

Geopogo Market Research Report

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Interviewees

Architects (18)

Baran Studio Architecture
DeBrine Associates
Foster + Partners
Frederick Fisher and Partners
Gensler Architects
Heller Manus Architects
HKS Architects (2)
HMC Architects
HOK architects

Moore Ruble Yudell Architects & Planners
MYR architects
Quezada Architecture (2)
Self-owned (2)
SHoP Architects
Steinberg Hart

Builders / Construction Management (6)

Blach Construction
DPR Construction (2)
Hensel Phelps
Republic
Rudolph and Sletten

Owners (21)

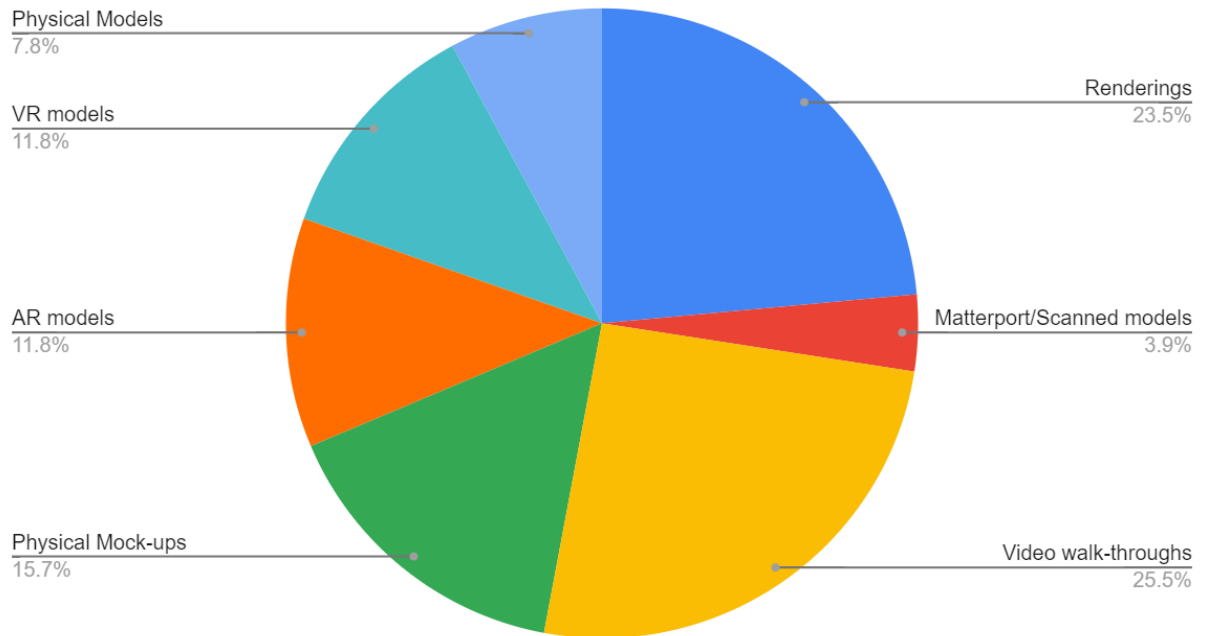
AutoDesk
CBRE (2)
Craftheads Brewing Co
Disney
Emergent Solution (2)
Genentech
Irvine Company
Stanford Linear Accelerator Center
(SLAC)

Stanford Health Care
Uber (2)
University of California, Berkeley
University of California, Davis
University of California, San Francisco (3)
Unisource Solutions
University of San Francisco (2)

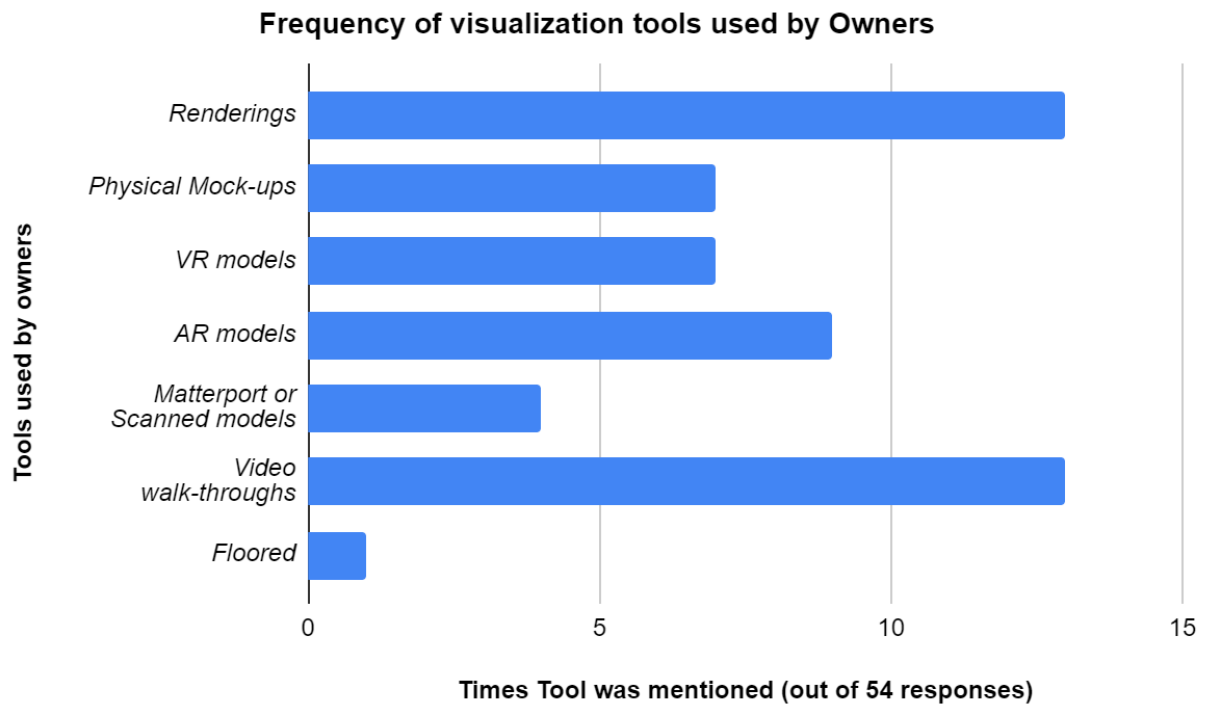
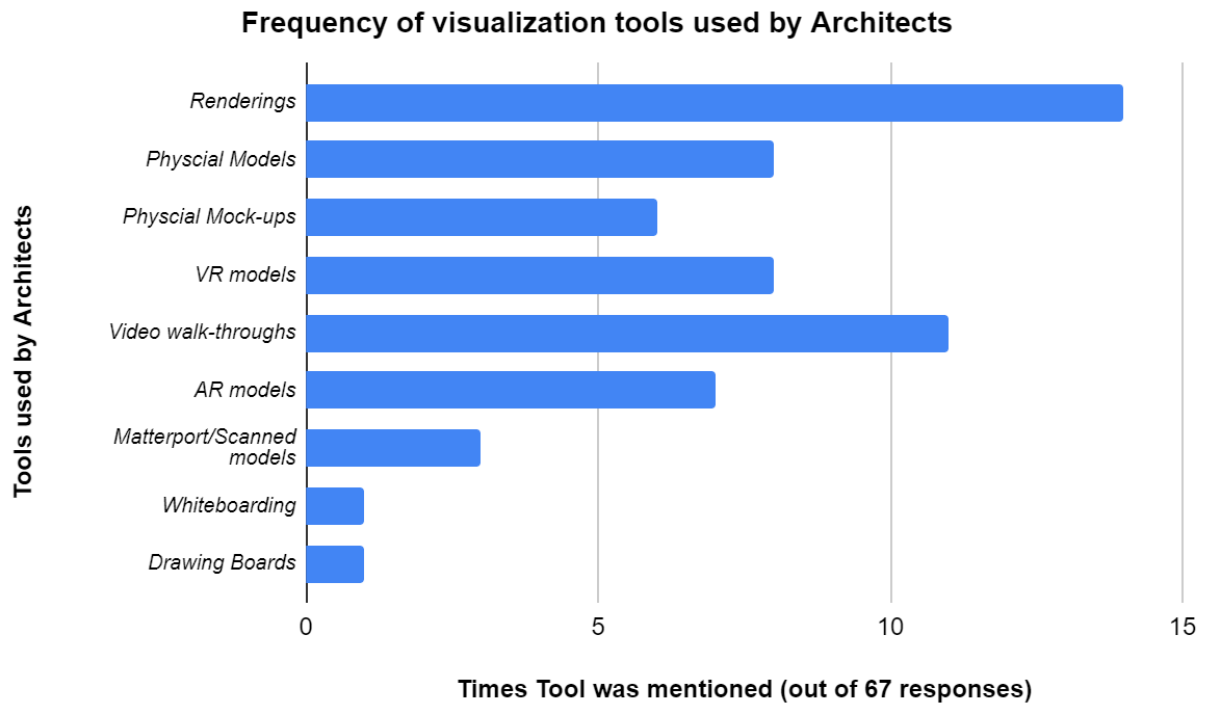
Total Interviewees: 45

Section 1 - Focused Questions

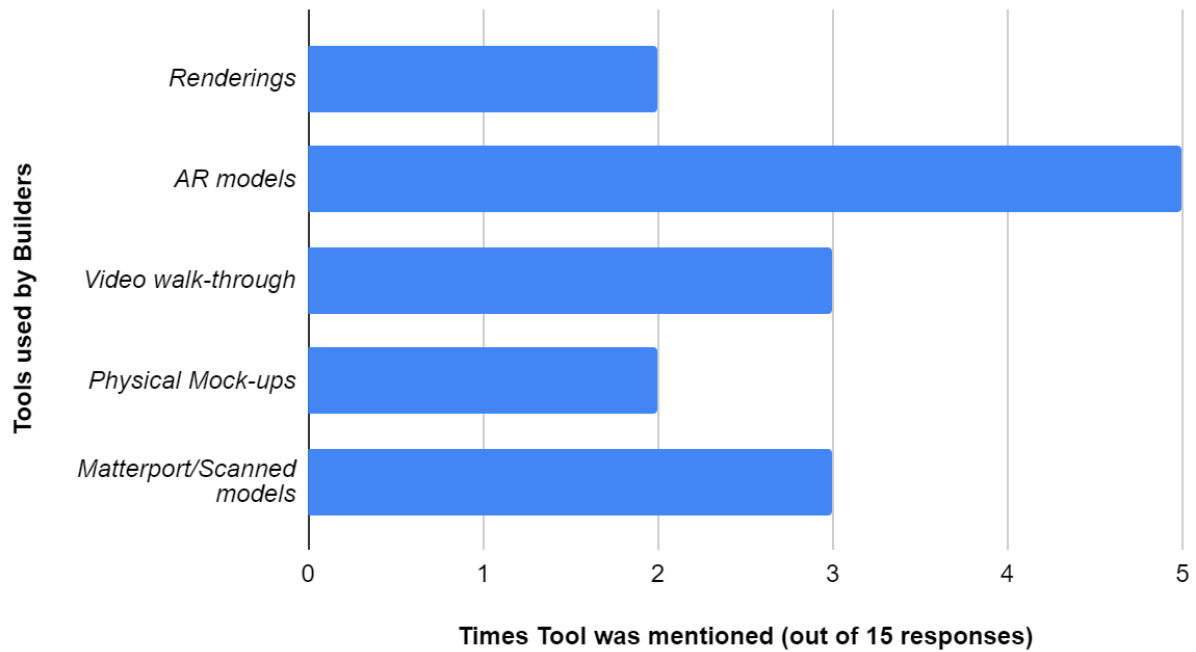
Interview data: Top 3 tools used by organizations



According to the interview data, the visualization above shows the most popular tools used by businesses. In particular, the most popular are video walk-throughs, renderings, and physical mock-ups.

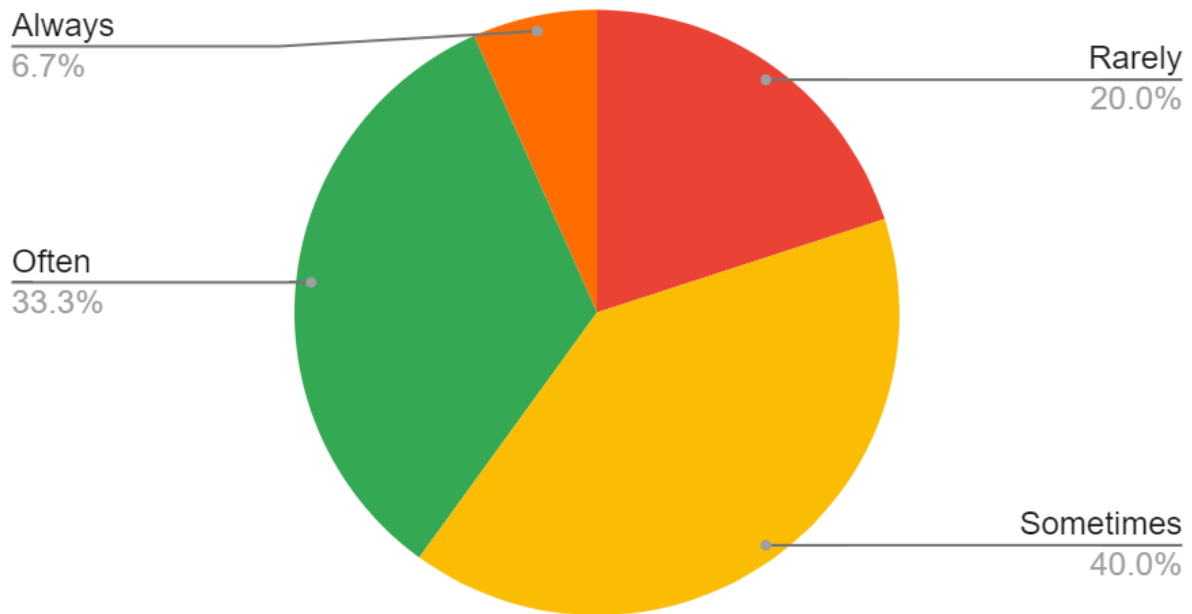


Frequency of visualization tools used by Builders/Construction Management

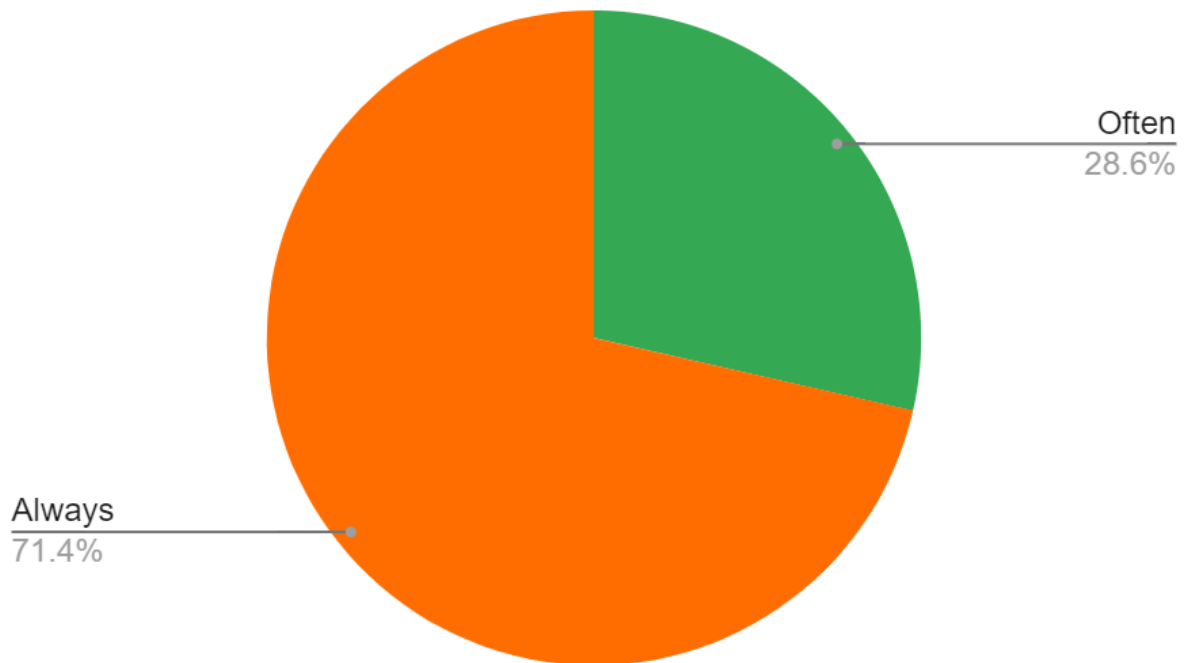


The charts above display the frequency of tools used by each category: Architects, Owners, and Builders. The top three tools for architects are Renderings, Video walkthroughs, and a tie between Physical and VR models. For Owners, the top three tools are Renderings, Video walkthroughs, and AR models. Furthermore, the top tool used by Builders and Construction management is AR models.

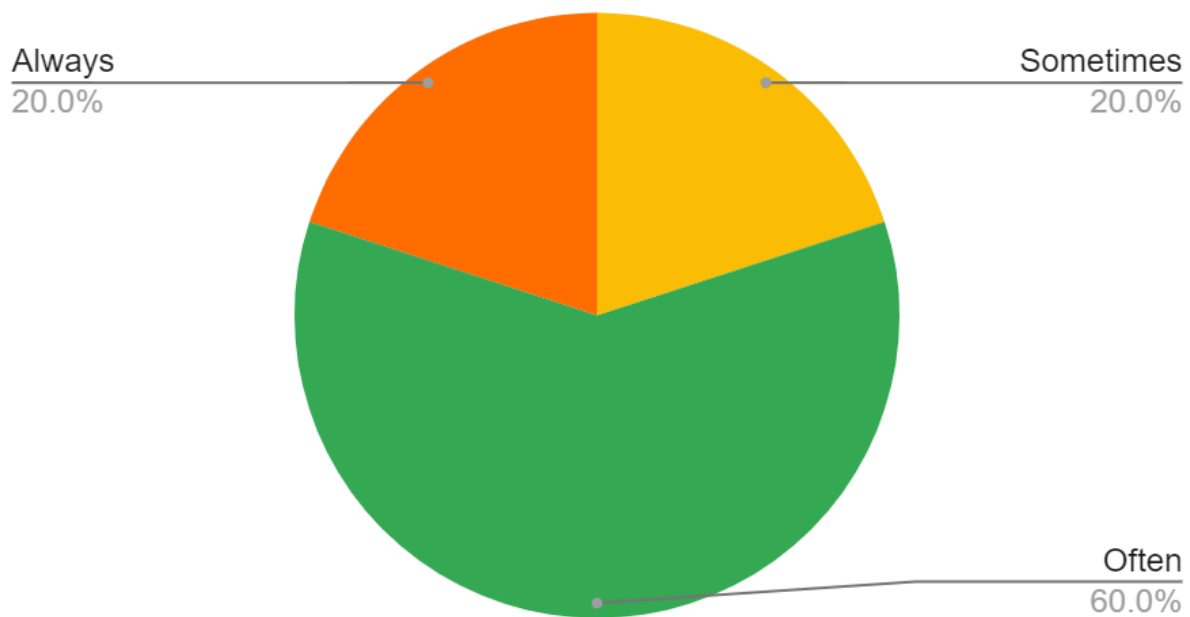
How closely do owners collaborate with other stakeholders in the design process?



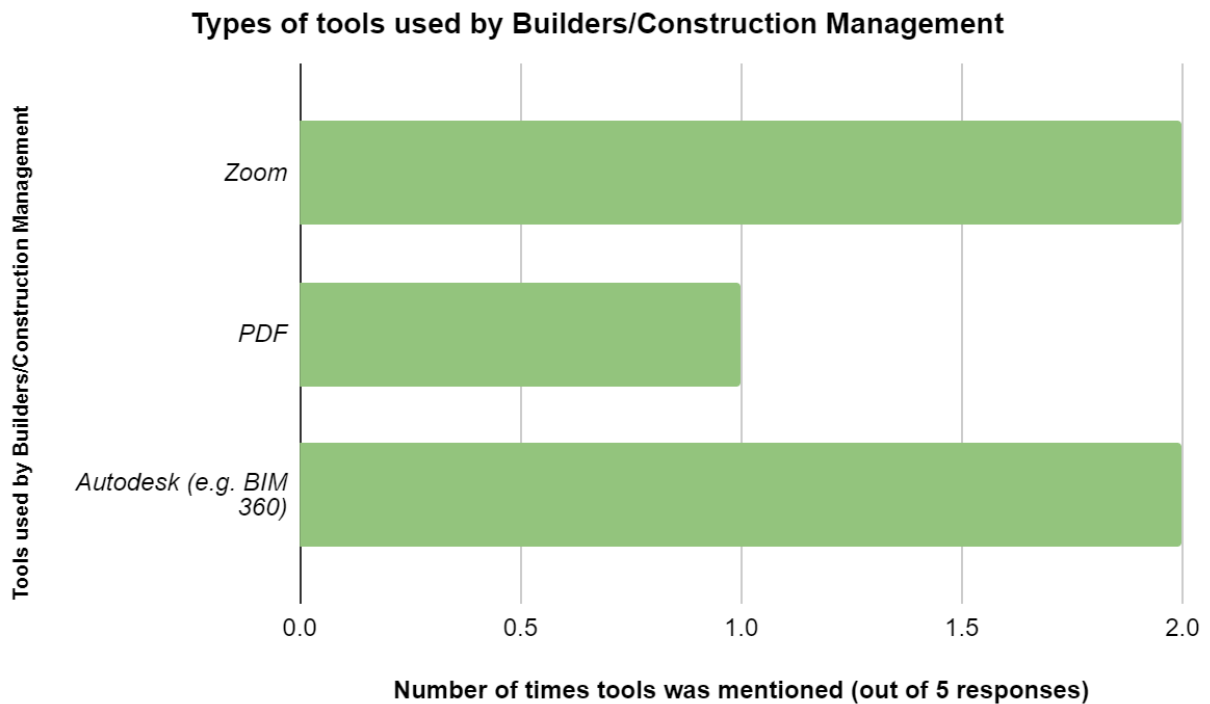
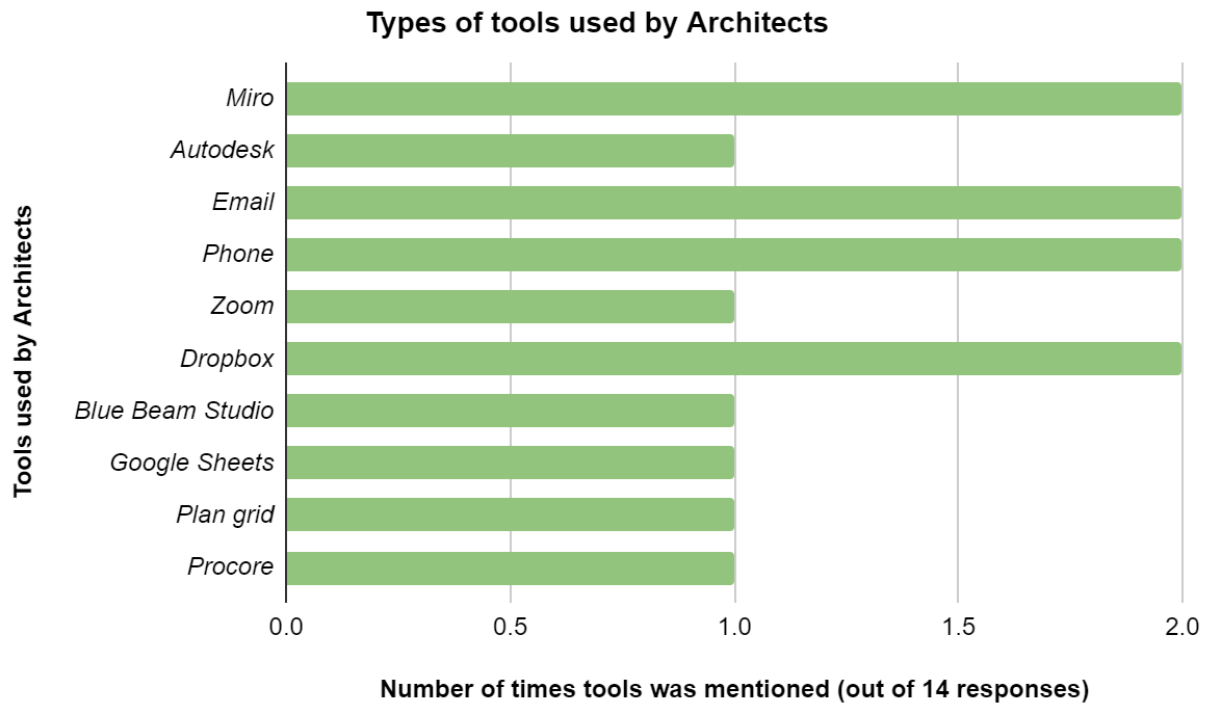
How closely do architects collaborate with other stakeholders in the design process?

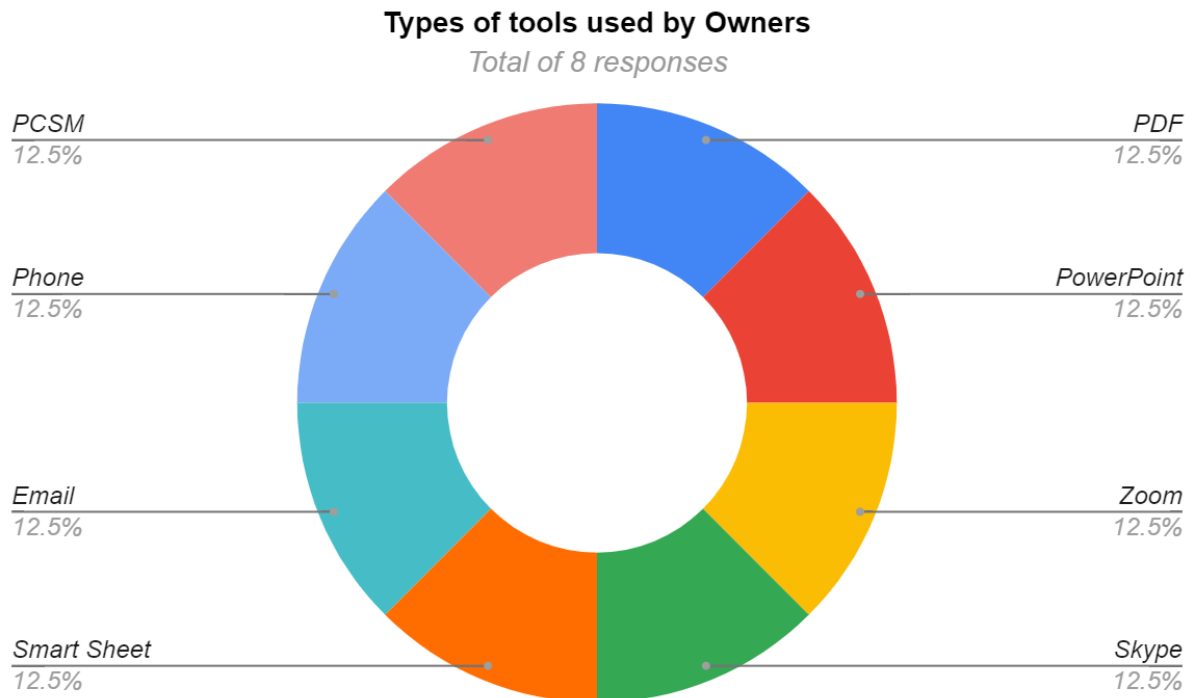


How closely do builders collaborate with other stakeholders in the design process?



These three graphs indicate whether stakeholders are present in the design process for different positions. Among all the graphs, it's clear that stakeholders all have some form of input, although the extent varies. For example, most owners sometimes collaborate with stakeholders, architects almost always collaborate with stakeholders, and builders often collaborate with stakeholders.

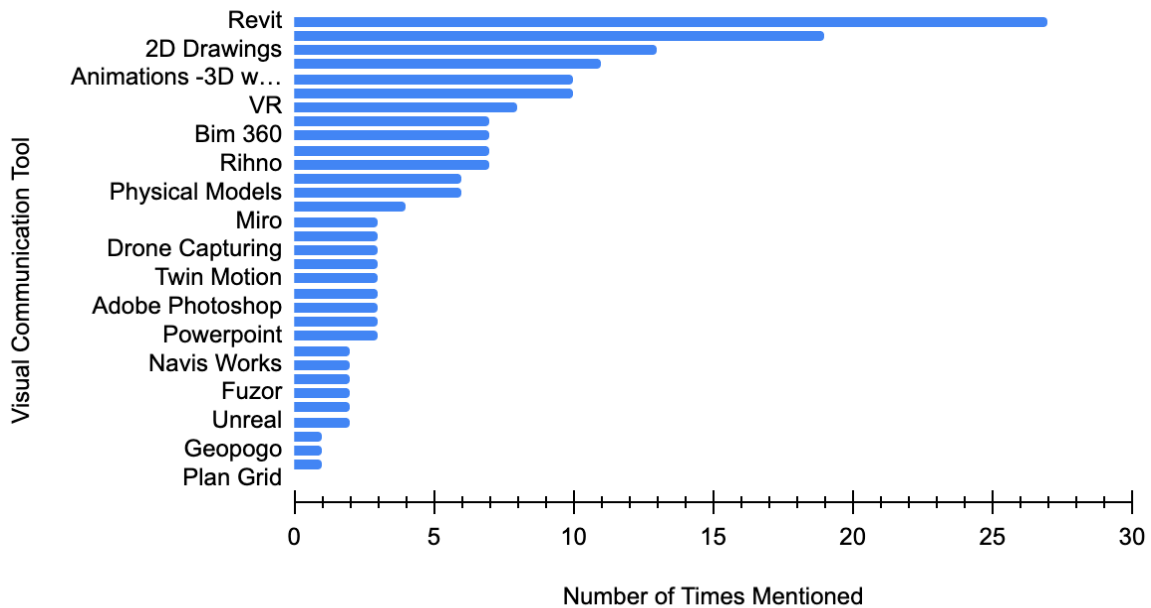




The graphs above showcase the general tools used by each category of individuals. Through this, viewers can understand that Builders use very few tools, while it's better for owners and architects to optimize multiple programs and software.

In terms of collaboration, most owners, architects, and builders will be in touch with the internal company, its customers, and the government. The internal company is needed to pitch ideas to higher-up leadership, customers are implemented for user feedback and reviews, and the government plays a role through city permits and regulations.

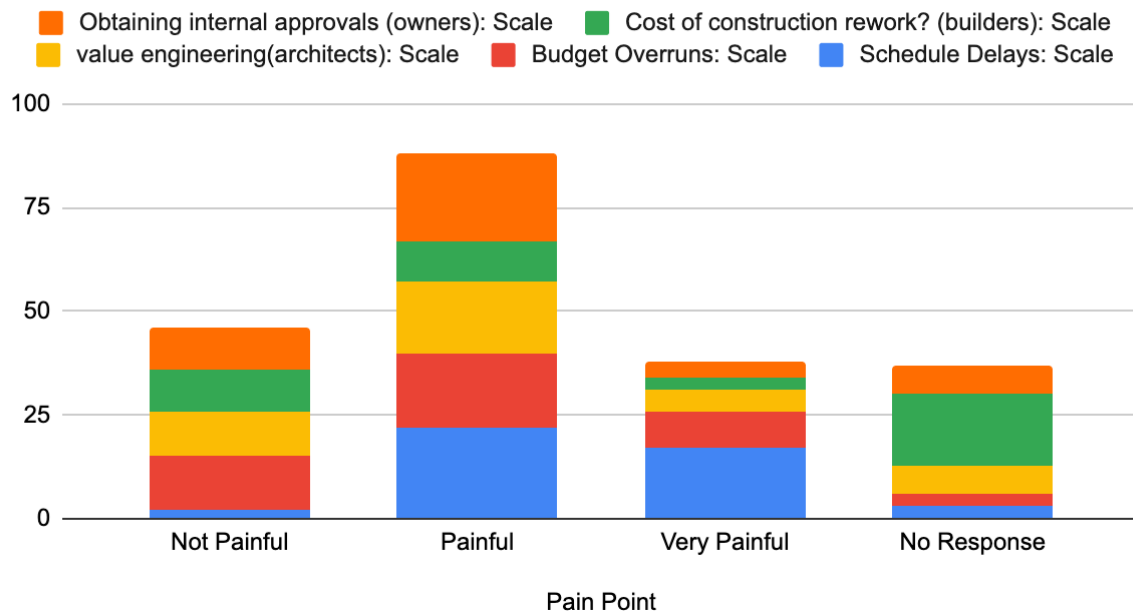
How Often Visual Communication Tools Are Used



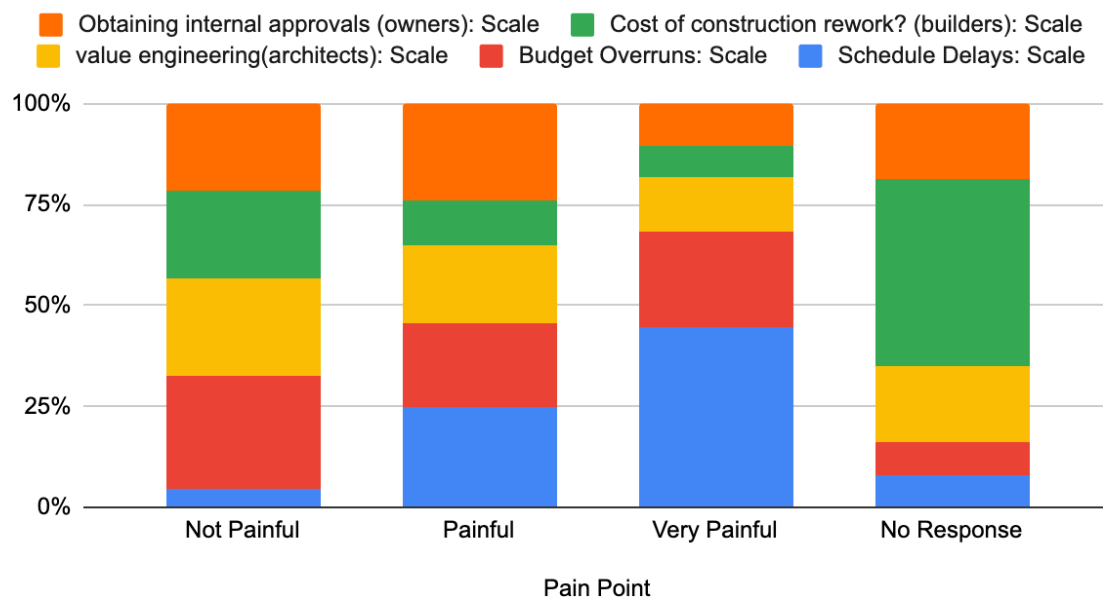
The bar chart shows how many times each visualization tool was mentioned in the interview responses. We can see that Revit, 2D Drawing, and Animation -3D walkthroughs were the most popular, with Plan Grid, Geopogo, and Unreal being used the least.

Section 2 - Pain Point Questions

Not Painful, Painful, Very Painful and No Response

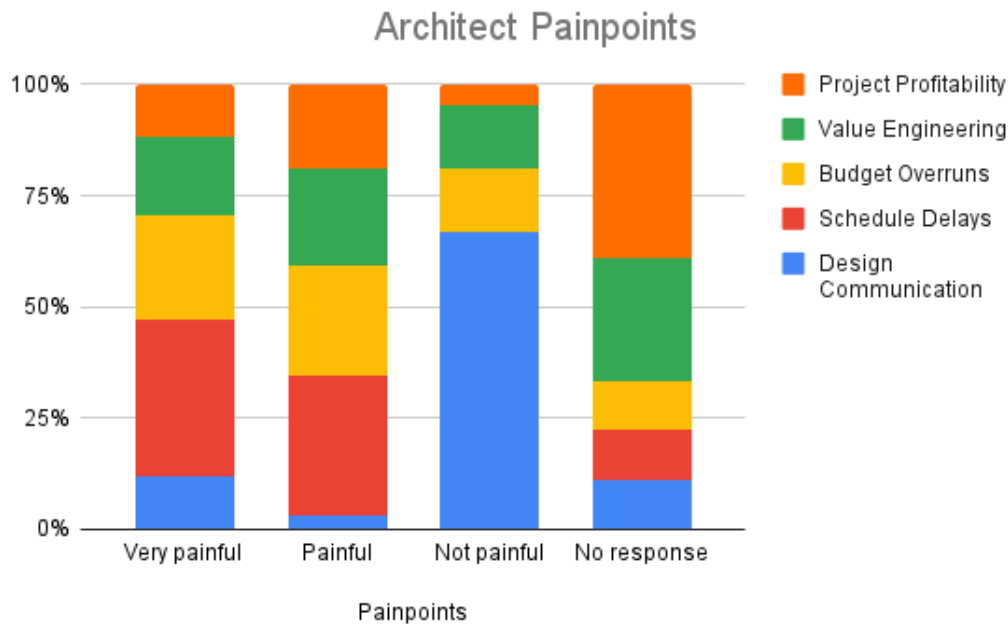


Not Painful, Painful, Very Painful and No Response

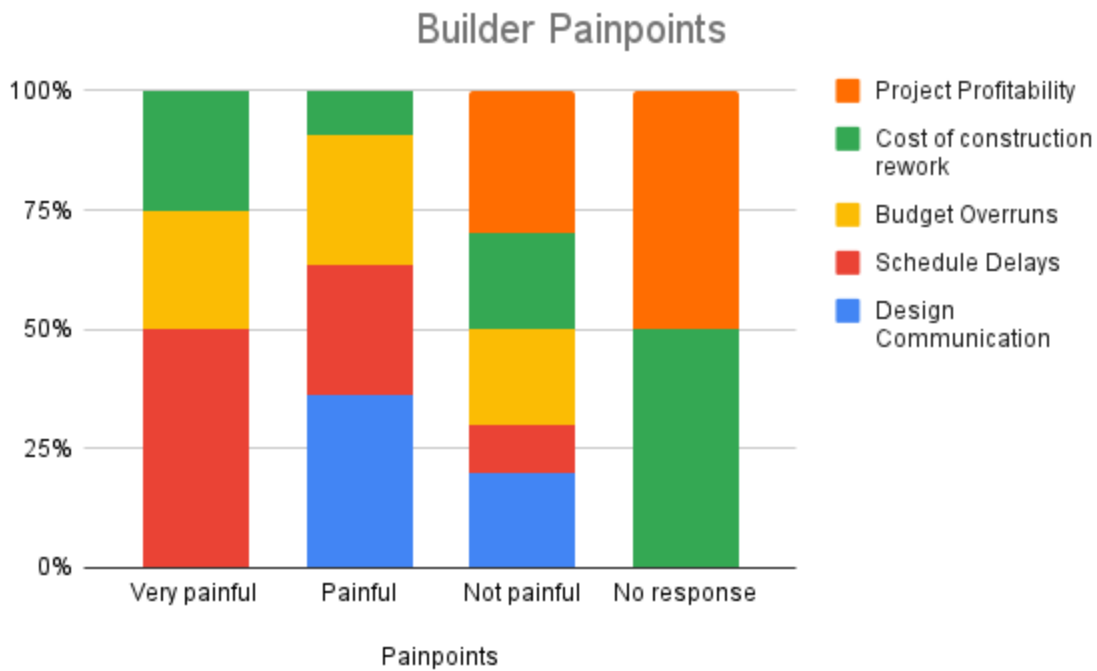


From the visualizations, we can see how schedule delays account for a majority of the pain points, which is a problem Geopogo may consider tackling. Factors such as budget overruns have somewhat equal distribution across all pain points, implying that the issue is not as large as it appears, and varies for each firm. Cost of construction rework has a high no response rate and second-highest 'not painful' response. These factors with high no response rates show that the factors are not major problems that these industries focus on or consider. Internal approvals also seem to be a big pain point. Judging from the visualizations, we can see the industries' roadblocks, which will serve as good problems Geopogo can solve.

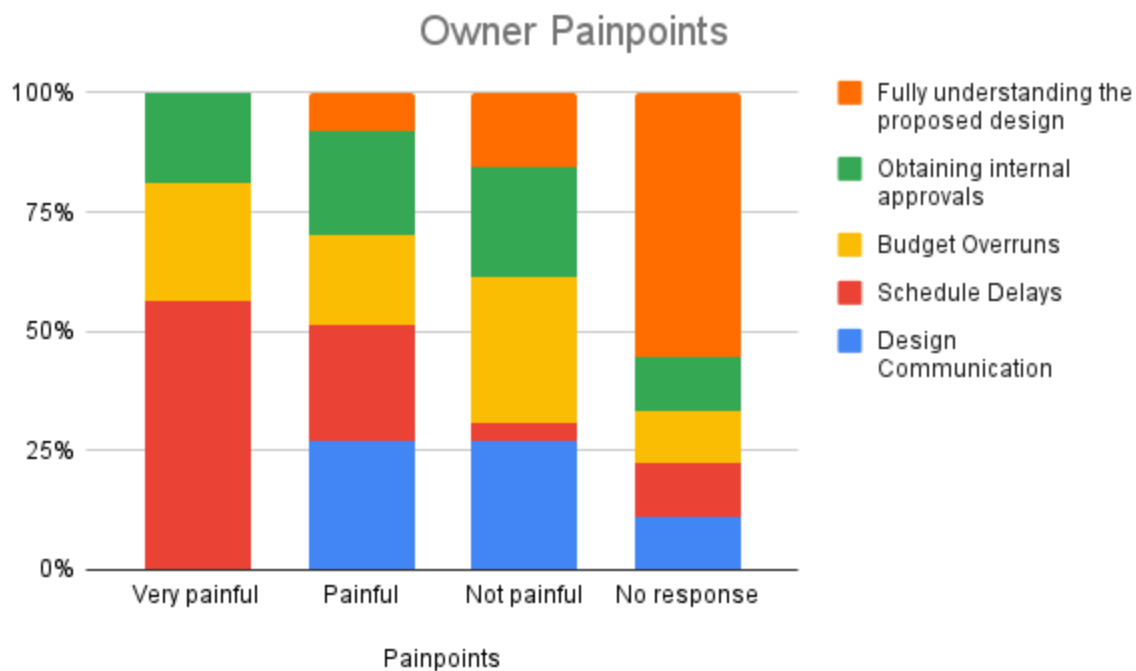
The first graph represents a quantitative analysis of the data, showing counts of responses from each industry/pain point. The second graph describes the distribution of all the responses. Interpreting the distribution graph would be much more useful for Geopogo's application as it shows which sectors/pain points need the most attention.



Architects' major pain points include schedule delays and budget overruns. Usually, the biggest expense for architecture projects is labor fees and construction fees. By adopting Geopogo VR technologies, companies can save labor costs by reducing the work time for architects to produce construction drawings and renderings for presentation purposes. With Geopogo products, architects can also better avoid schedule delays by benefiting from direct and fast communication with different parties through VR headsets. To solve the budget overrun in construction fees, as a potential next step, maybe Geopogo products add features that allow architects to calculate total material costs. The word cloud generated from other pain points mentioned shows that client, and contract negotiations are the two other biggest pain points for architects.



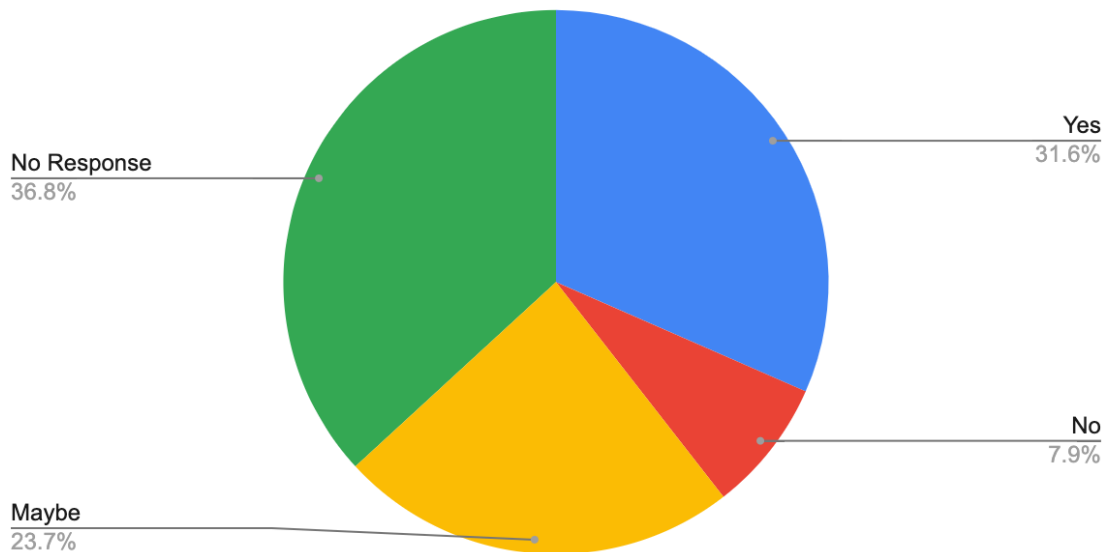
For builders, their major pain points are schedule delays and budget overruns. Again, allowing the direct visualization of material and system prices in an interactive way through the VR interface will be a potential solution to these pain points. (Note: the interview size for builders is relatively small (6 in total) compared to architects, and owners, so the data is not comprehensive and might be biased.)



For owners, their major pain points are schedule delays as well. This proved that with the implementation of Geopogo technology, all three major players in the ACE industry can benefit significantly. From the word cloud generated from other pain points for owners, we can tell that employees and ergonomics are two other pain points that owners consider.

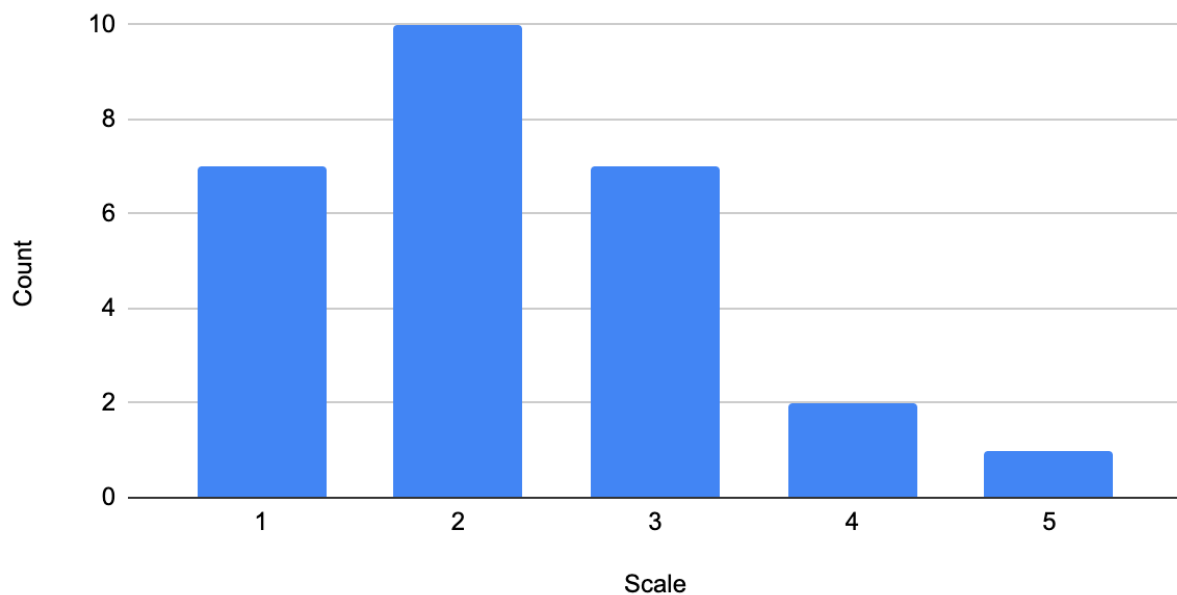
Section 3 - Cost and Purchasing Questions

Would your firm order physical models and/or mockups more often if they were a small fraction of the cost?



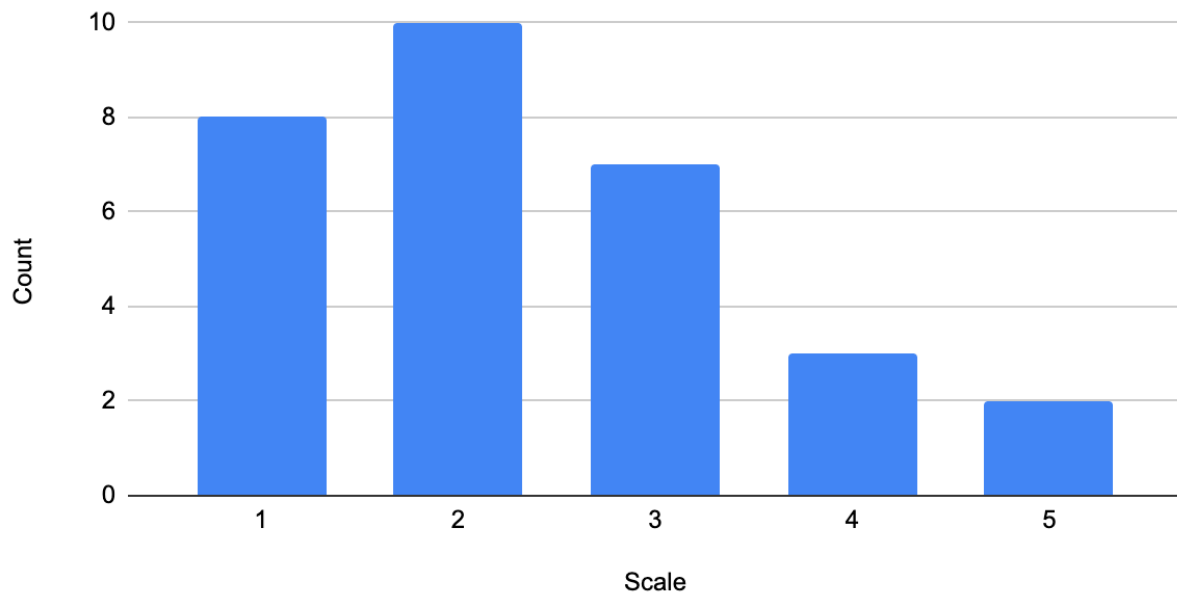
From the pie chart, we are able to see that the majority of firms didn't respond to the question of whether they would order physical models/mockups more often if they were a small fraction of the cost. However, around half of the firms would order more or would consider ordering more if it were a small fraction of the cost. Only a small percentage of firms wouldn't want to order physical representations even if they had a lower price.

How often is a full-size physical mockup prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=O...



From the histogram (wasn't able to figure out how to get the exact number of firms that fit into the scale), we are able to see that most firms don't have a full-size physical mockup prepared for their project.

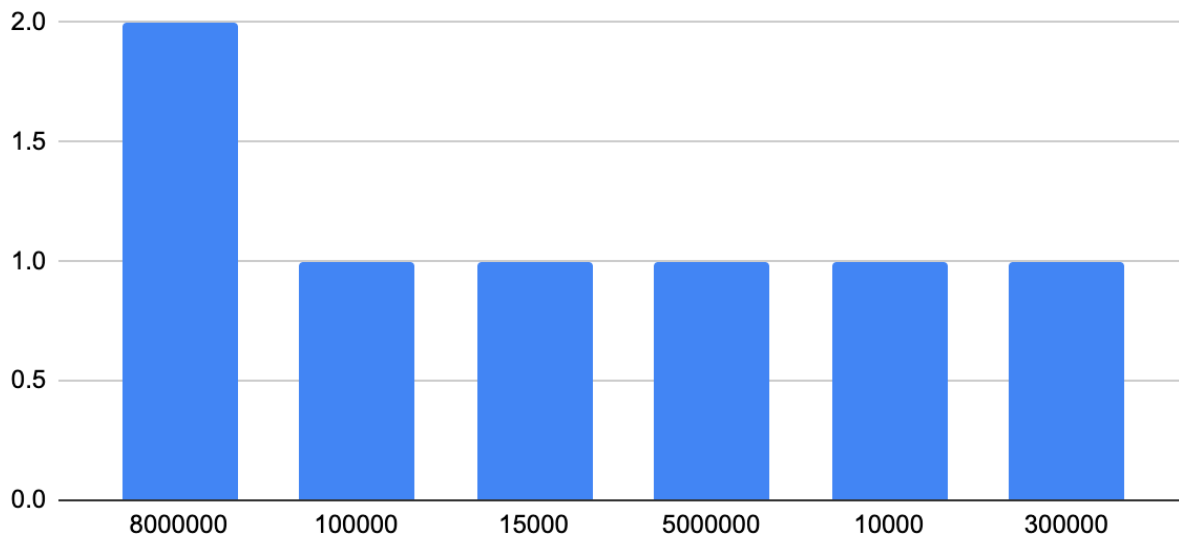
How often is a tabletop physical model prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=Often,...



From the histogram (wasn't able to figure out how to get the exact number of firms that fit into the scale), we are able to see that most firms don't have a tabletop physical model prepared for their firm's project. However, we can see that it is a tiny bit more balanced than the histogram for full-size physical mockups but the histograms are still very similar.

How much do you spend now for visual communication and collaboration tools? (eg 10000)
Architects:

Count of How much do you spend now for visual communication and collaboration tools? (eg 10000)



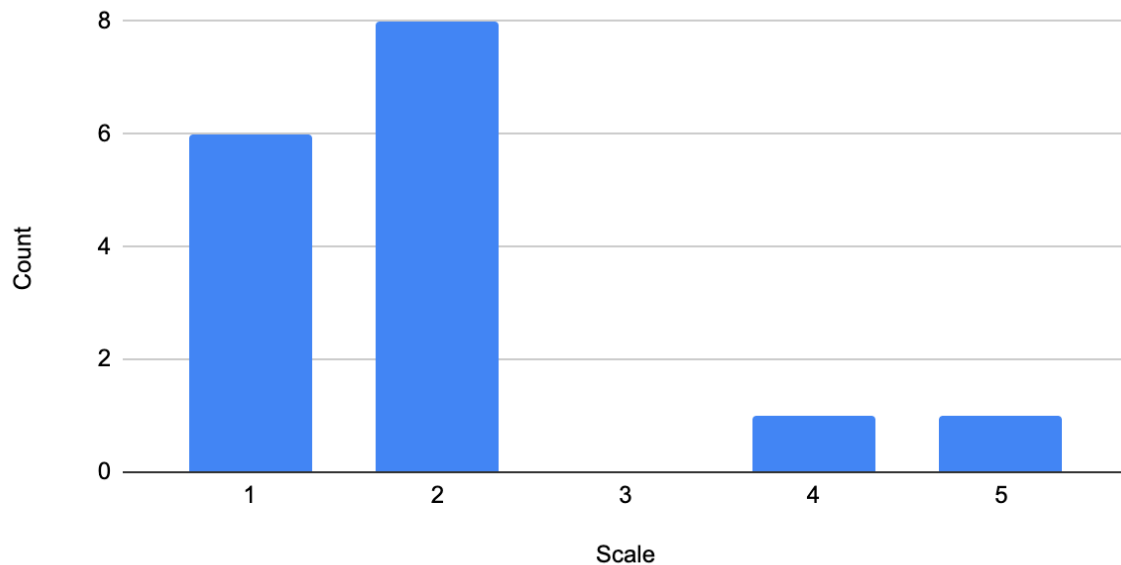
Count of How much do you spend now for visual communication and collaboration tools? (eg 10000)

There wasn't enough data for owners and businesses but for architects, 4 groups spent less than \$500,000 for visual communication and collaboration tools while 2 groups spent more than \$5,000,000.

How often is a tabletop physical model prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always)

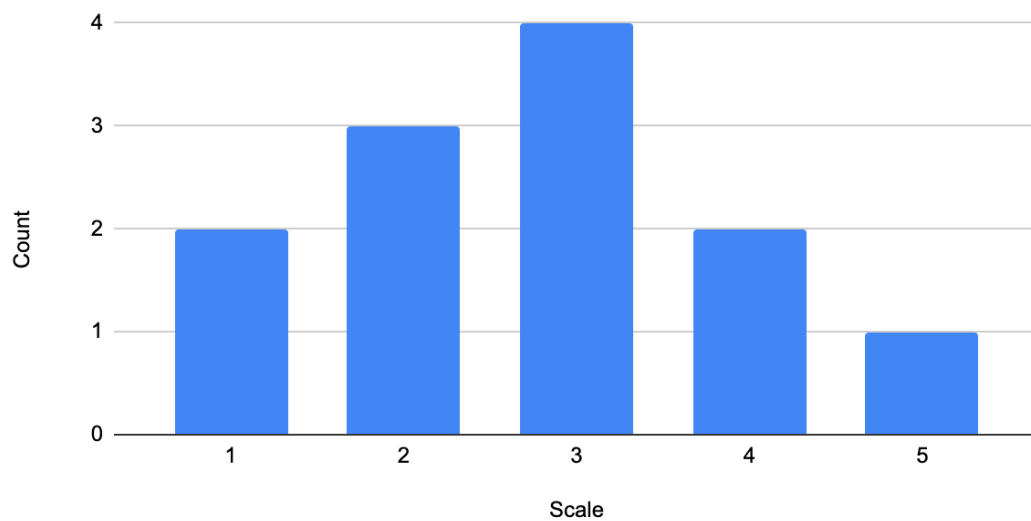
Owners:

How often is a tabletop physical model prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=Often,...



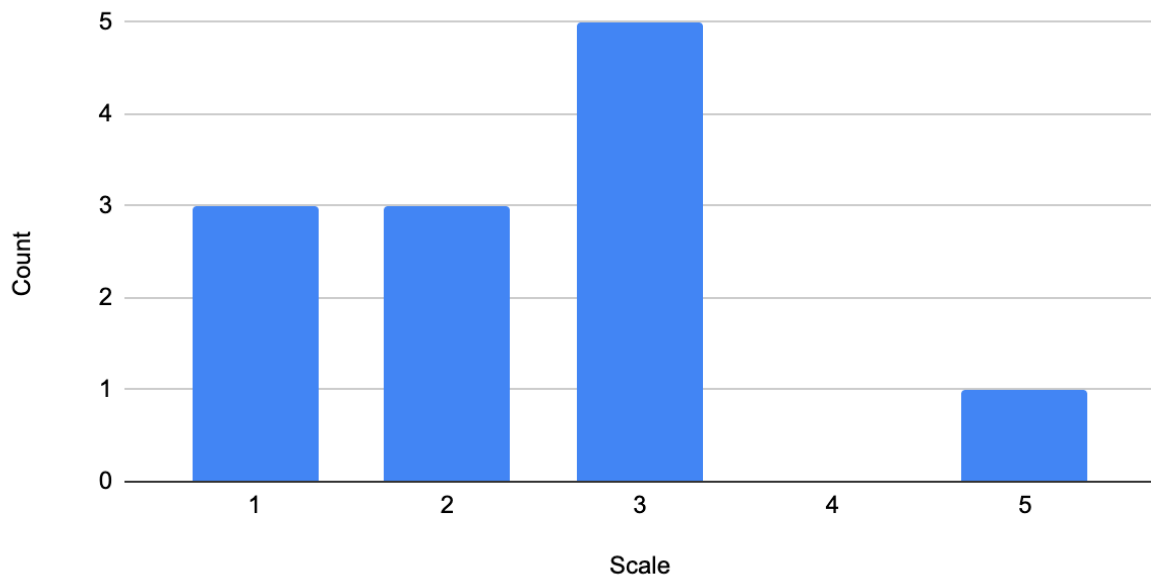
Architects:

How often is a tabletop physical model prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=Often,...



Builders

How often is a tabletop physical model prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=Often,...

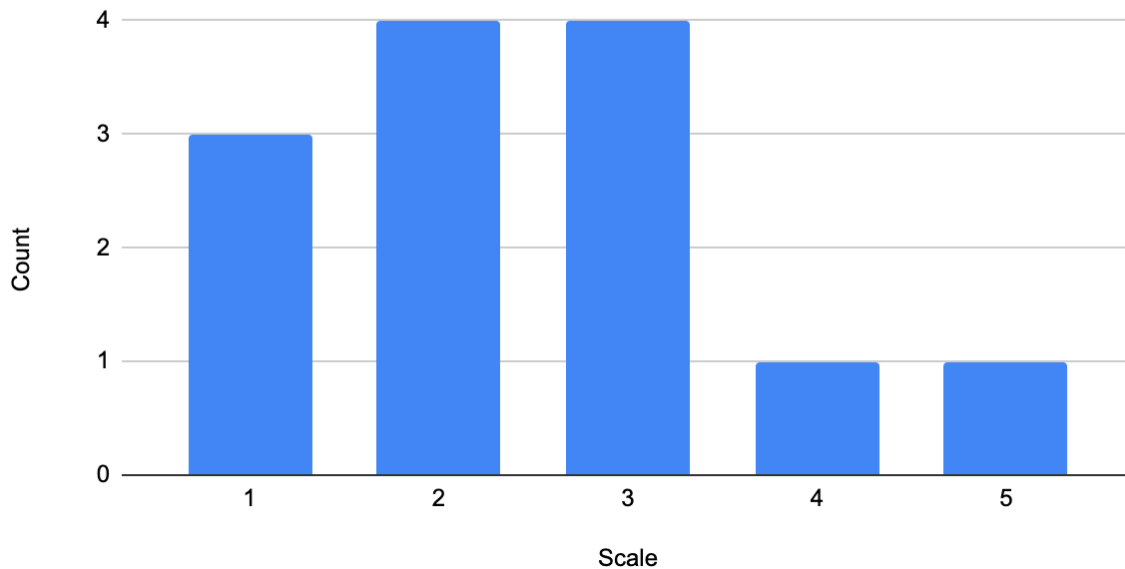


After comparing all three bar charts, owners and builders tend to rarely/never have a tabletop physical model prepared for their firm's projects. On the other hand, architects are more likely to have a model prepared.

How often is a full-size physical mockup prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always)

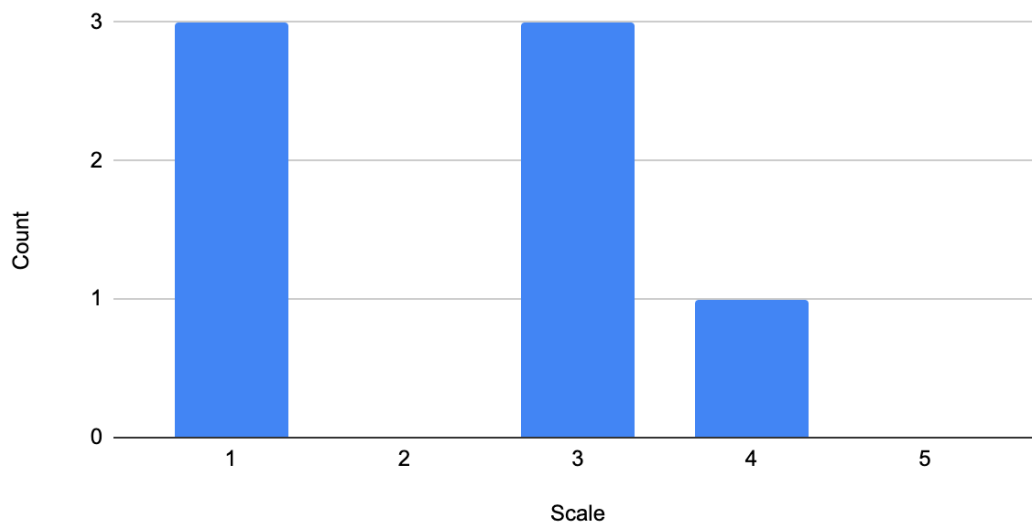
Owners

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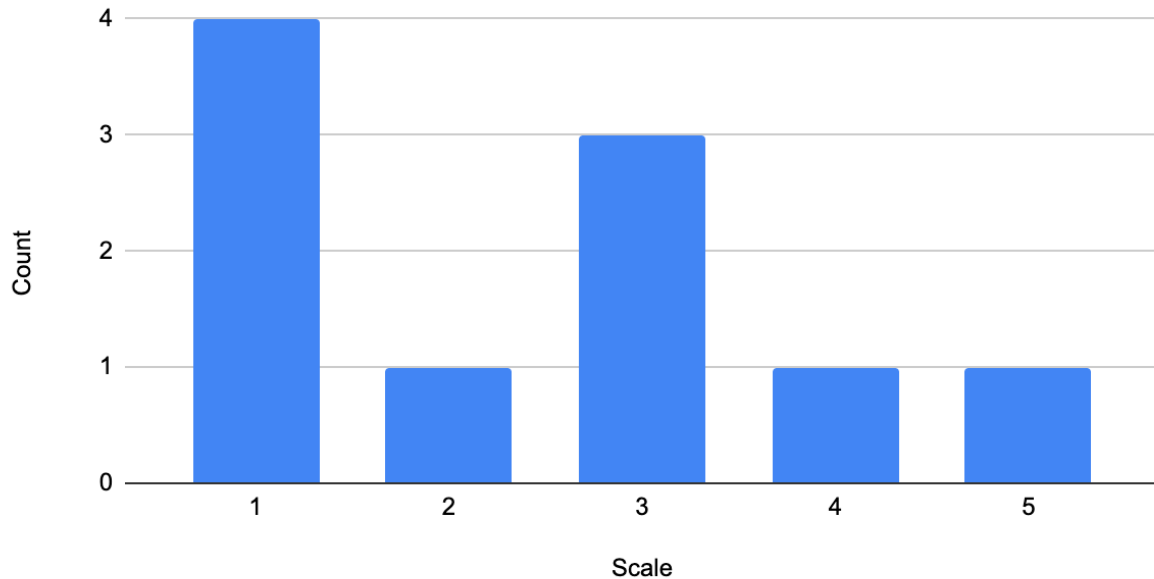
Architects

How often is a full-size physical mockup prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=O...



Builders

How often is a full-size physical mockup prepared for one of your firm's projects? (1=Never, 2=Rarely, 3=Sometimes, 4=O...

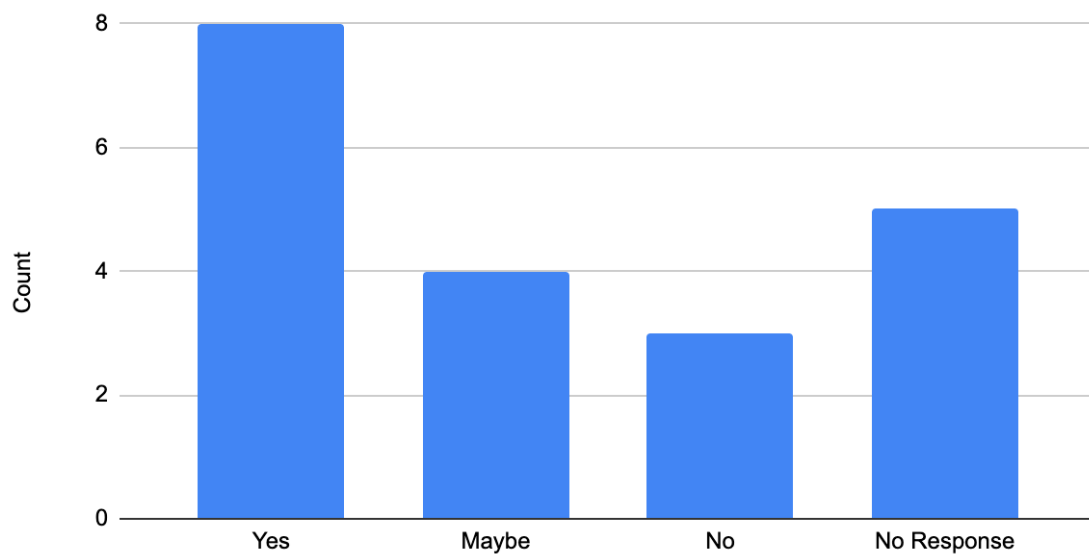


Based on these three bar charts, owners, architects, and builders are most likely to sometimes or never have a full-size physical mockup prepared for their firm's projects. However, some owners and builders do value having a mockup prepared.

Would your firm order physical models and/or mockups more often if they were a small fraction of the cost?

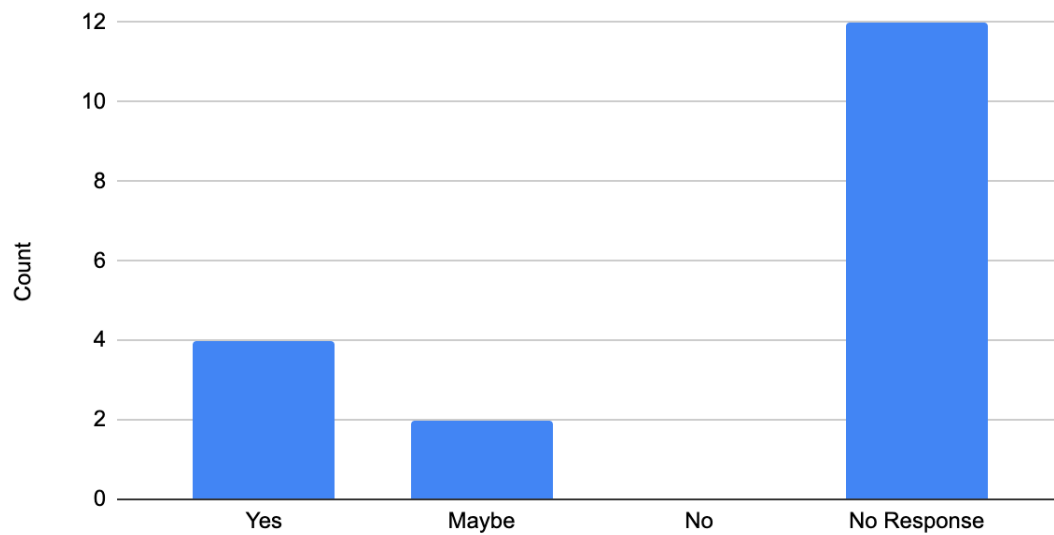
Owners

Would your firm order physical models and/or mockups more often if they were a small fraction of the cost?



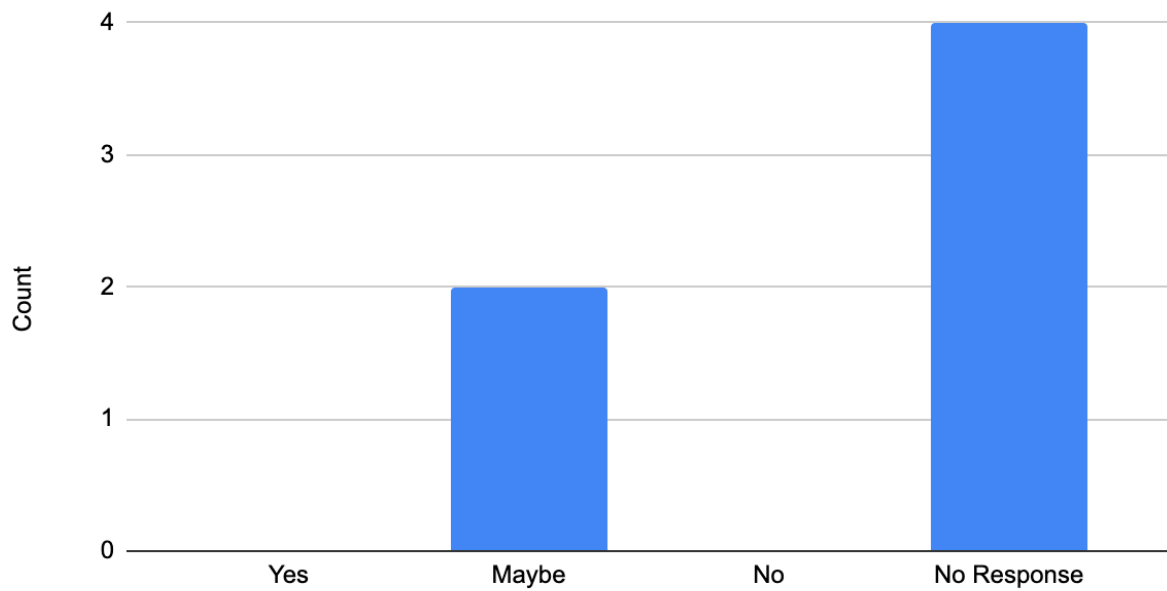
Architects

Would your firm order physical models and/or mockups more often if they were a small fraction of the cost?



Builders

Would your firm order physical models and/or mockups more often if they were a small fraction of the cost?

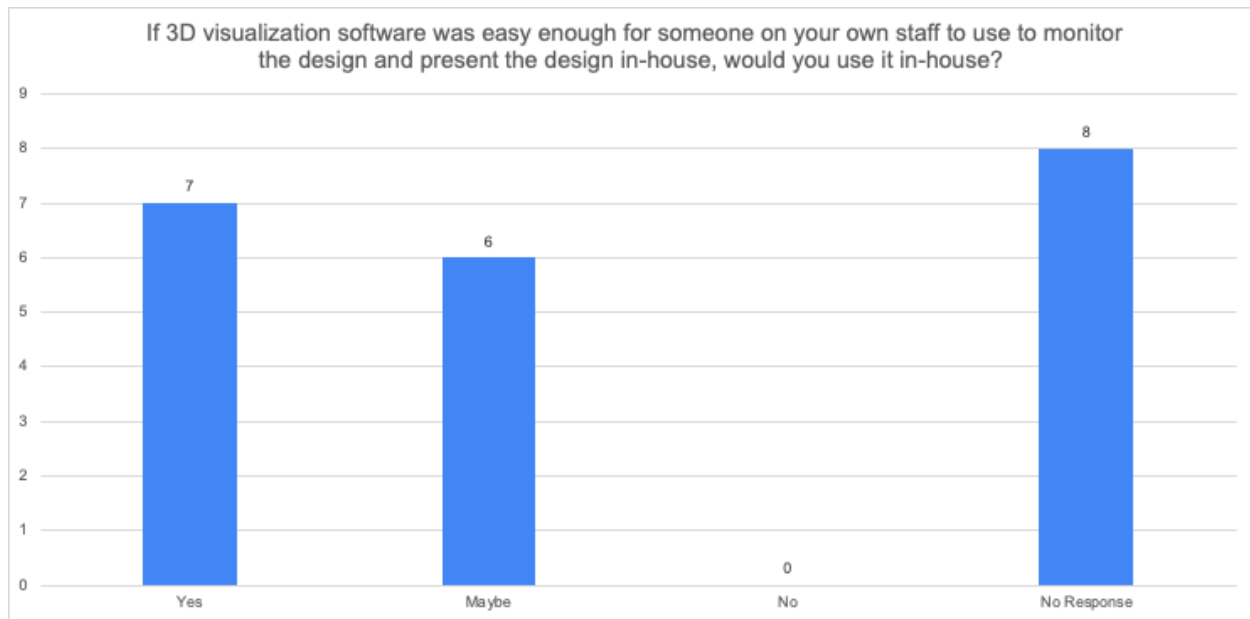


Based on these three bar charts, owners are most likely to order physical models/mockups if they were a small fraction of the cost. However, an inference is undetermined for architects and builders since most didn't respond.

Section 4 - Owner Adoption Questions

(For Owners Only)

If 3D visualization software was easy enough for someone on your own staff to use to monitor the design and present the design in-house, would you use it in-house?



Reasons: Why or Why not

For Yes:

- PM's and PE's are very hands-on and would use it
- It would be useful; architects get too detailed in their presentations when only a couple aspects are necessary; over-rendering a model leaves an opportunity for more opinion.
- it is intuitive and costs were good; not dependent on the architect to show you the model
- Architects get too detailed in their presentations so it would be useful; over rendering a model leaves room for opinions

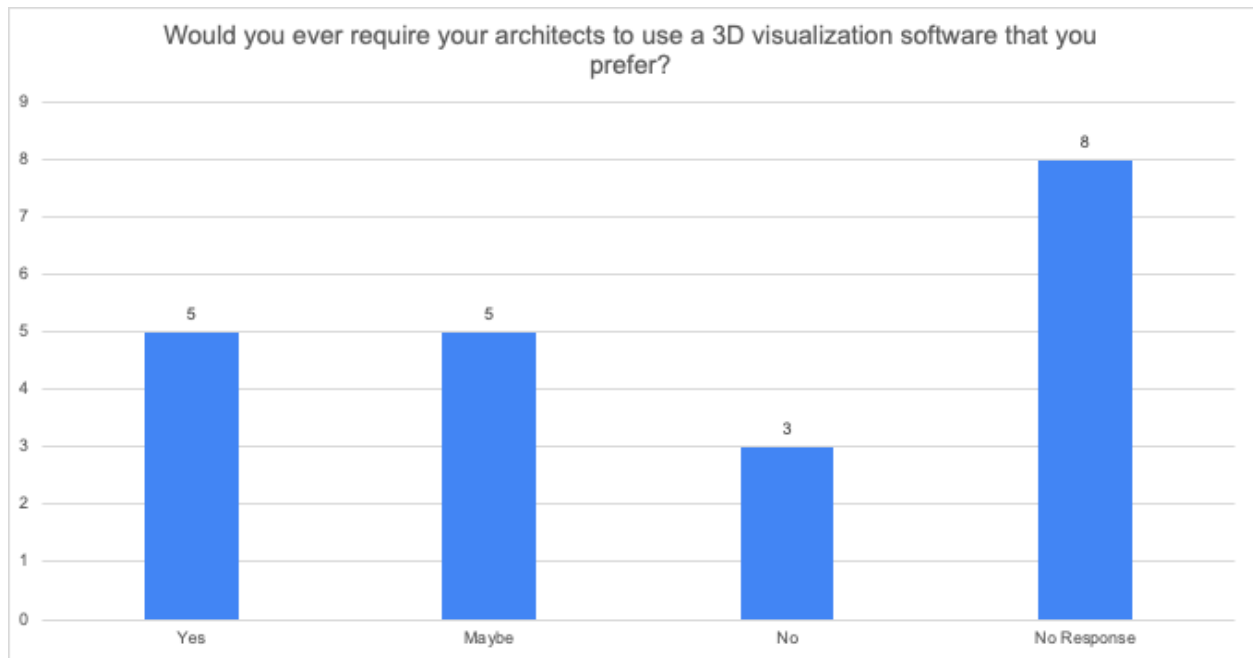
- My gut - we would still have a professional company present it to us - because, its a very specialized resource that would do that - I don't know if we have enough time to do it -

For Maybe:

- with the right price, anything is possible
- Depends but not driven; if there is value and it is easier to show customers
- we prefer vendors to use it
- It depends on the project. If it's a talented hub I could see myself using it. If it's my team there's a lack of support. My manager can barely open Zoom, so no.
- typically we're not designing it on the workplace team. It would be something we partner with the client or the designer on.
- They are still very clunky.
- "Depends on the project: yes
- If its easy to use (high quality project use): yes

(For Owners Only)

Would you ever require your architects to use a 3D visualization software that you prefer?



Reasons: Why or Why not

For Yes

- If that is what we are going for then yes.
- it would be nice at times. when brand new buildings are being built that's much more valuable

For No

- We don't require them to use Revit. However, a talented hub that had a large budget could have the opportunity to.
- "We've never told a vendor what to use
- Typically, we want animation and they deliver it.

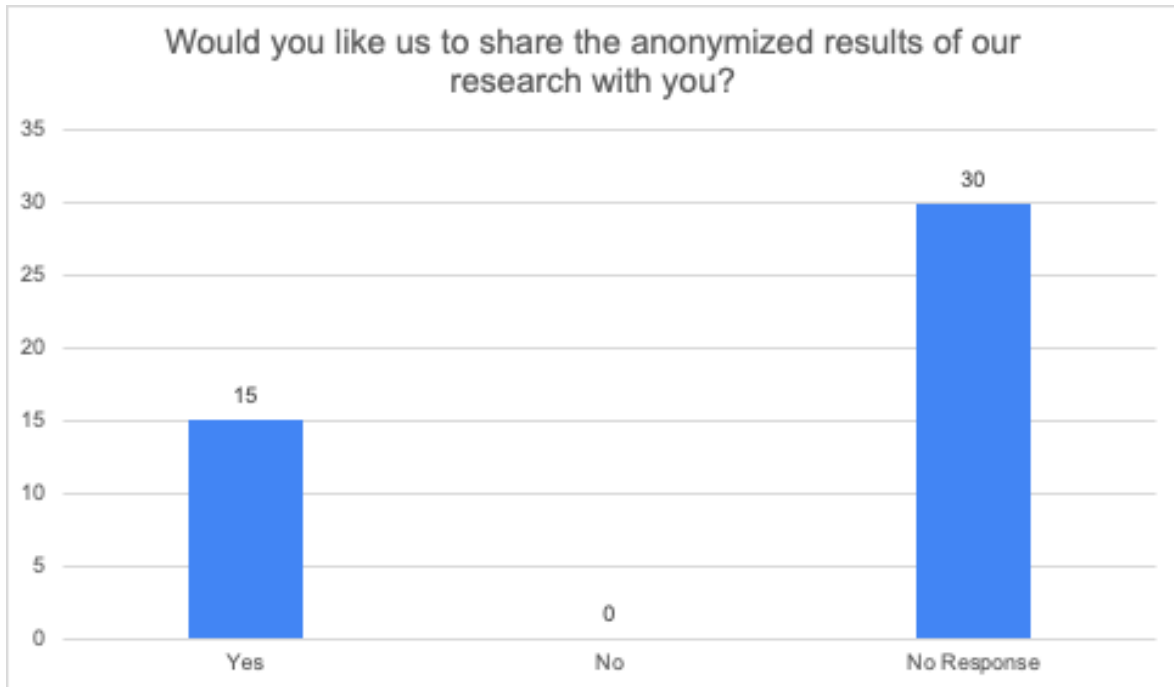
For Maybe

- You would have to put it in the contract or RFP
- if the industry is going that way; we can set ourselves apart if it is cost-effective
- once we get into it, on a project by project basis

- we prefer Revit and SketchUp, maybe Fuzor
- Generally they are doing a certain amount.
- We would offer it to the client as an optional. In a proposal that would help solve a problem that was unusual.

Section 5: Closing Question

Would you like us to share the anonymized results of our research with you?



Can we contact you to schedule a demo of our Desktop and AR subscription software solution?

