Task O2/A1.4

REPORT ON THE DEGREE OF IMPLANTATION OR USE OF BIM AT PROFESSIONAL LEVEL IN ROMANIA

1. Introduction

BIM (Building Information Modeling). It is an intelligent 3D model-based process that gives architecture, engineering, and construction (AEC) professionals the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure". BIM is technology which is used to generate and use data about the building. It is design, construction and operation during the full cycle of operation. This system allows all interested investment participants to have access to the same information, at the same time, through the interoperability of technology platforms.

Designing structures for many years has undergone various improvements, primarily through the development of tools and software. This is due to the development of digitization and technology. Improving computing equipment allows you to increase the accuracy of calculations and present results in a transparent and understandable way for recipients. With time, when it turned out that the consumers were getting better and more, as well as more and more demanding architectural visions, tools were created that could more easily visualize architectural thoughts and present them to customers. Originally, the aim was to create drawings more quickly and to operate them more easily. Everything was heading towards a change involving the creation of virtual models in 3D. The transition from presenting the project in 2D to 3D is considered a breakthrough because it was the beginning of creating software that not only allows for more precise presentation of ideas but also is the basis for a better understanding of industries and all participants in the construction process.

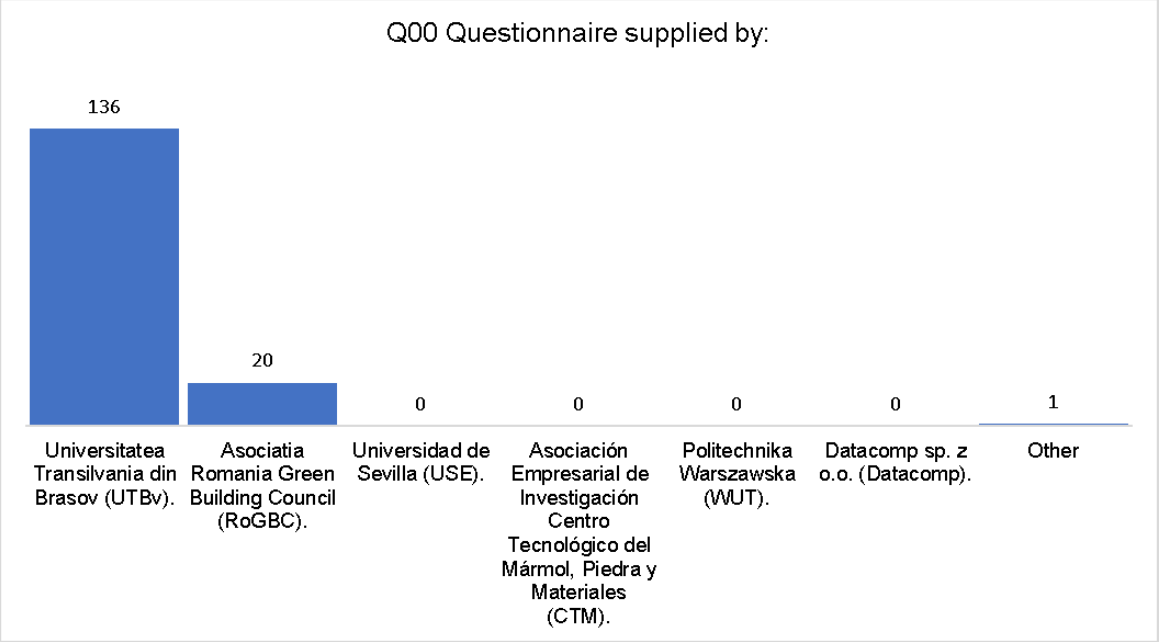
The core and main goal of BIM technology is the communication between the participants of the investment process and better understanding of the general design idea. The project at BIM introduces support in the form of various programs or reports facilitating and accelerating this interpretation as well as collecting and exchanging data by collaborating designers. Architects as well as other participants of the investment process working on the 3D model can check virtually all the technical aspects of the planned implementation virtually before the heavy equipment starts work.

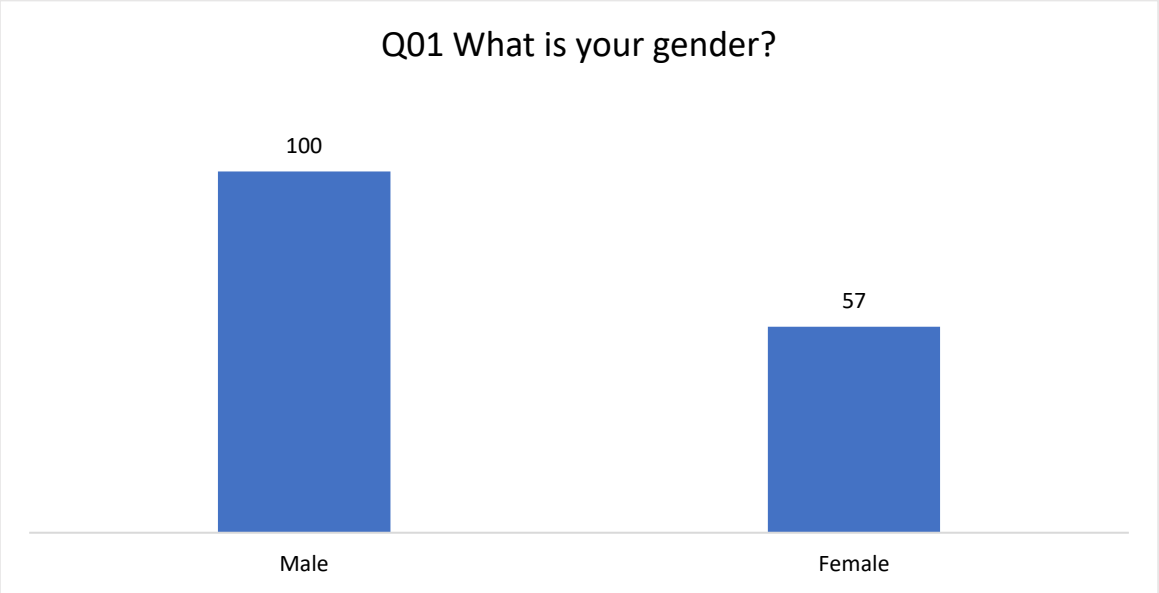
The greatest advantage of Building Information Modeling is the ease of making any changes. The virtual model in the computer is open to changes in various positions. It is easy to rotate the model, select any element and its correction. Any changes to the 2D documentation are extremely complicated, because you must make sure that the change is made on each plan and cross-section so that the drawings are consistent with each other. Using BIM technology, since each member of the investment and construction process is involved from the beginning, rather than one after the other, it is easy to make any changes with the certainty that the created project is consistent with each other.

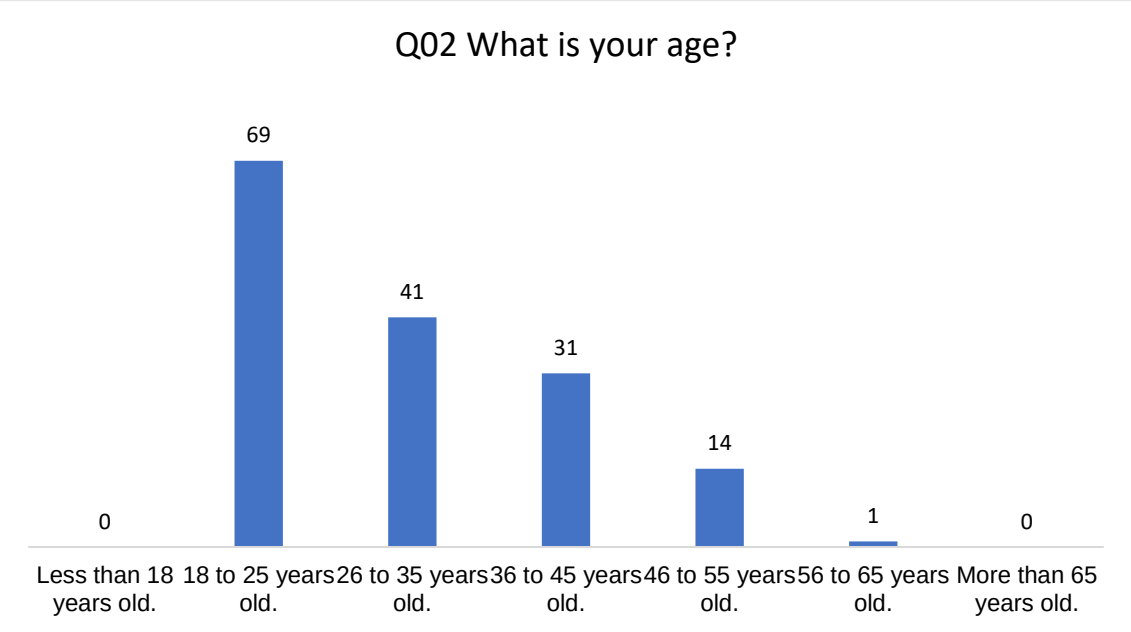
1. Results

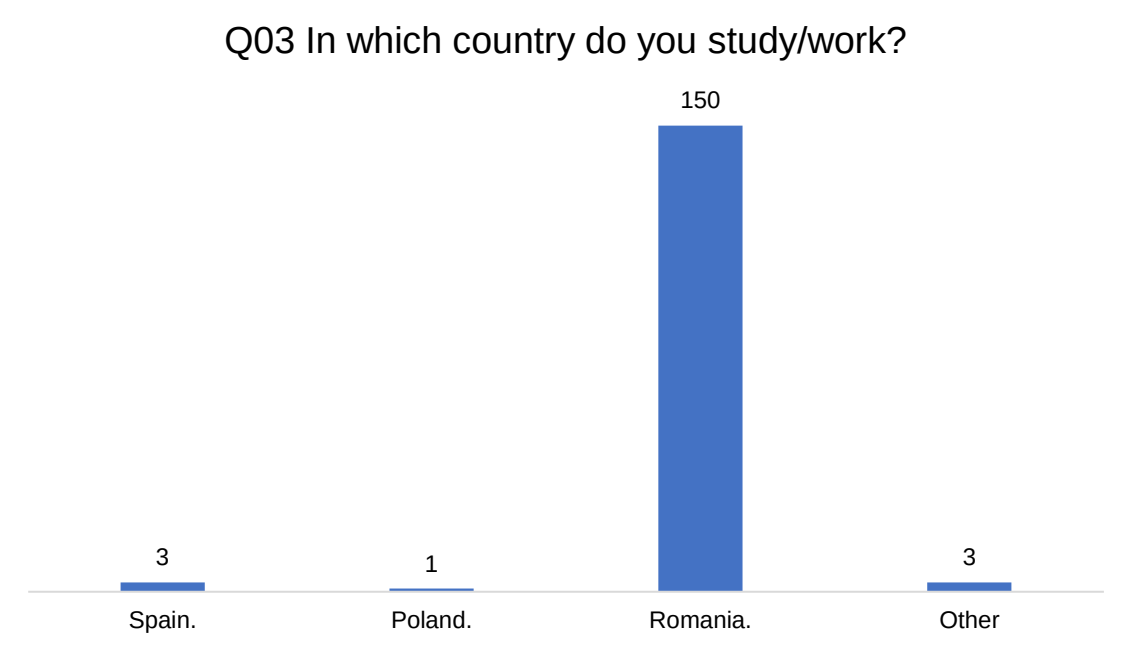
A survey has been carried out to make a first assessment of the current situation, to propose the work to be developed, as well as strategies and future actions.

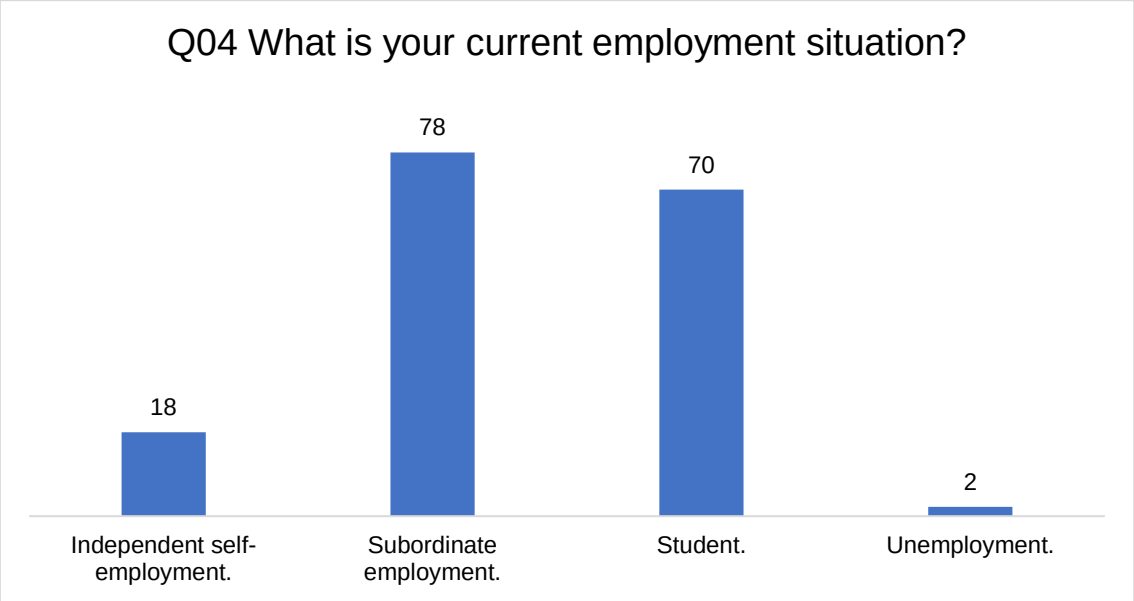
Universitatea Transilvania din Brasov (UTBv) and Asociatia Romania Green Building Council (RoGBC) compiled the surveys and define the results.

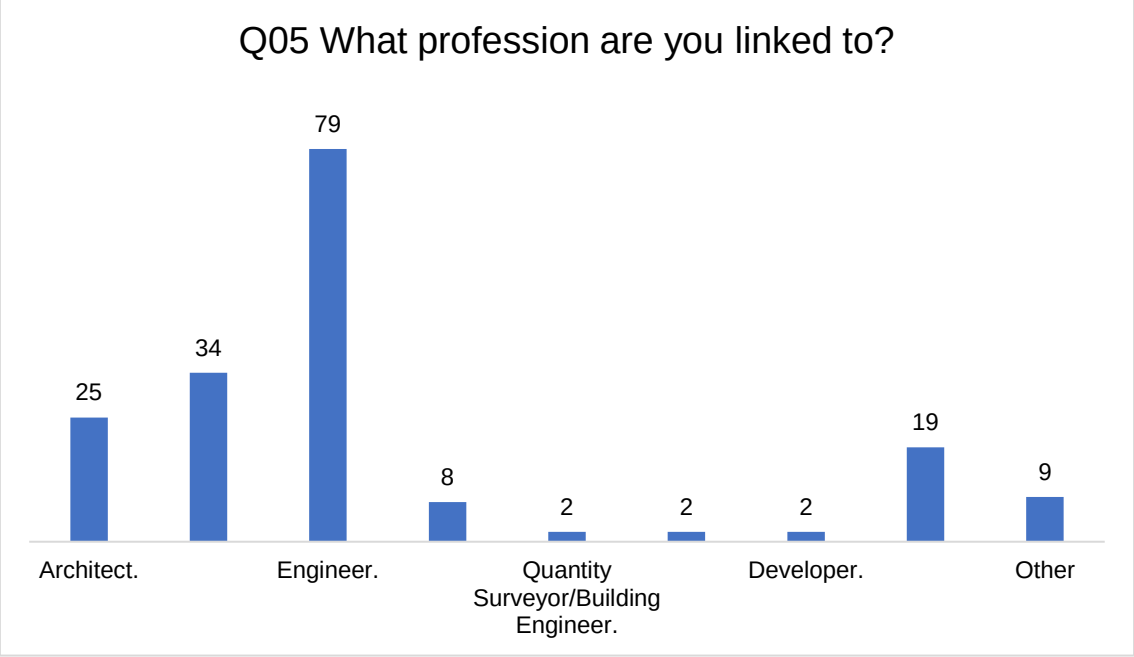


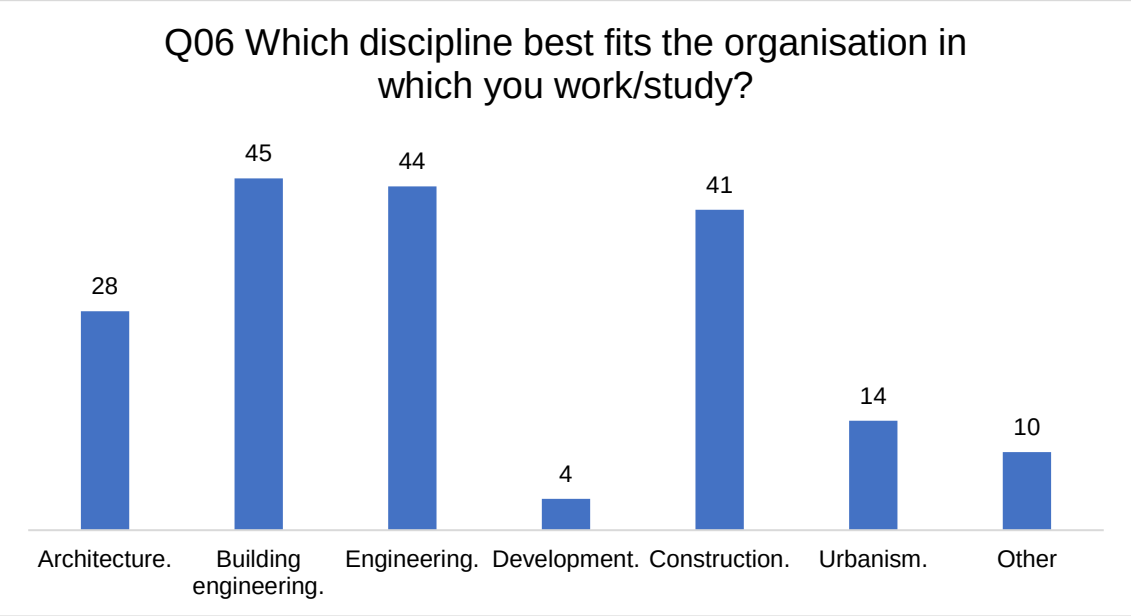



Q02 What is your age?
0
69
41
31
14
1
0
Less than 18 years old.
18 to 25 years old.
26 to 35 years old.
36 to 45 years old.
46 to 55 years old.
56 to 65 years old.
More than 65 years old.

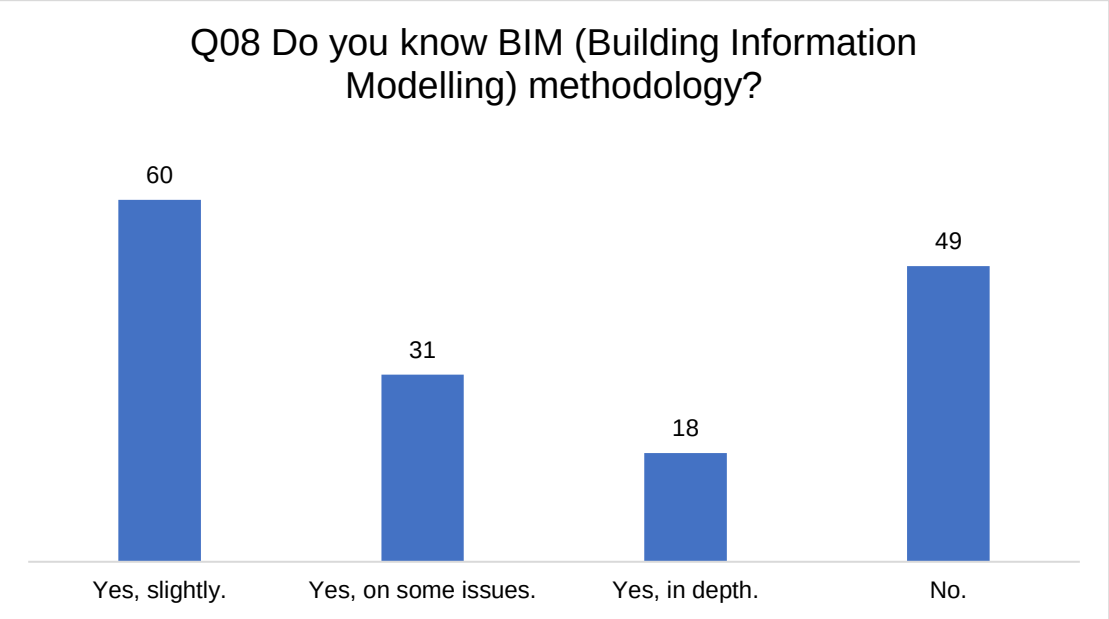

Q03 In which country do you study/work?
3
1
150
3
Spain.
Poland.
Romania.
Other

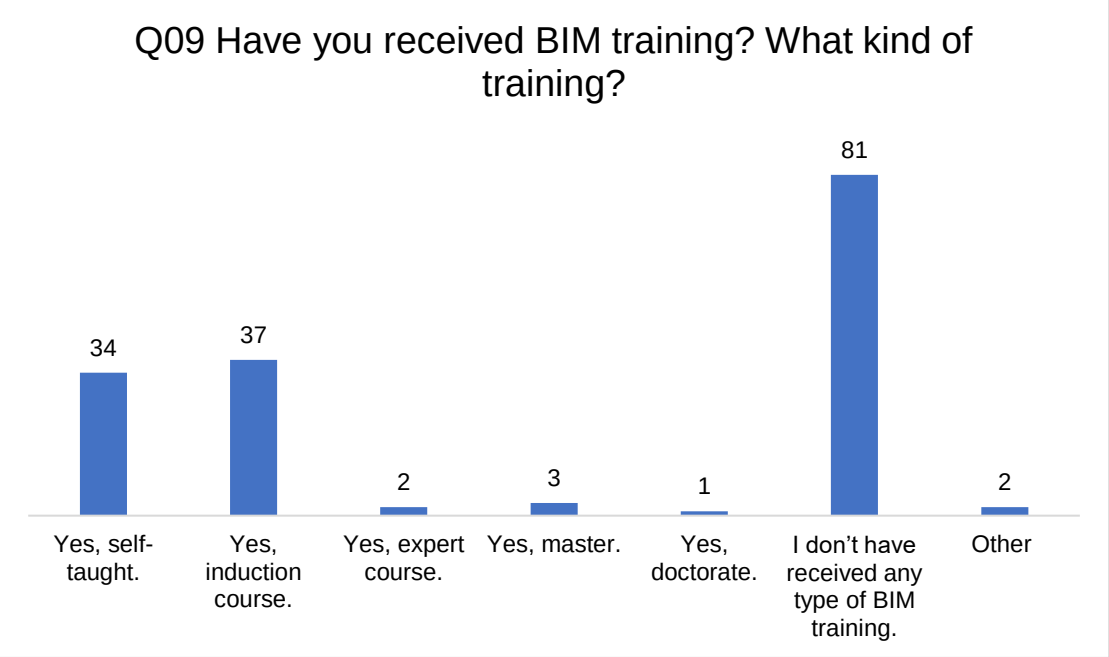

Q04 What is your current employment situation?
18
78
70
2
Independent self-employment.
Subordinate employment.
Student.
Unemployment.

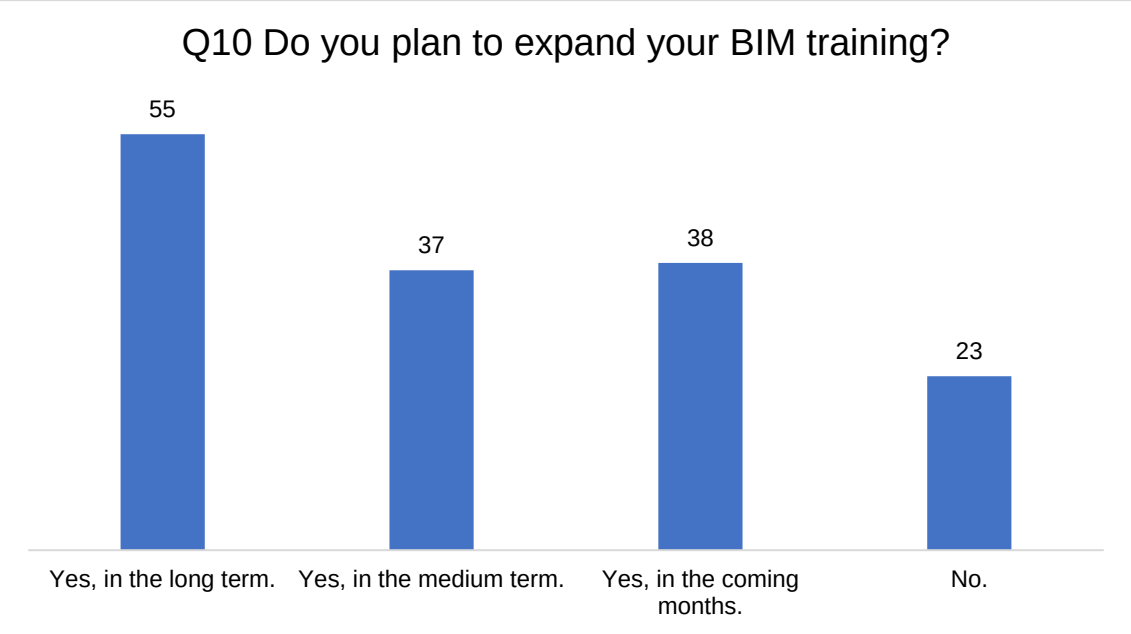

Q05 What profession are you linked to?
25
34
79
8
2
2
2
19
9
Architect.
Engineer.
Quantity Surveyor/Building Engineer.
Developer.
Other

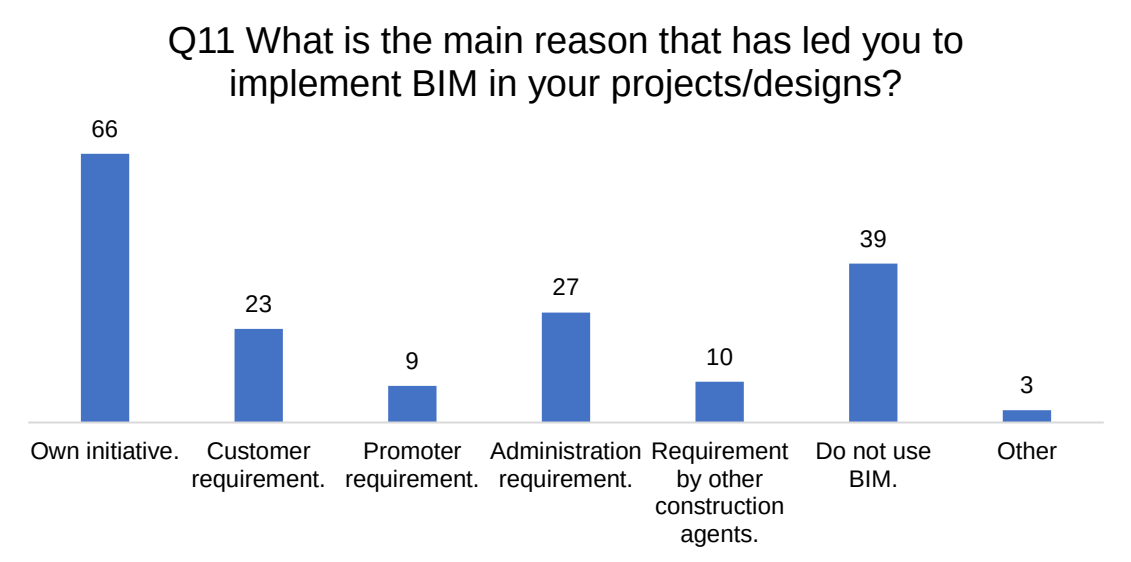

Q06 Which discipline best fits the organisation in which you work/study?
28
45
44
4
41
14
10
Architecture.
Building engineering.
Engineering.
Development.
Construction.
Urbanism.
Other

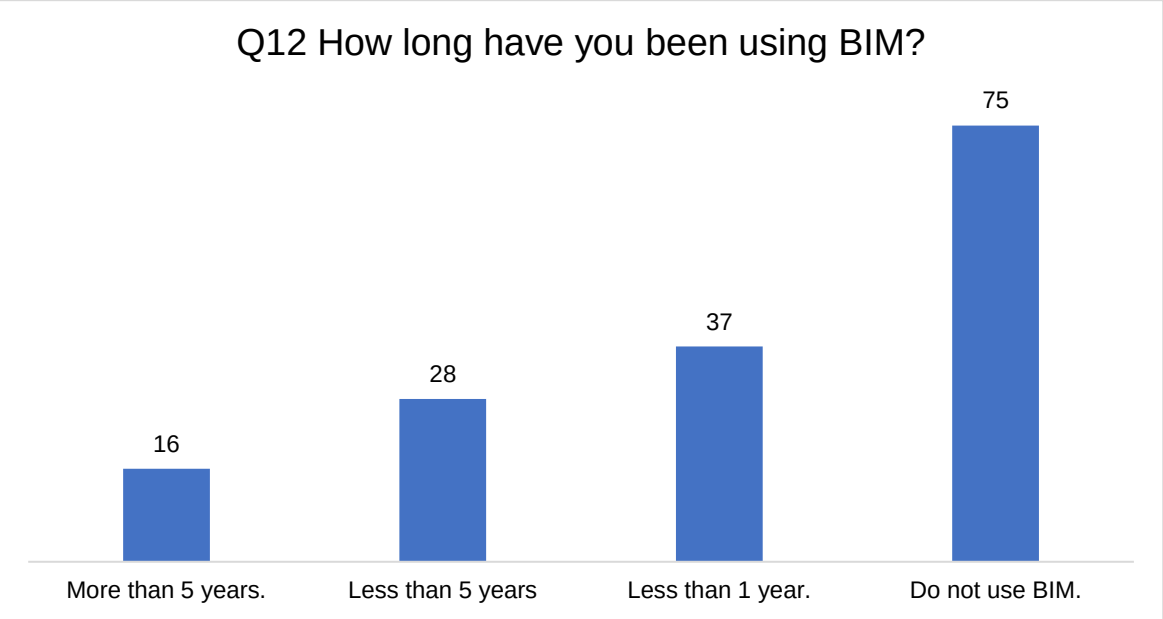

Q07 For how many years have you worked linked to in construction sector?
53
37
17
22
13
11
Less than 2 years.
2 - 5 years.
6 - 10 years.
11 - 15 years.
16 - 20 years.
More than 20 years.

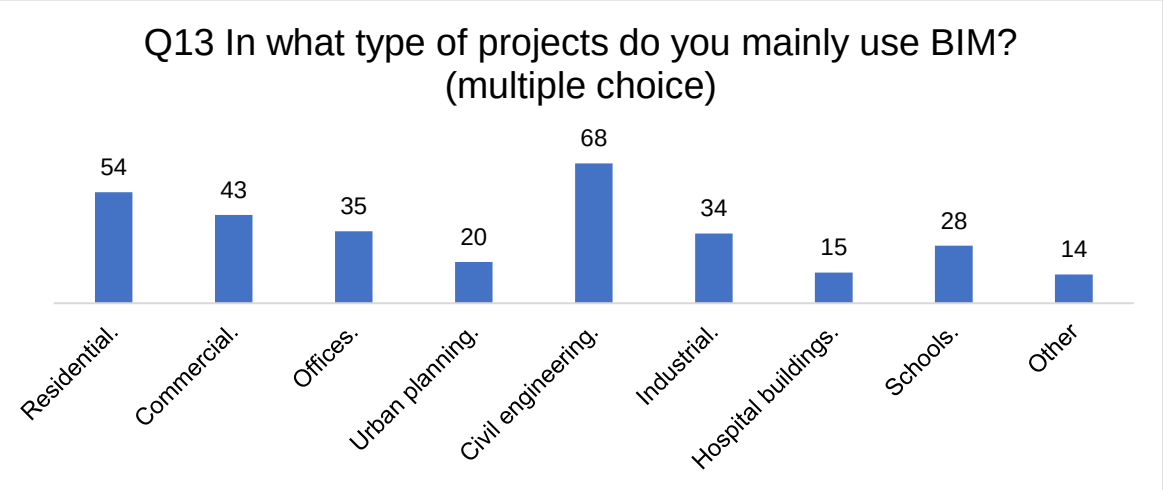

Q08 Do you know BIM (Building Information Modelling) methodology?
60
31
18
49
Yes, slightly.
Yes, on some issues.
Yes, in depth.
No.

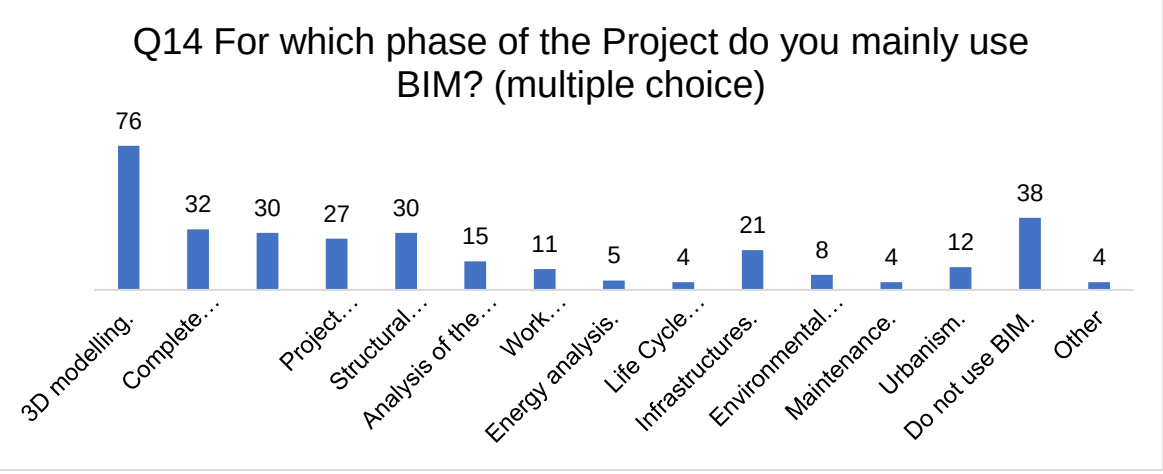

Q09 Have you received BIM training? What kind of training?
34
37
2
3
1
81
2
Yes, self-taught.
Yes, induction course.
Yes, expert course.
Yes, master.
Yes, doctorate.
I don't have received any type of BIM training.
Other

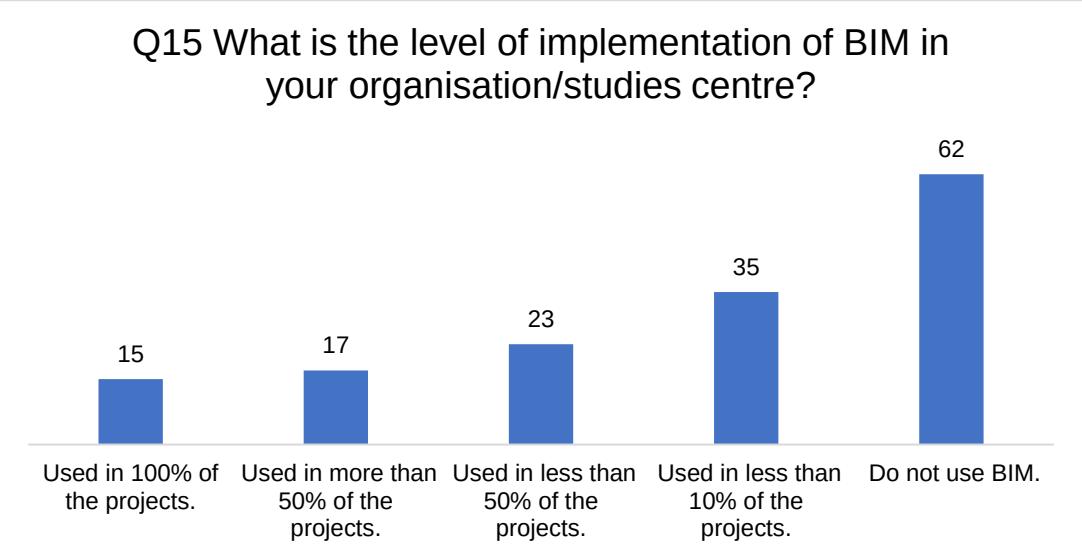

Q10 Do you plan to expand your BIM training?
55
37
38
23
Yes, in the long term.
Yes, in the medium term.
Yes, in the coming months.
No.

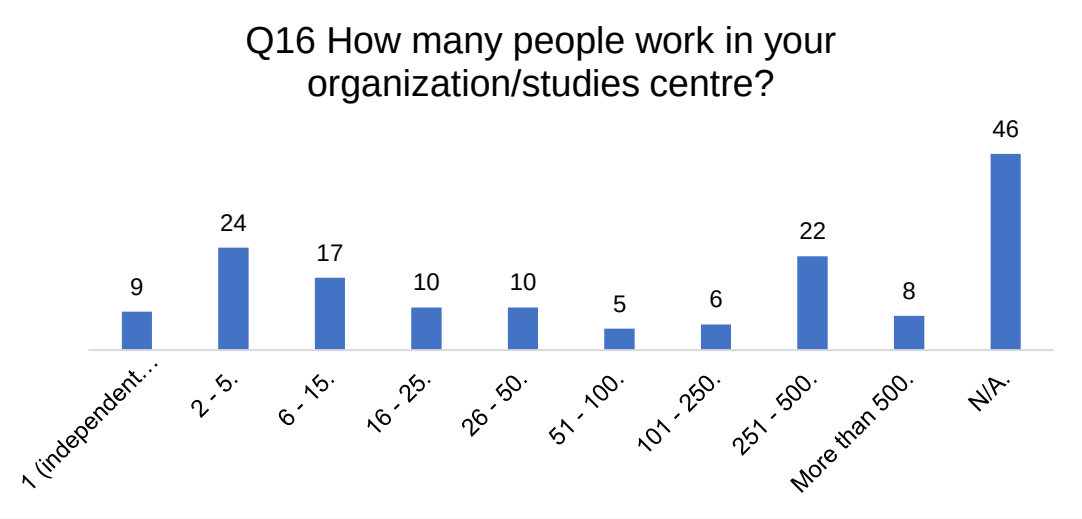

Q11 What is the main reason that has led you to implement BIM in your projects/designs?
66
23
9
27
10
39
3
Own initiative.
Customer requirement.
Promoter requirement.
Administration requirement.
Requirement by other construction agents.
Do not use BIM.
Other

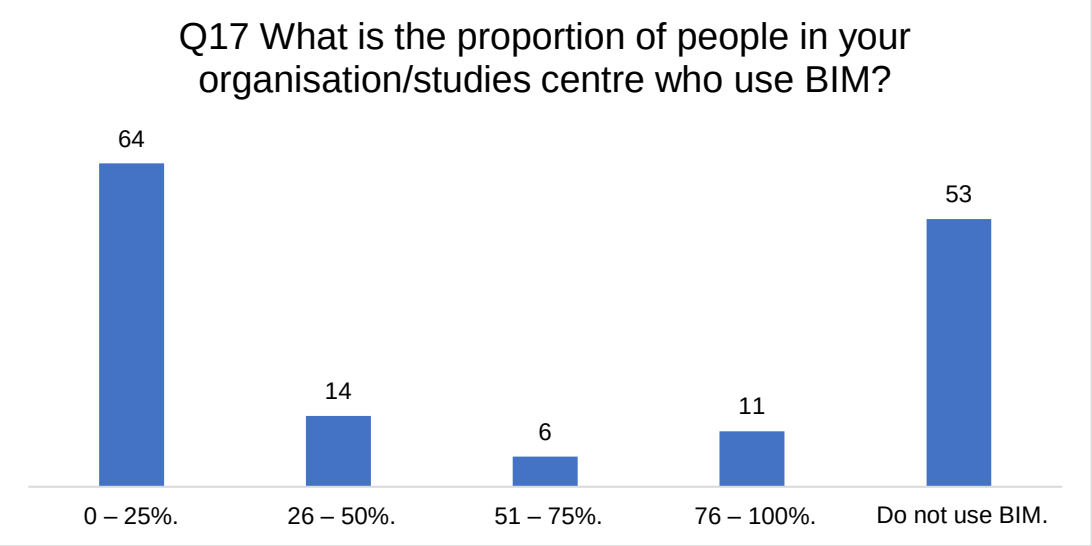

Q12 How long have you been using BIM?
16
28
37
75
More than 5 years.
Less than 5 years
Less than 1 year.
Do not use BIM.

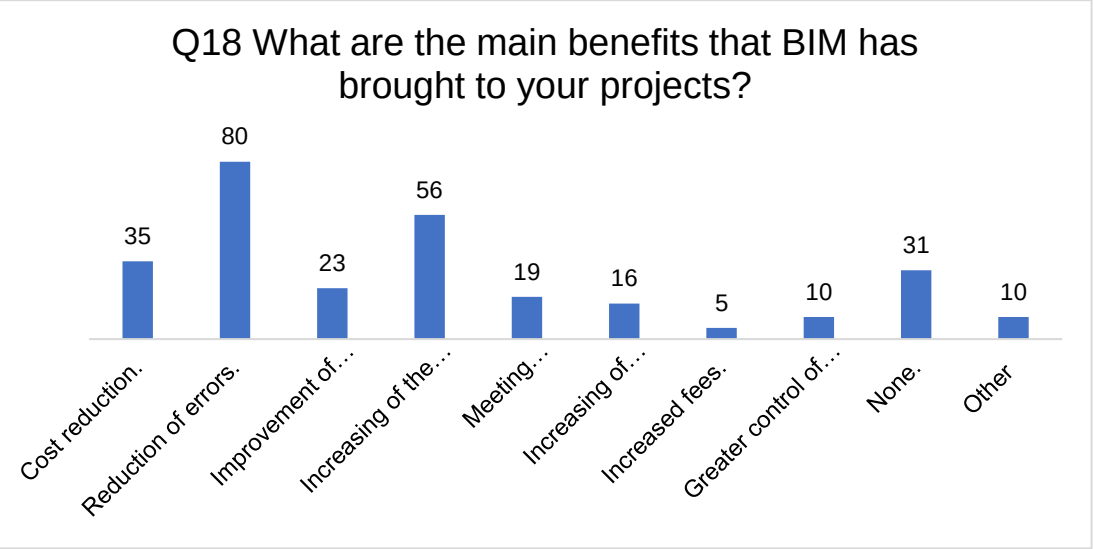

Q13 In what type of projects do you mainly use BIM? (multiple choice)
54
43
35
20
68
34
15
28
14
Residential.
Commercial.
Offices.
Urban planning.
Civil engineering.
Industrial.
Hospital buildings.
Schools.
Other

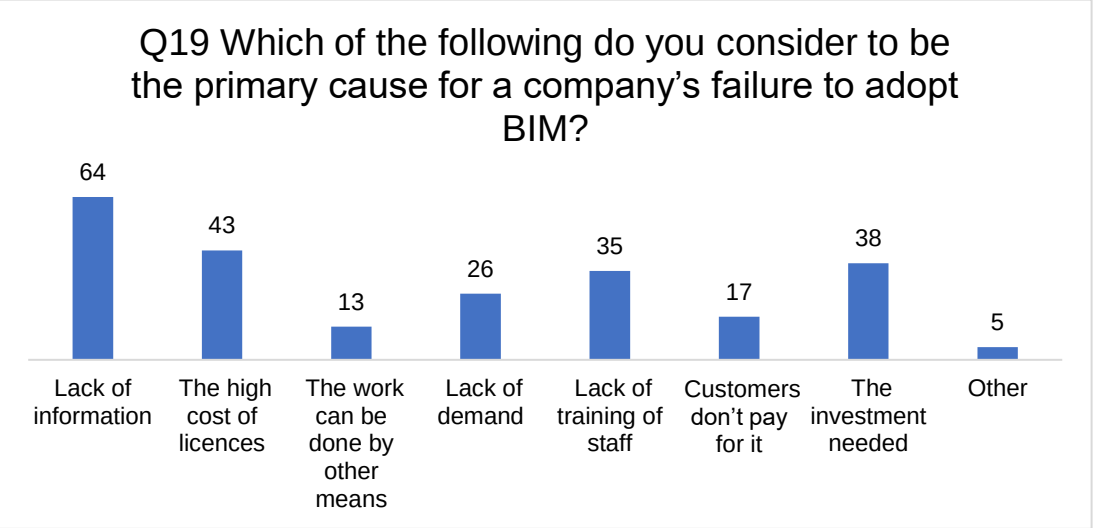

Q14 For which phase of the Project do you mainly use BIM? (multiple choice)
76
32
30
27
30
15
11
5
4
21
8
4
12
38
4
3D modelling.
Complete...
Project...
Structural...
Analysis of the...
Work...
Energy analysis.
Life Cycle...
Infrastructures.
Environmental...
Maintenance.
Urbanism.
Do not use BIM.
Other

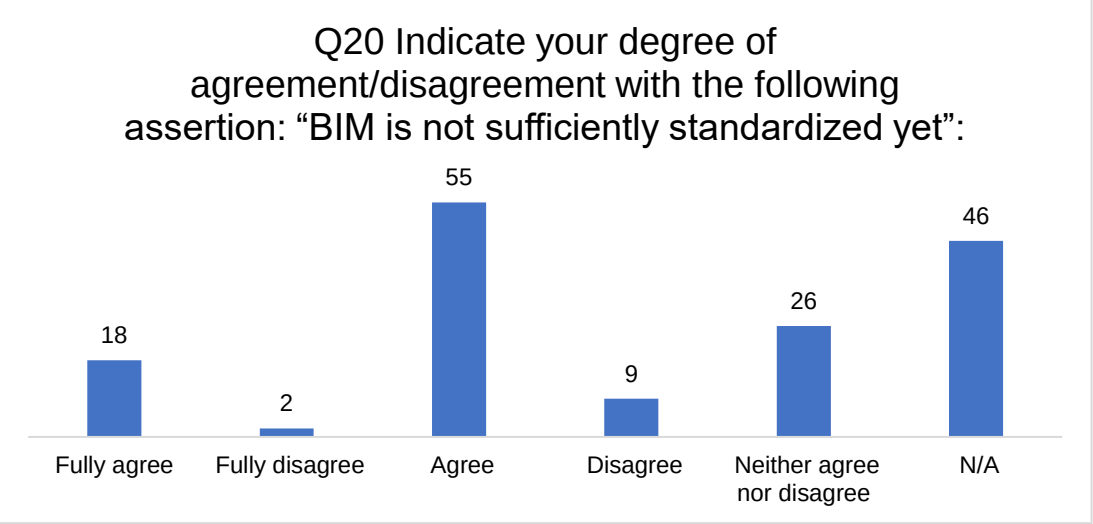

Q15 What is the level of implementation of BIM in your organisation/studies centre?
15
17
23
35
62
Used in 100% of the projects.
Used in more than 50% of the projects.
Used in less than 50% of the projects.
Used in less than 10% of the projects.
Do not use BIM.

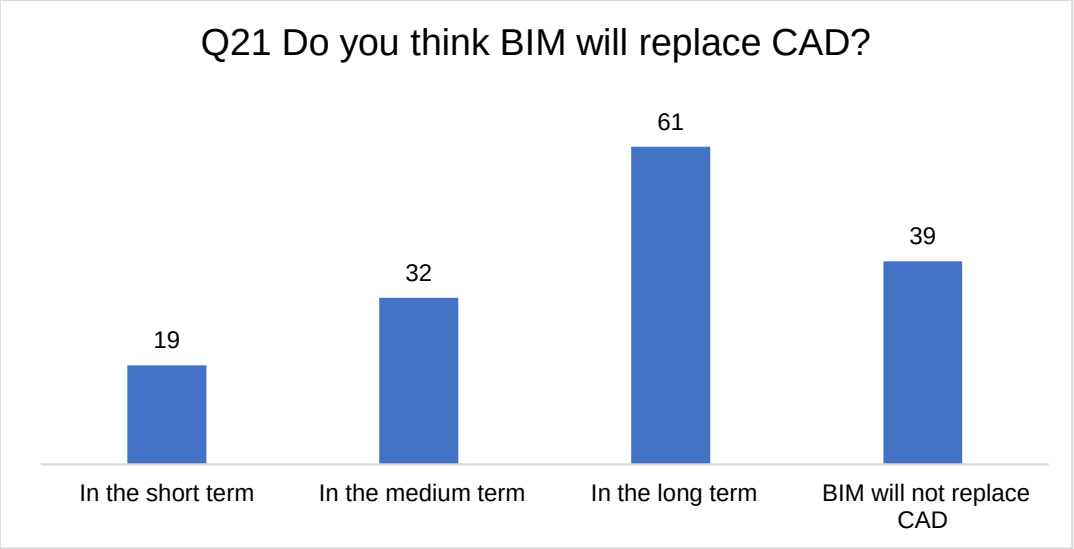

Q16 How many people work in your organization/studies centre?
9
24
17
10
10
5
6
22
8
46
1 (independent...
2 - 5.
6 - 15.
16 - 25.
26 - 50.
51 - 100.
101 - 250.
251 - 500.
More than 500.
N/A.

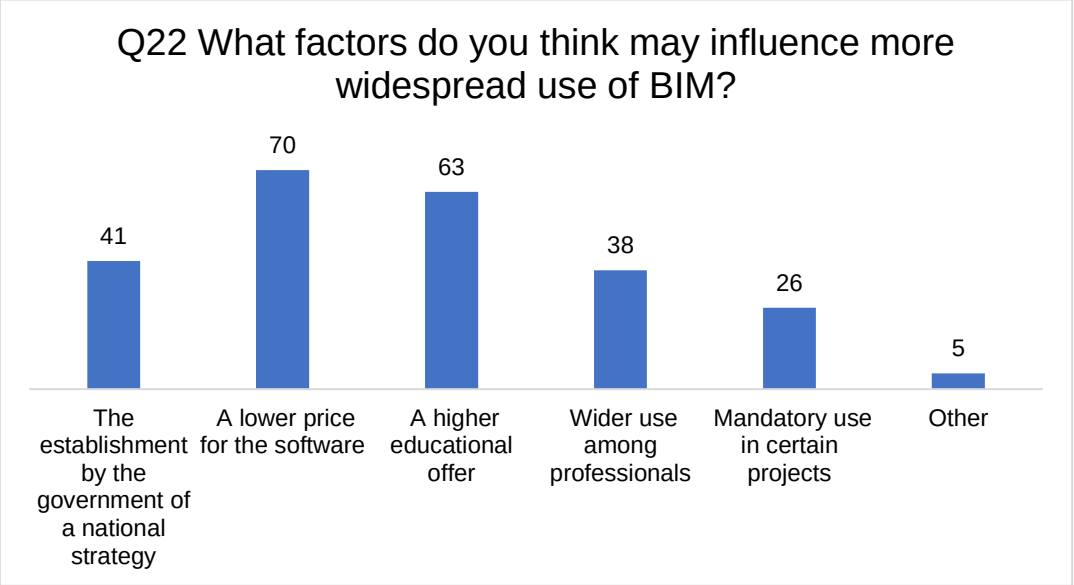

Q17 What is the proportion of people in your organisation/studies centre who use BIM?
64
14
6
11
53
0 – 25%.
26 – 50%.
51 – 75%.
76 – 100%.
Do not use BIM.


Q18 What are the main benefits that BIM has brought to your projects?
35
80
23
56
19
16
5
10
31
10
Cost reduction.
Reduction of errors.
Improvement of…
Increasing of the…
Meeting…
Increasing of…
Increased fees.
Greater control of…
None.
Other


Q19 Which of the following do you consider to be the primary cause for a company's failure to adopt BIM?
64
43
13
26
35
17
38
5
Lack of information
The high cost of licences
The work can be done by other means
Lack of demand
Lack of training of staff
Customers don't pay for it
The investment needed
Other


Q20 Indicate your degree of agreement/disagreement with the following assertion: "BIM is not sufficiently standardized yet":
18
2
55
9
26
46
Fully agree
Fully disagree
Agree
Disagree
Neither agree nor disagree
N/A


Q21 Do you think BIM will replace CAD?
19
32
61
39
In the short term
In the medium term
In the long term
BIM will not replace CAD


Q22 What factors do you think may influence more widespread use of BIM?
41
70
63
38
26
5
The establishment by the government of a national strategy
A lower price for the software
A higher educational offer
Wider use among professionals
Mandatory use in certain projects
Other