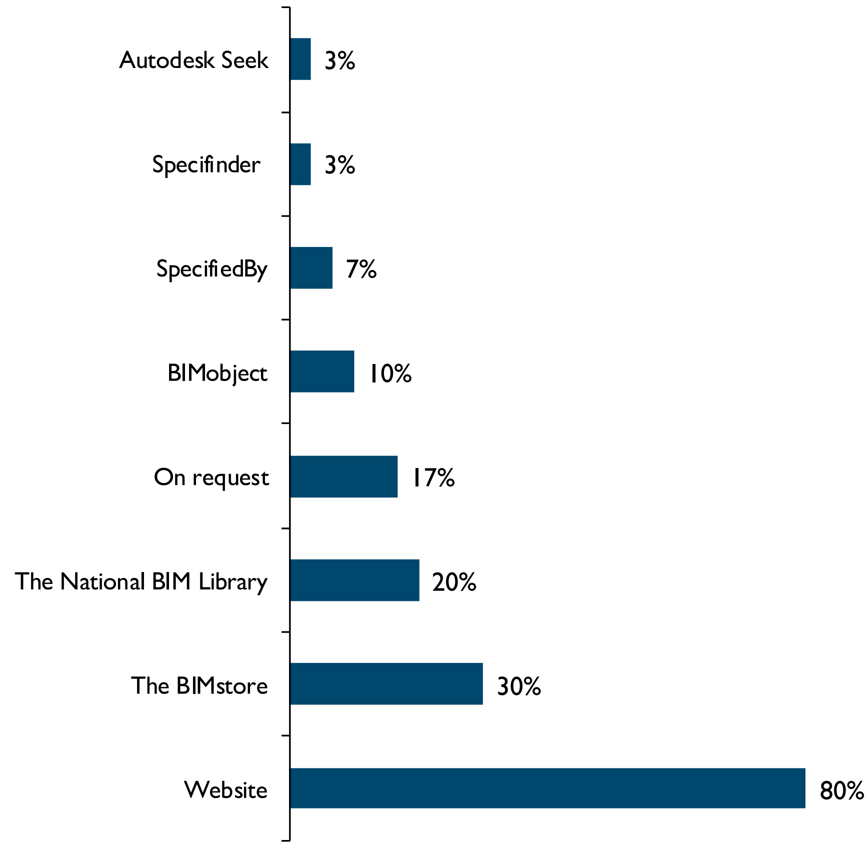


Fig 6.11: Organisations with a person responsible for BIM – Already offering BIM
Base: 30

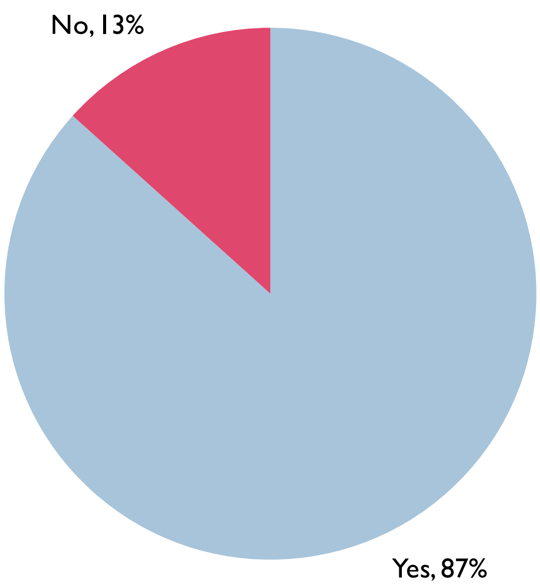


Fig 6.12: Organisations with a person responsible for BIM – Plans to invest
Base: 16

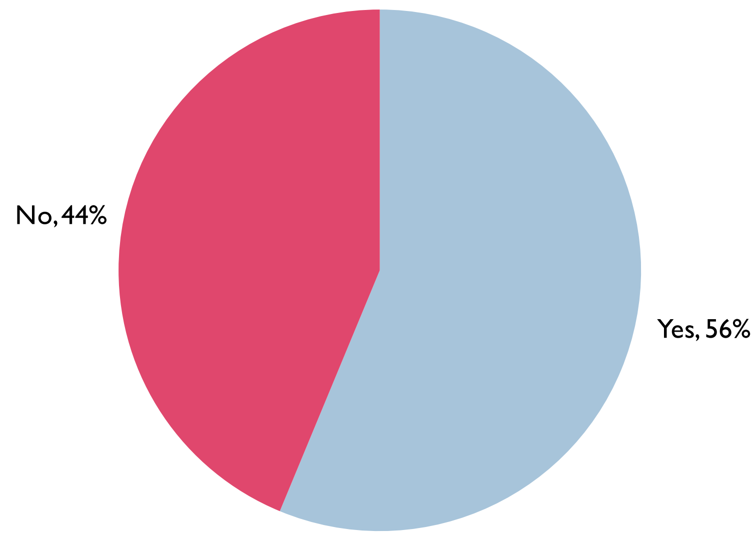


Fig 6.13: Organisations with a person responsible for BIM – No plans to invest
Base: 4

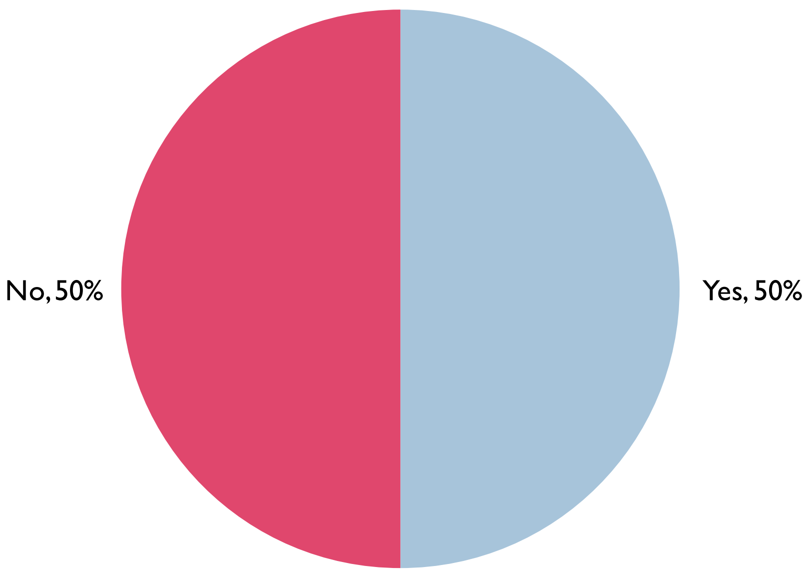


Fig 7.1: Information respondents are asked for – Already offering BIM
Base: 28

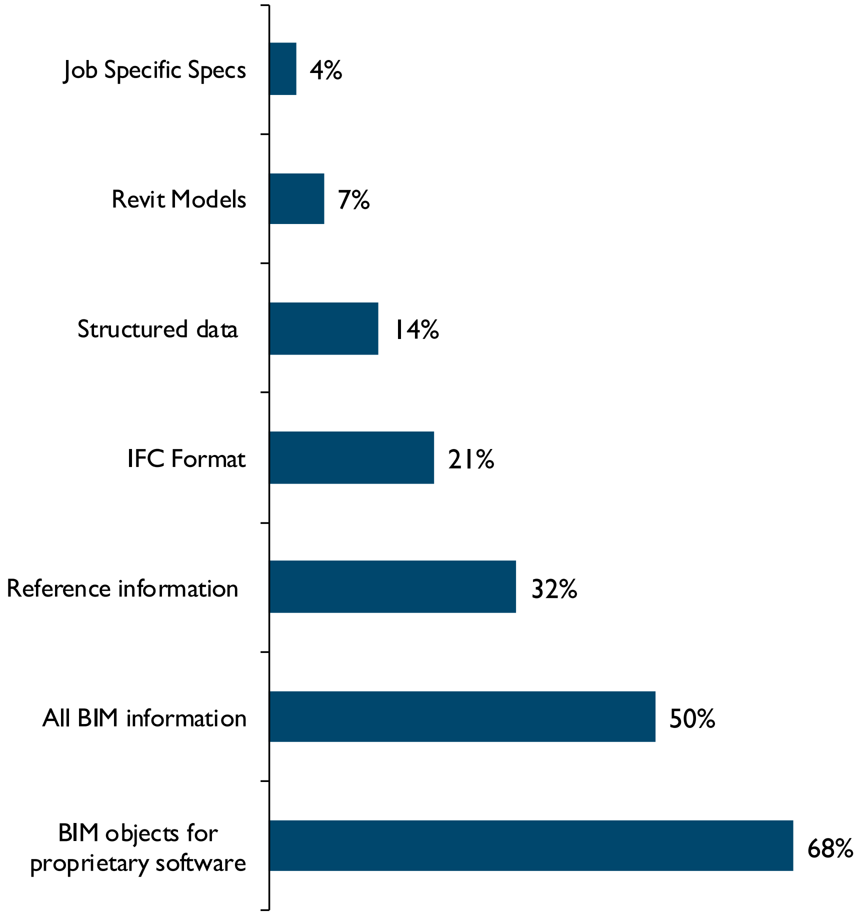


Fig 7.2: Software for which BIM objects are offered – Already offering BIM
Base: 31

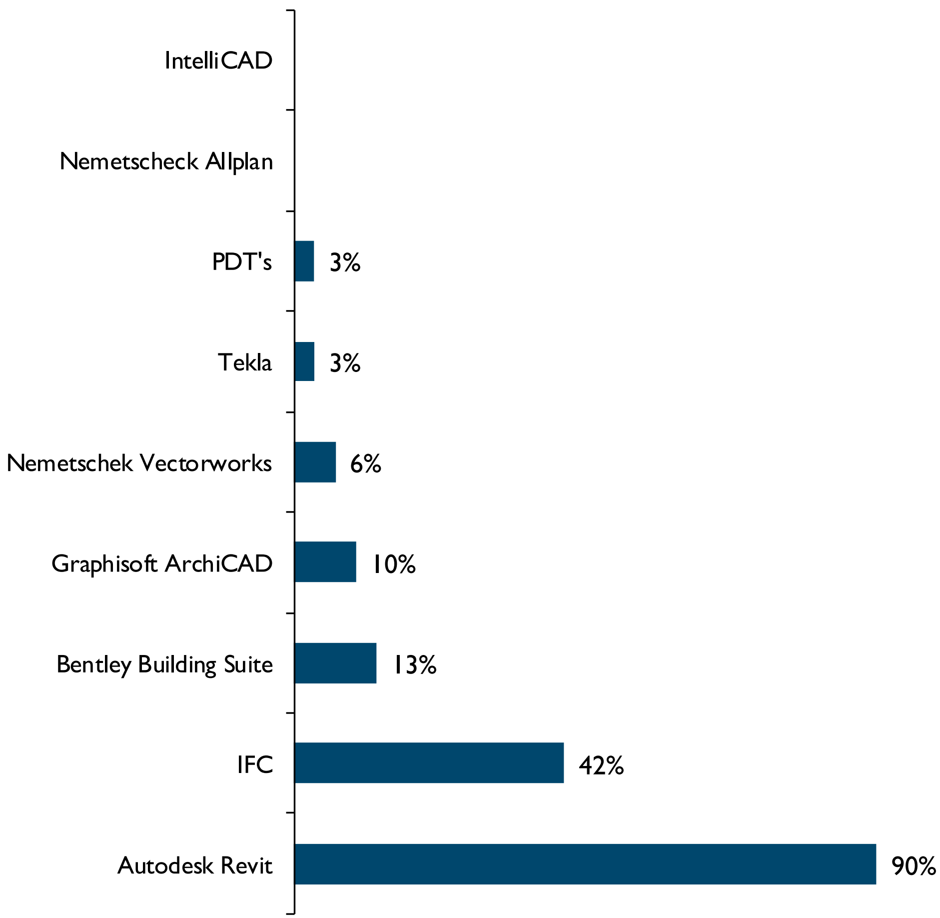
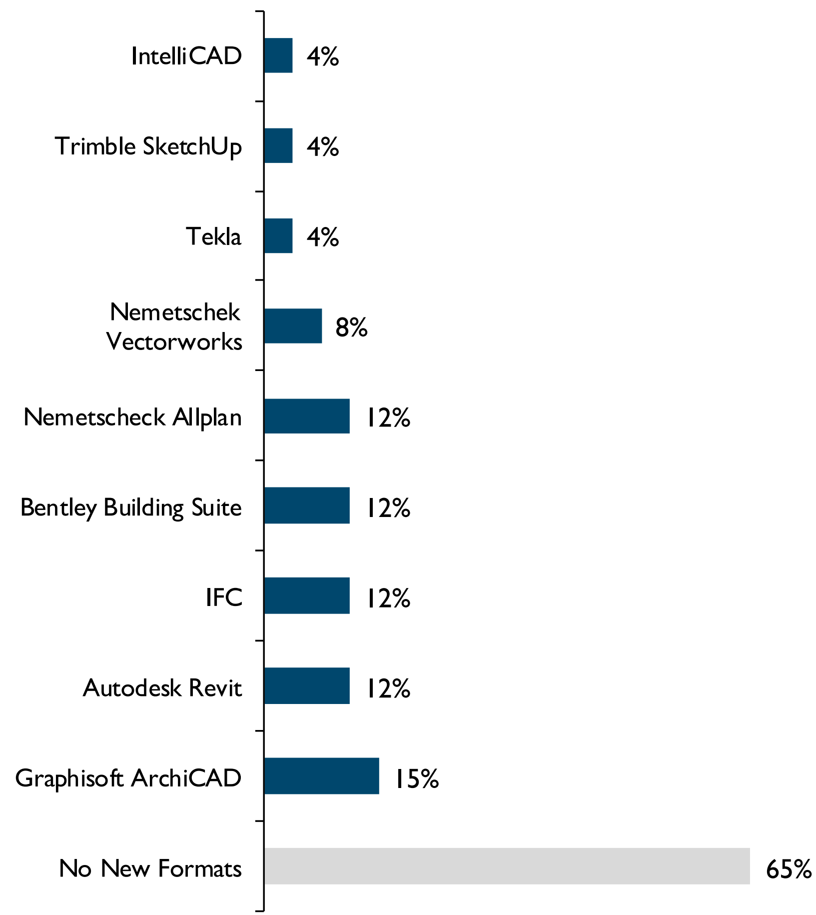


Fig 7.3: Plans to offer BIM in other software formats – Already offering BIM
Base: 26



This research was conducted on behalf of BIM4M2 by Competitive Advantage who specialise in market research, sales & marketing training, strategy development and implementation specific to the construction industry.

As well as a range of standard reports, that can be purchased online, services include bespoke construction market evaluation, mystery shopper, customer satisfaction and perception surveys.

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