



**USIBD**<sup>TM</sup>  
U.S. Institute of  
BUILDING DOCUMENTATION



# CORNERSTONE<sup>TM</sup>

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## REPORT

AUGUST 2018  
**HARDWARE**

CSR No. 11

A review the Building Documentation Industry's opinion of the current state of reality capture and photography hardware.

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# INTERPRETATION

## PRESIDENT'S MESSAGE

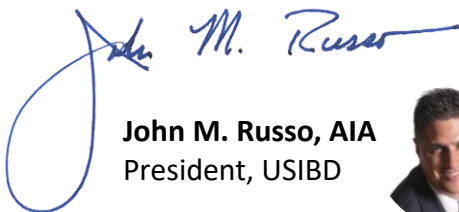
I am pleased to present to you this Eleventh Issue of the USIBD's Cornerstone Report (CSR). This issue is focused on the topic of Hardware. It has been four years since we last surveyed the industry and published a Cornerstone Report on the topic of Hardware. A lot has changed over this time-period. As the various Stakeholders with an interest in Building Documentation come together and share their collective knowledge and experiences we all benefit. Sharing our knowledge and collective experience is the purpose of the Cornerstone Report.

First, I would like to thank everyone who participated in this CSR survey. In a recent survey of USIBD Members the CSR was ranked as one of the most valuable offerings of the USIBD. I am very excited to report that your participation in this CSR survey increased by over 60% giving this survey its highest response rate since its inception in 2013. This gives further evidence of a desire to learn by those who seek to better understand the things that impact the Building Documentation Industry. I encourage you to share this report with your friends, co-workers, colleagues, and with whomever you feel may be interested and benefit from it. Of course, greater participation in these surveys will provide a clearer view of the things that affect our everyday lives. Thank you for your contribution!

This survey took a deep dive into the various hardware technologies currently being used in the Building Documentation industry. This is by far the most in-depth and comprehensive issue of the Cornerstone Report issued to-date. By reading it you will gain a better understanding of important trends happening today in the adoption of Building Documentation technologies.

We hope you will continue to participate in future Cornerstone Report surveys as well as invite your friends and colleagues to participate as well. On behalf of the USIBD's Board of Directors and the Technology Committee, we hope you will enjoy this issue of the USIBD'S Cornerstone Report.

Sincerely,



**John M. Russo, AIA**  
President, USIBD

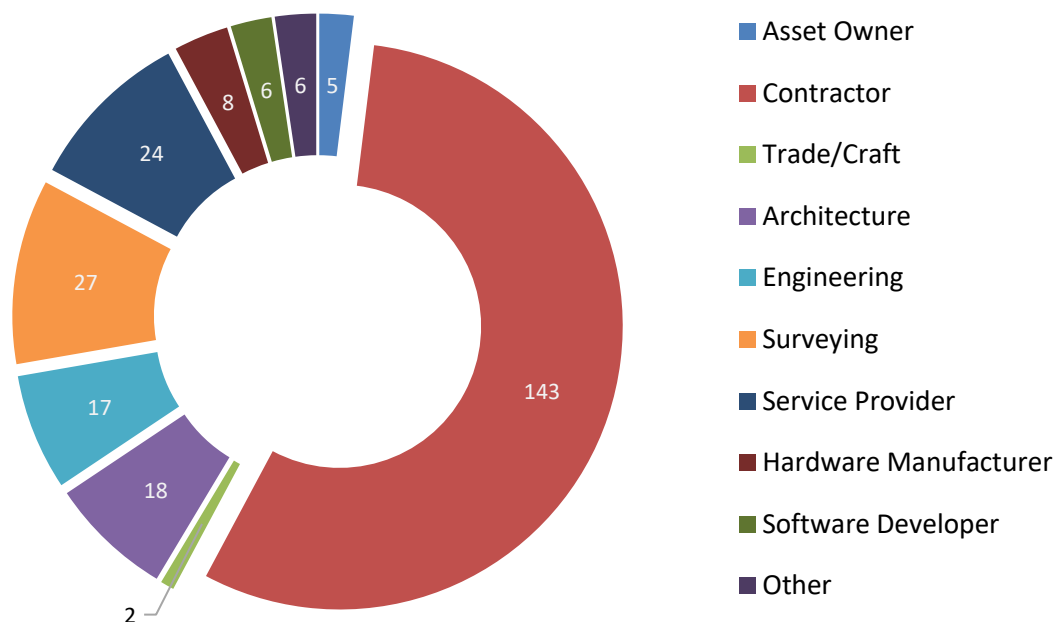


# INTERPRETATION

## INTRODUCTION

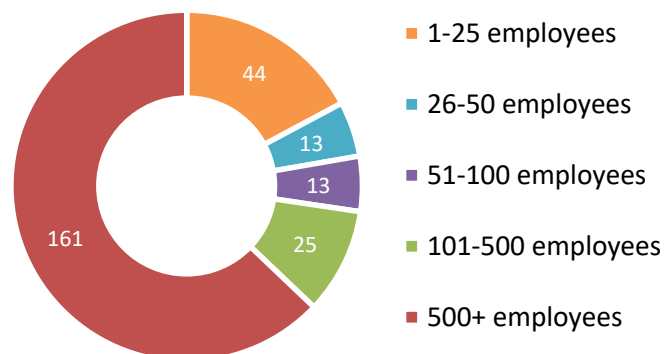
This report includes analysis of responses to the survey with commentary regarding trends and comparison to our previous hardware survey, CSR No. 5 in 2014.

Readers should consider the length of time between the last Cornerstone Report on Building Documentation hardware and advancements in technology in general over that time. In addition, significantly more Contractors responded to this survey compared to previous surveys, in which most respondents were Surveyors and building documentation Service Providers. This time there were more Contractors than all other categories *combined*.

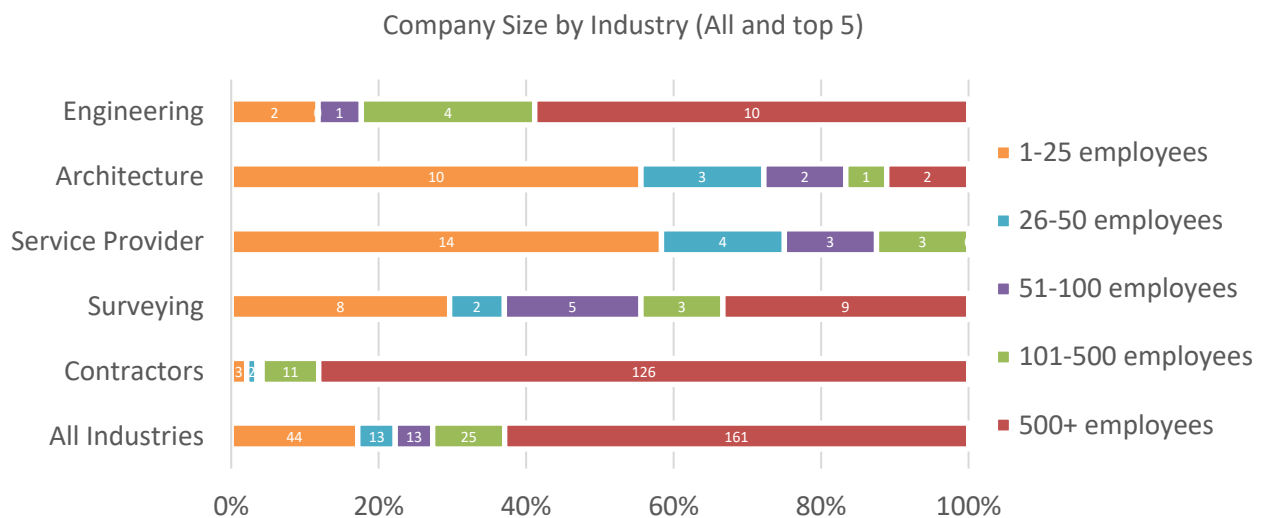


Large companies also dominated respondents, with small companies being the second largest group.

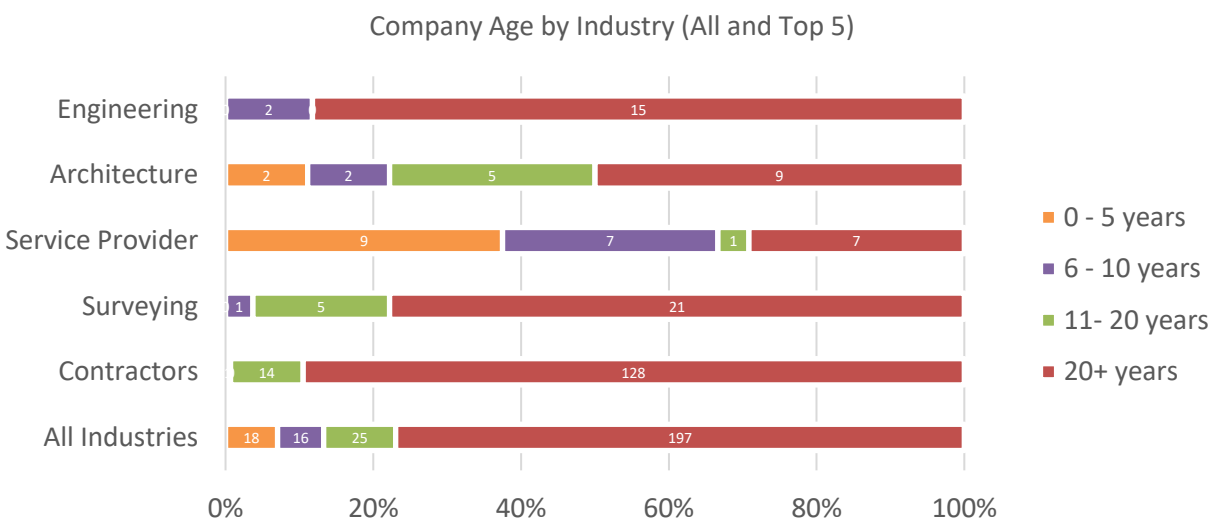
This is because our largest respondent group, General Contractors, were overwhelmingly large firms with over 500 employees; and service provider and architecture respondents were predominantly small firms with 25 or less employees.



# INTERPRETATION



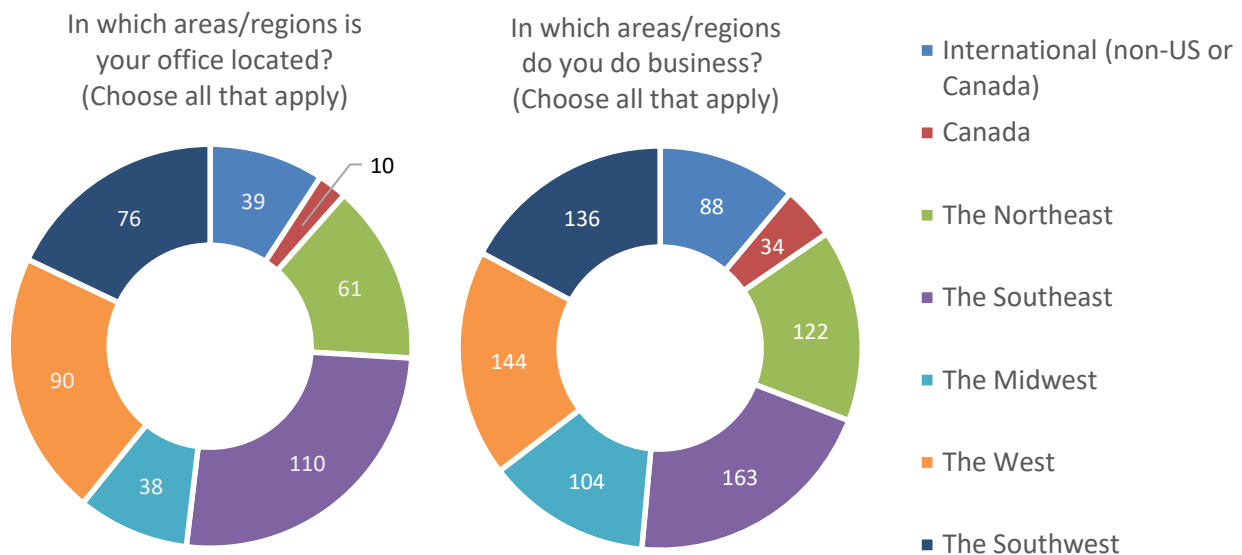
The company age of respondents leaned heavily towards older, established companies with roughly 80% being in business for over 20 years. Service providers represented the youngest companies, which should be unsurprising as many of these firms were established to provide reality capture and building documentation services within the last 10 years. The same time period in which laser scanning became a more robust and accepted technology.



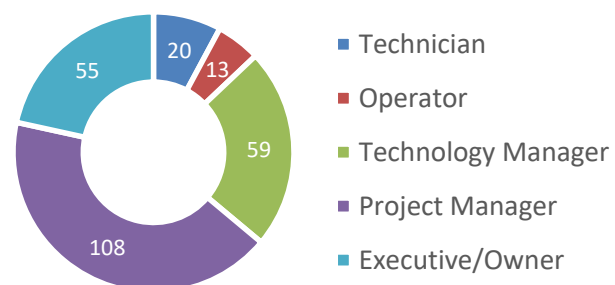
Both the company size and age are likely representative of the fact that high-end reality capture hardware remains a relatively large capital expense, and outside of specialist firms focused on building documentation deliverables, the expenditure to acquire and operate the hardware and software is still prohibitive for less established companies.

# INTERPRETATION

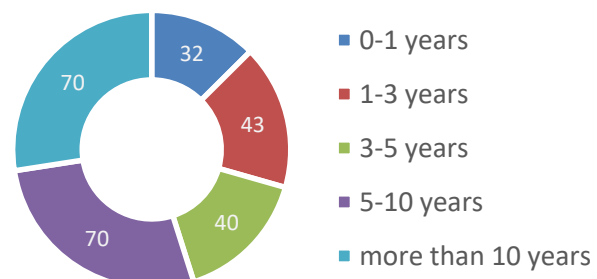
Regionally, companies were relatively evenly distributed in terms of office location and areas serviced as compared to a more west-coast centric base of respondents in the last hardware focused Cornerstone survey. We also had a surprising amount of international and Canadian participation despite USIBD's focus on the United States. This highlights a need for the same kind of guidance in other markets.



Our respondents also contained a much higher percentage of project and technical management than the prior survey. Similarly, individual experience with building documentation technologies are higher with over 50% of our respondents having more than 5 years in practice, and 25% with more than 10 years.

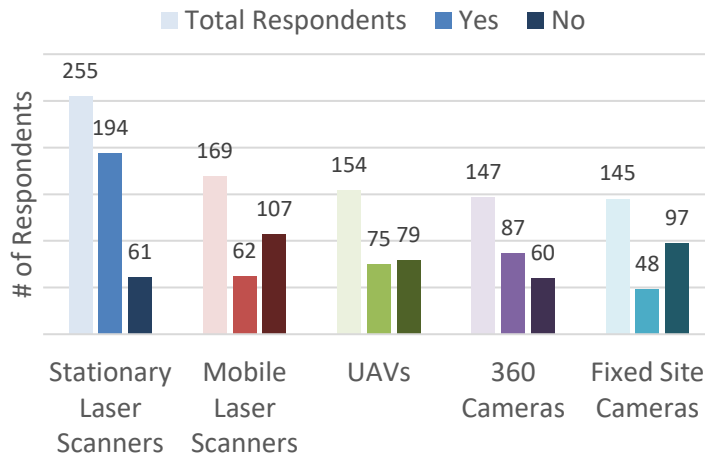


This suggests that individuals with expertise in building documentation technologies are being promoted to project management or technology management positions, which should mean further exposure to the project value chain and broader implementations of these tools within larger companies.



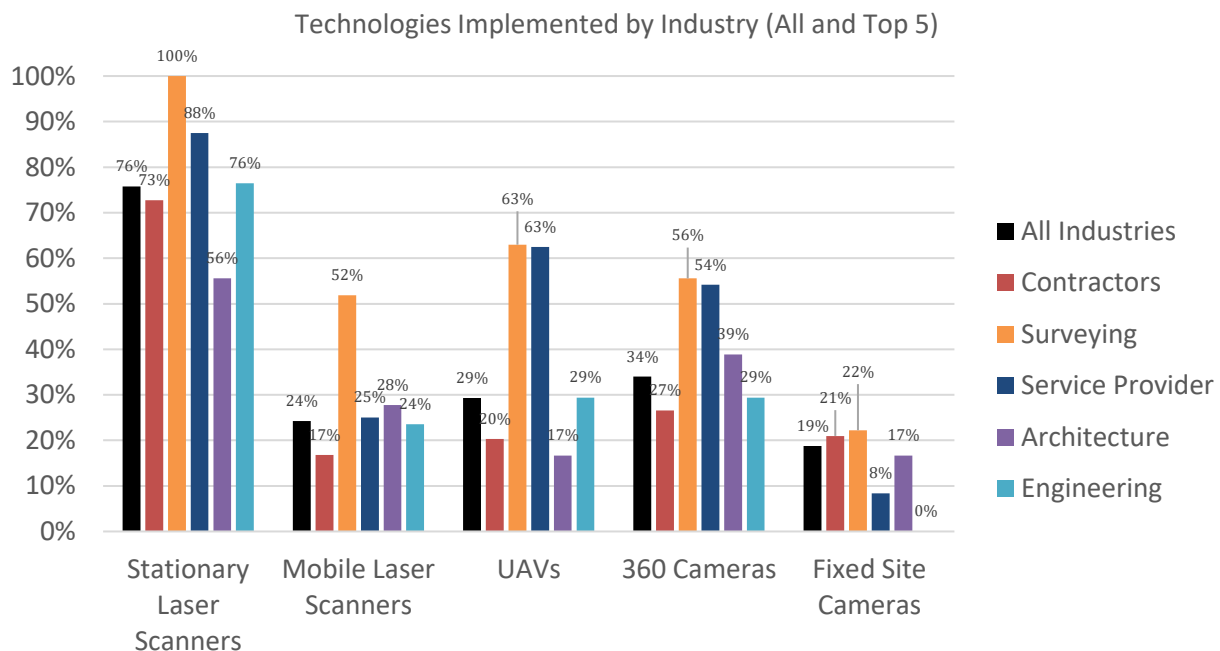
# INTERPRETATION

Among survey respondents, stationary laser scanning is the dominant building documentation hardware followed by 360° cameras and UAVs. This may not be indicative of market acceptance



of these technologies since our survey is sent to individuals specializing in building documentation. However, it does represent focused adoption amongst such professionals. Unfortunately, some respondents didn't complete the survey past the stationary scanning section. This could mean that they didn't own other hardware types or simply left, so we will report both percentages where appropriate.

Looking within each industry, we also see a strong trend in surveying and service provider firms of using multiple instruments for building documentation with most firms leveraging at least three if not four of these technologies in their workflows. Surveying companies also had the most individual respondents who filled out information about all five capture technologies.



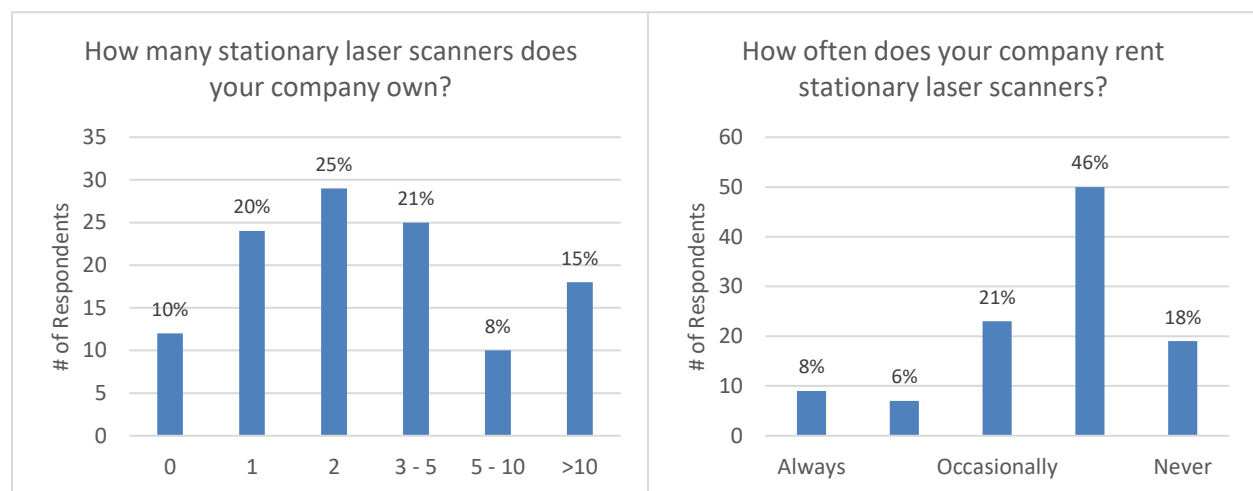
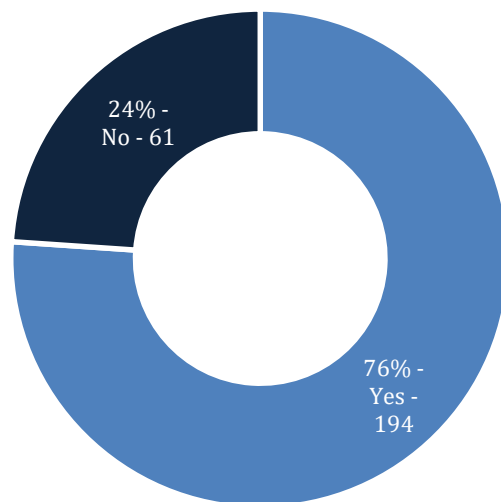
The following sections will provide survey response data, details and commentary for each of the 5 major categories of reality capture hardware.

# INTERPRETATION

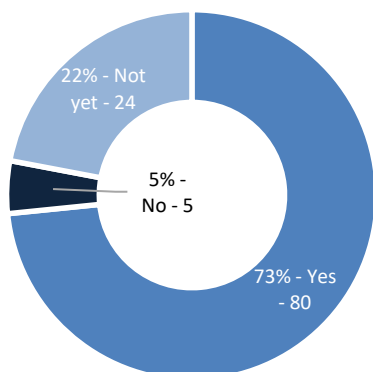
## STATIONARY LASER SCANNERS

Stationary scanners are the most widely used building documentation hardware with 76% of respondents reporting use.

Of the 194 respondents who filled out the rest of this section, most reported a preference to own their stationary laser scanning equipment rather than rent. A combined 64% reported they never or rarely rent stationary scanning equipment. While 8% stated they always rent scanners and 6% are renting often. The majority state that having the latest equipment is either moderately important (35%) or important (29%) which seems to correlate with 54% who report upgrading their equipment every 3-5 years (chart not shown).



### Stationary Scanner ROI

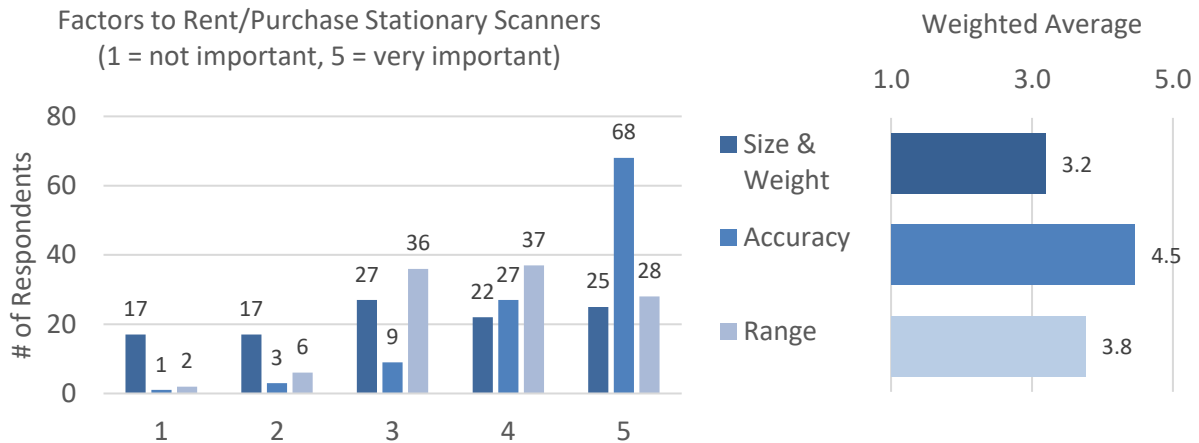


Perhaps more notable is the high number of respondents (73%) who report the ROI of equipment has justified the cost for their organization. Only 5% stated it definitively has not. The remaining 22% have yet to see the full benefit, but still expect to. So, despite the high capital and operating costs of laser scanning equipment, the return on investment appears easy to achieve in a relatively short period of time. This bodes well for further adoption within the industry and points to the potential for faster adoption in the next few years.



# INTERPRETATION

When asked about the most important factors to consider when renting or purchasing a terrestrial laser scanner, accuracy was clearly ranked as “very important” by most users. Range and Size/Weight were ranked between “moderately” and “very important”.

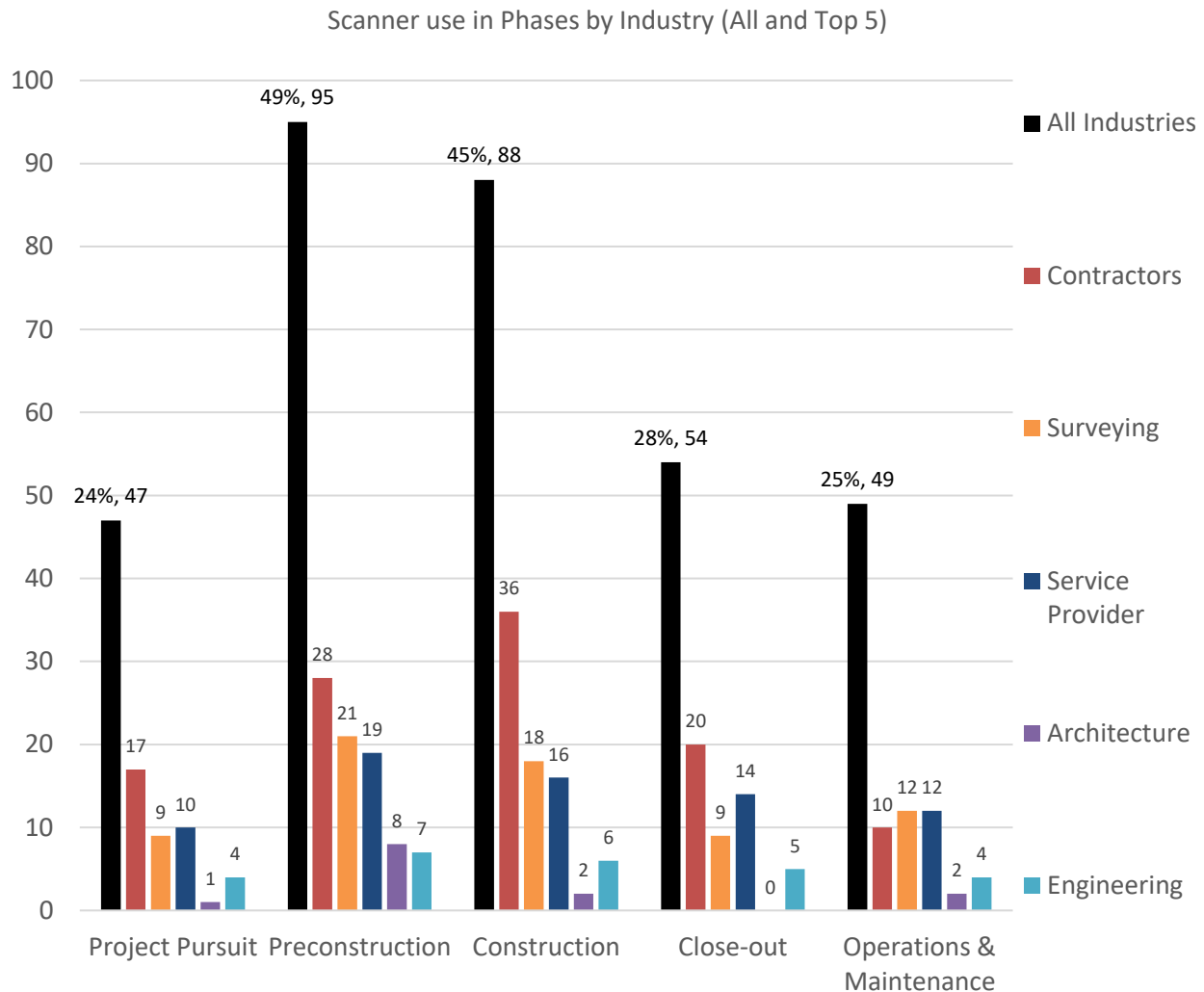


In terms of selecting what was important for manufacturers to improve upon in future hardware, respondents ranked the ability to map high quality RGB photos to scans as marginally more important than built-in survey capabilities. However, looking at each industry we can see variation from the broader trend. For instance, Construction and Survey firms show a strong preference for surveying capabilities as compared to the rest of the survey respondents. This shows that for broader adoption in construction and survey markets that surveying capabilities are more important than for A&E firms or service providers.



# INTERPRETATION

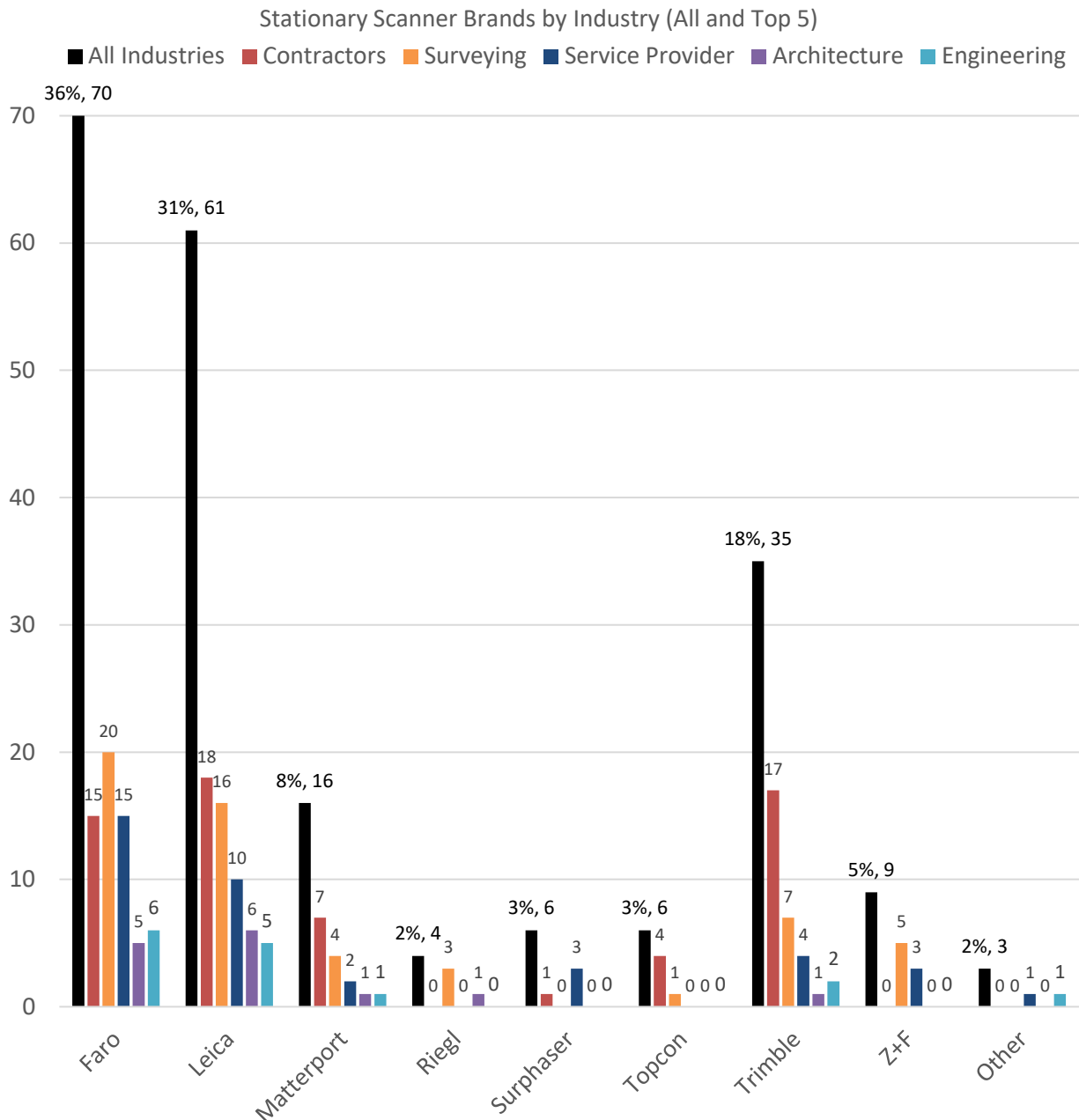
Stationary laser scanners are being deployed on all phases of construction projects. Most often in preconstruction and construction. This is expected considering the most common use cases for stationary scanners – capturing/verifying existing conditions and as-built documentation.



Within each industry we can see that both survey firms and service providers follow the overall trend very closely. However, within specific verticals like construction or architecture, we can see that their use follows their firm's focus closely. Heavier use by contractors in the construction phase is likely due to the relatively recent introductions of analysis and comparison software which enable using reality capture data for advanced QA/QC of work in place. Architecture and Engineering firms are using scanning most frequently during design (preconstruction); though unlike architecture firms, engineering firms maintain usage throughout the remainder of the project relatively heavily. This is perhaps due to their increased liability for incorrectly fabricated or installed engineered systems.

# INTERPRETATION

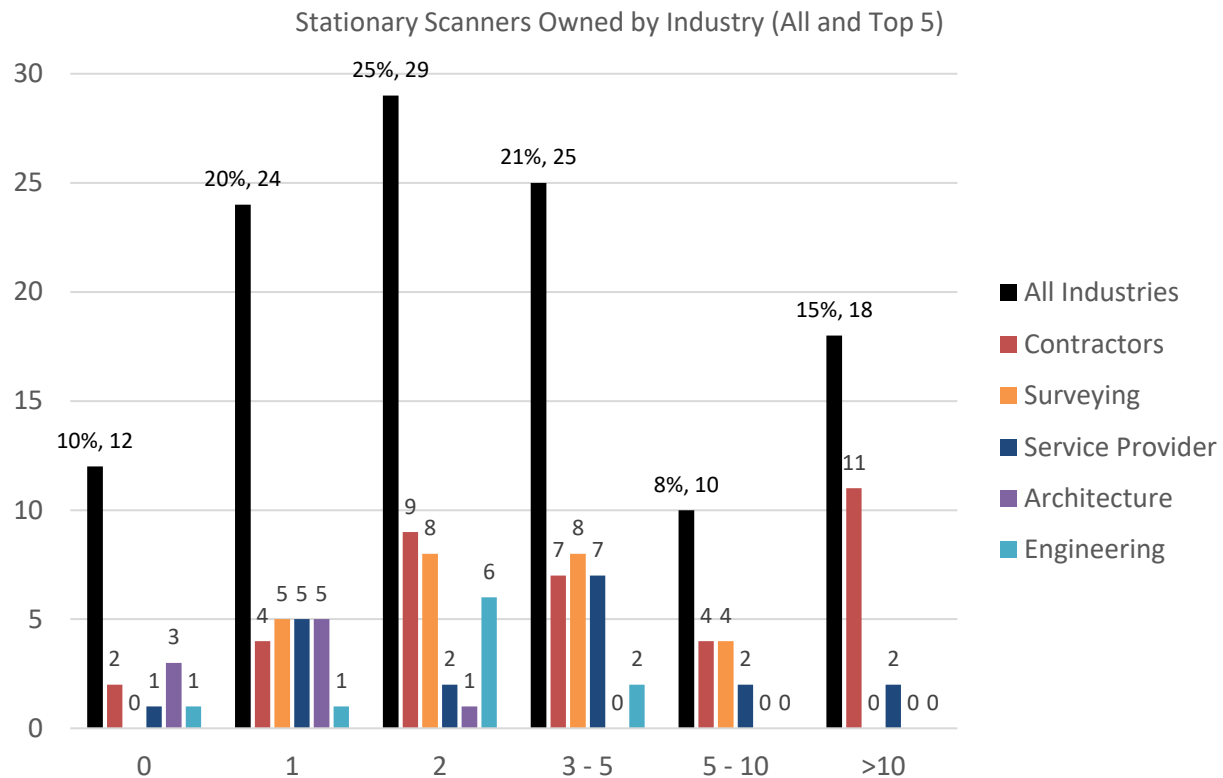
Faro, Leica, and Trimble still hold the top three positions for manufactures of stationary scanners. Faro has bumped Leica out of the most popular manufacturer spot as compared to the last CSR survey, with a 5% gap between the two. Matterport and Z+F round out the top 5.



However, within the industries, we see that Leica is the leading manufacturer amongst contractors, with Trimble in second place and Faro in third. Surveying firms are the largest user of Faro equipment by number, with very few utilizing Trimble equipment.

# INTERPRETATION

Survey companies have an outsized showing in this chart because they typically own multiple scanners of varying brands, selected based on their capabilities. Most own at least two scanners. Interestingly, construction companies generally followed the trend of scanner ownership of survey firms, with the exception of 11 respondents reporting their firm owning more than 10 laser scanners. This suggests that there are many large construction companies that are well into their adoption of scanning technology.



On the other hand, most service providers and architecture firms reported only owning a single scanner. This aligns with both the size of those firms and the relative time span they have been utilizing scanning in-house.

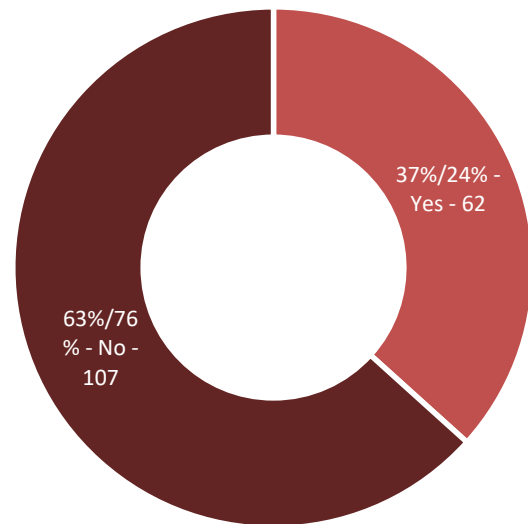
Overall, the data collected in this survey points to a positive outlook for both hardware and software vendors in the construction industry. There are a lot of firms new to scanning adopting the technology, and established players are seeing rapid and consistent return on investment from using the technology.

For users, the growing pool of use cases and increase volume of scanners in the market should be a positive sign as well. This suggests that there will be continued investment in software to utilize the data, as well increased competition in hardware that will drive costs lower and focus vendors on making both the software and hardware easier to use.

# INTERPRETATION

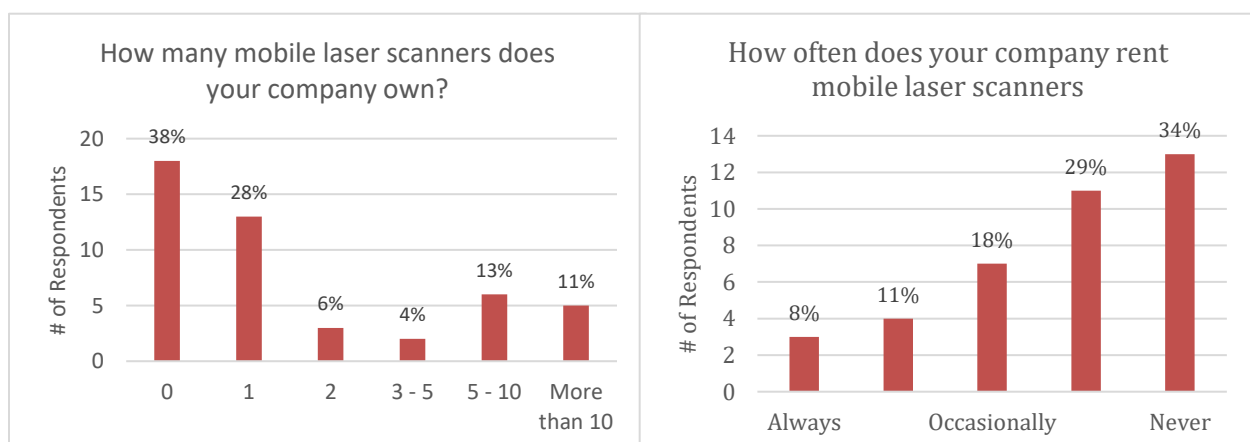
## MOBILE LASER SCANNERS

Despite being relatively new to the construction industry, mobile laser scanners are already being used by 37% of the people who answered this question. However, 86 survey respondents did not continue with the survey from the prior section, and those who answered “Yes” to using mobile laser scanners only represent 24% of the total number of respondents. We believe that those who left simply didn’t complete the survey and that the percentage of people who answered this usage question is the more accurate number. We are providing the percentage of “Yes” response to the total number of respondents for reference.



Mobile scanners are typically less accurate than stationary scanners but offer the benefit of portability and often require very little, if any post processing. As a result, this offers substantially higher productivity both in the field and office at the cost of the tradeoffs mentioned above. It should be noted that we did not differentiate between handheld/backpack form factor mobile scanners, cart based mobile scanners, or vehicle mounted mobile scanners.

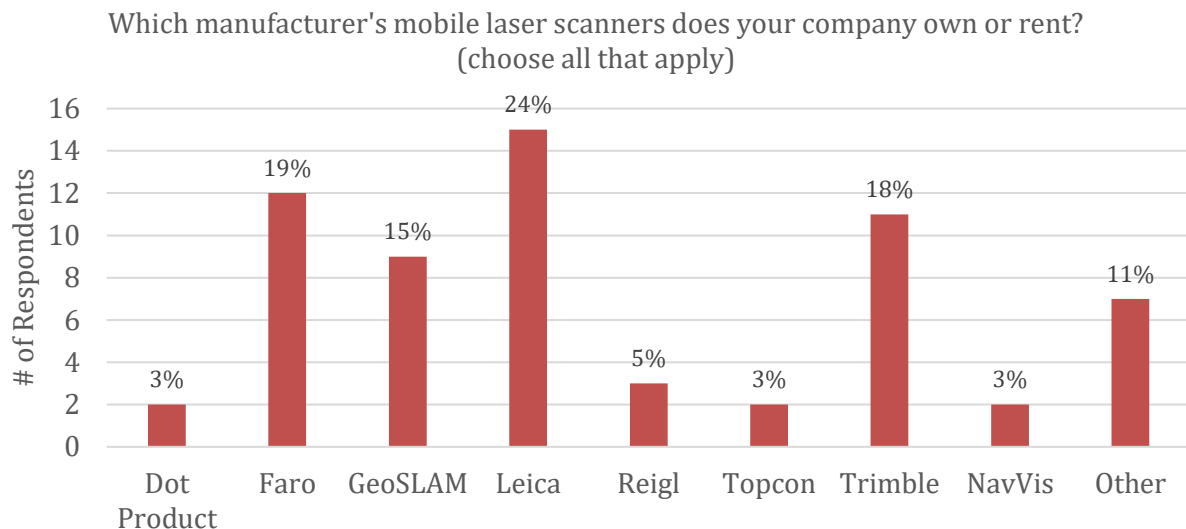
Most respondents report not owning any mobile scanning equipment (38%) or owning one mobile scanner (28%); while over 20% have 5 or more. However, less than 20% report always or frequently renting a mobile scanner. This suggests that the actual usage of mobile scanning in those firms is infrequent.



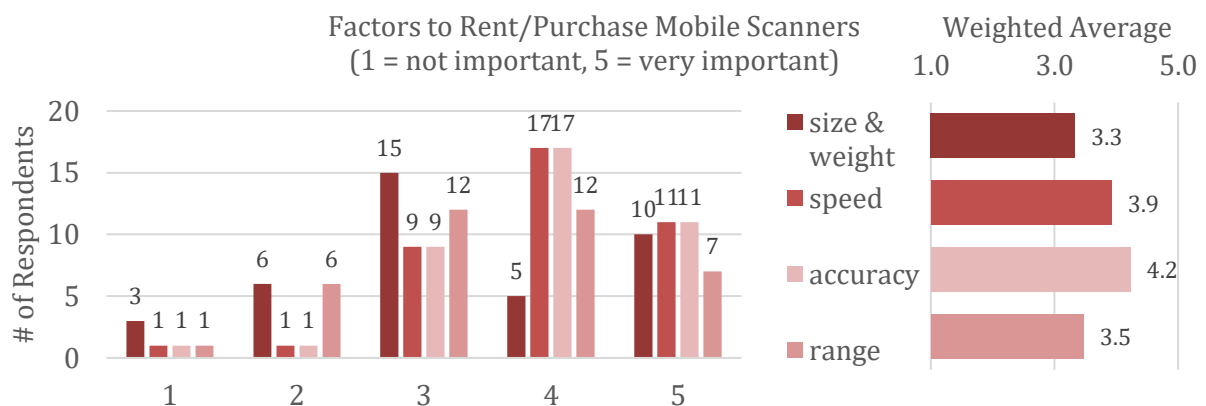
Despite how new mobile scanning technology is in our industry, reported ROI (chart not shown) showed only 14% of respondents not seeing their scanners delivering value back to the firm. The remaining responses are split evenly between firms that have earned their ROI back (44%) and firms that haven’t yet achieved desired ROI but still expect to do so in the future.

# INTERPRETATION

Survey results show that most companies are purchasing or renting mobile scanners from well-known stationary scanner manufactures Leica, Faro, and Trimble (in order of popularity). GeoSlam, which specializes in hand-held scanners was also a popular option. The fifth highest result is other, which aggregates any brands that had only a single respondent mark or write in that it was being used by their firm. This suggests substantial fragmentation with lots of available products in this market, which is typical of a young market early in its development.



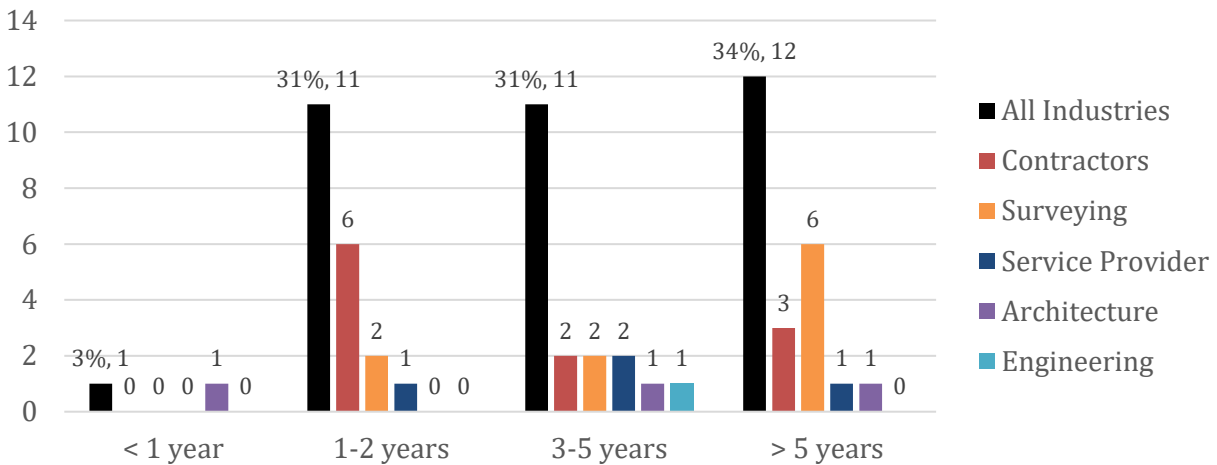
For mobile scanners accuracy and speed were the two factors rated most important when renting or purchasing. It may seem odd that size and weight was rated the least important for a mobile device, however within the subcategories of mobile scanners – hand-held, back pack, etc. – size and weight of devices are relatively comparable across manufactures.



# INTERPRETATION

When it comes to upgrading, very few are upgrading within 1 year. The remaining responses are close to evenly distributed among the options of 1-2, 3-5, and more than 5 years. However, within each industry we can see that contractors are seeing it as far more important to upgrade every 1-2 years while surveying firms are saying it is only important every 5+ years.

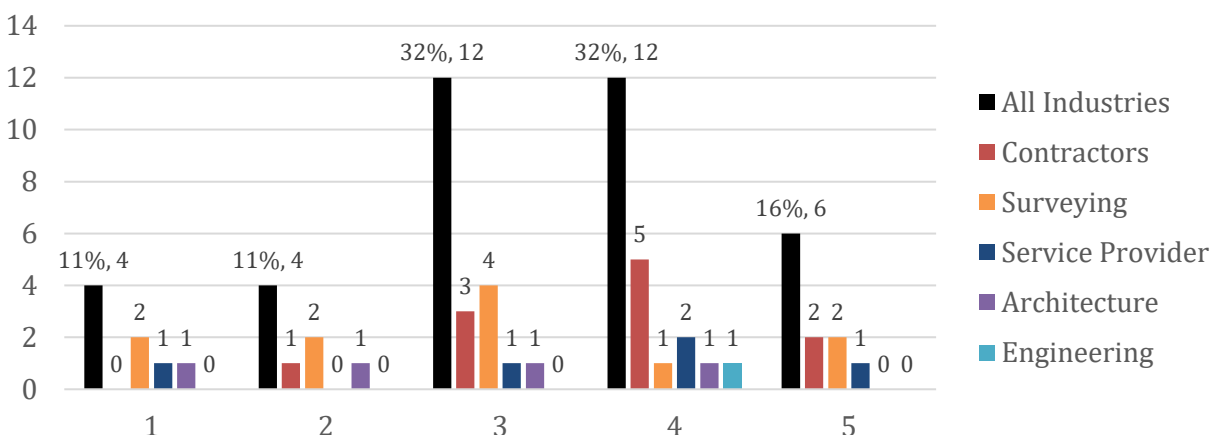
Mobile Scanner Upgrade Cycle by Industry (All and Top 5)



It is likely that this is because surveying firms own larger and much more expensive vehicle mounted mobile systems while general contractors are likely to own hand held units that are developing much more rapidly.

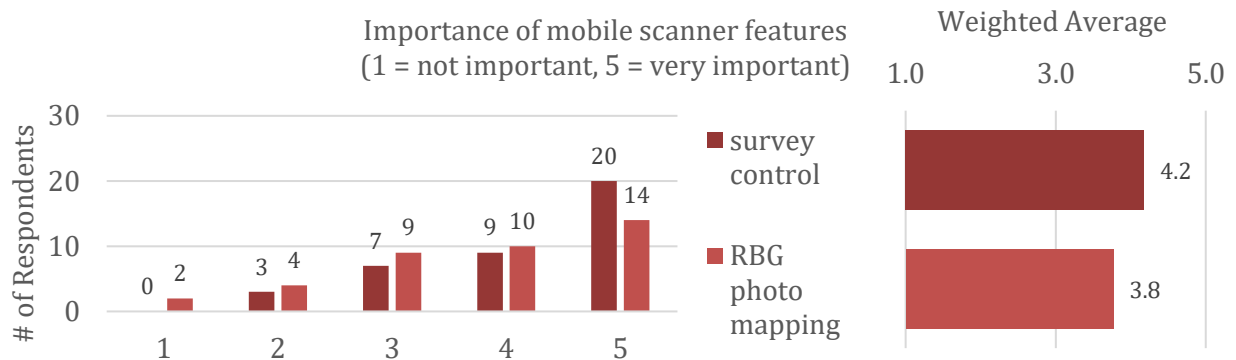
Most consider having the latest mobile scanner(s) only moderately important (32%) or important (32%). On a scale of 1-5, the overall rating was a 3.3, or just above “moderately important”. At the industry level we can also see a higher ranking by contractors in this chart, which corresponds with the faster upgrade cycle they reported above.

Importance of newest Mobile Scanner Technology by Industry  
(All and Top 5) 1 = Not important, 5 = Very Important

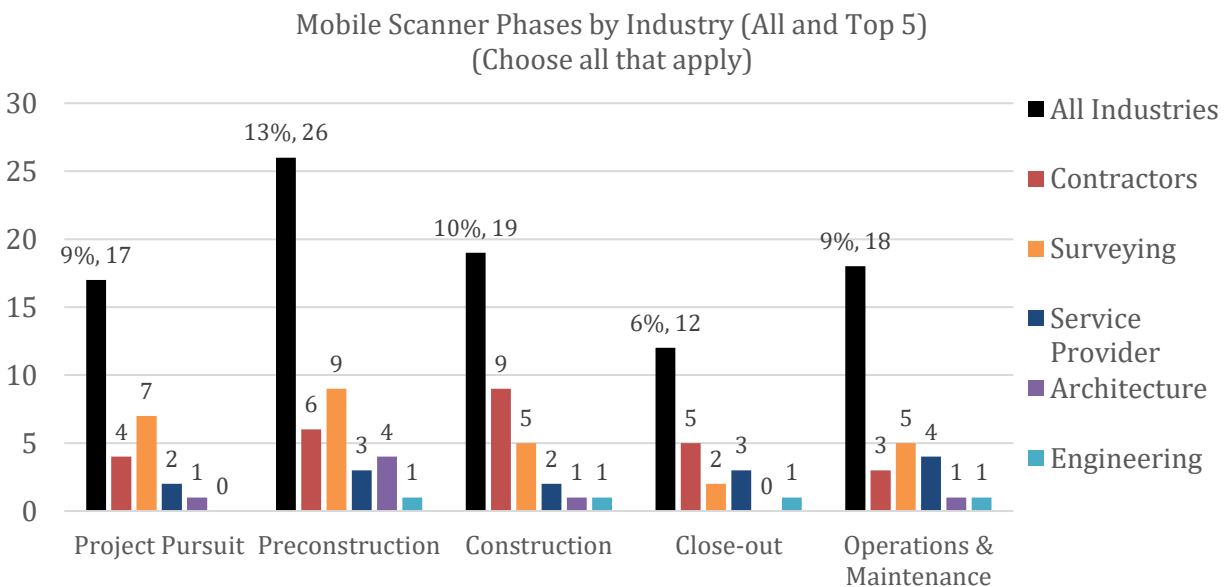


# INTERPRETATION

When asked to rate the importance of mobile scanner features—RGB photo mapping and ability to tie into survey control—respondents rated both features as “important”. On a scale of 1-5, photo mapping received a 3.8 and survey control a 4.2.



Mobile scanners are being used in all stages of projects. They are being used the most during preconstruction; with construction, operations & maintenance, and project pursuit closely grouped in that order. Industry trends follow closely with what one would expect, although the high percentage of use in operations and maintenance is an outlier compared to stationary scanning. This makes sense given the simplicity and productivity of handheld or backpack mounted scanners for capturing fragmented and occupied spaces with minimal disruption.



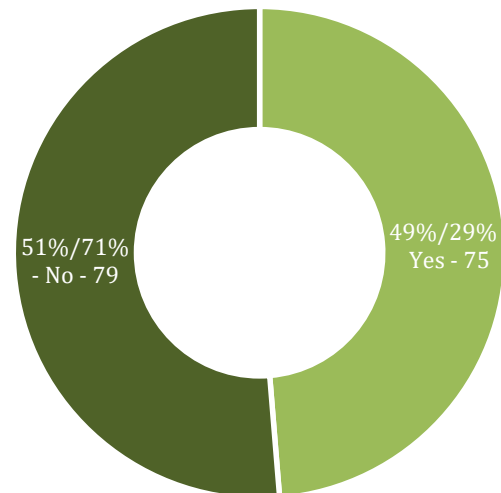
The data suggests a nascent market and we should expect to see some consolidation amongst the multitude of brands of handheld scanners over the next few years. Vehicle and human-carried scanners may be identified as break-out categories in future surveys to eliminate noise in the data.



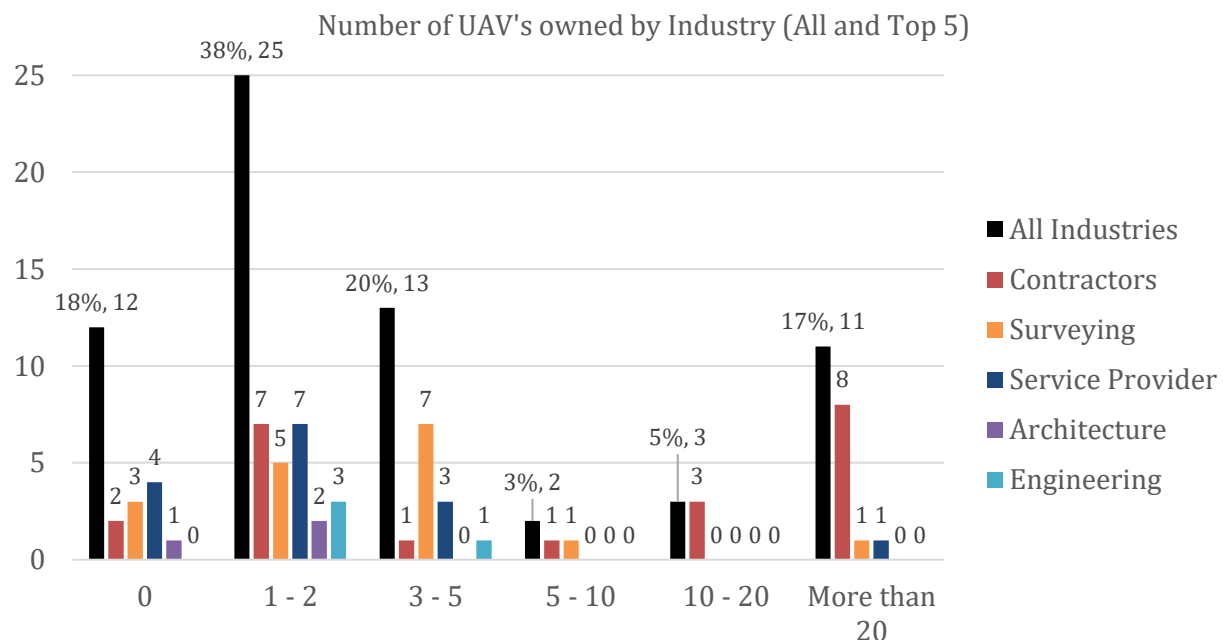
# INTERPRETATION

## UNMANNED AERIAL VEHICLES

UAV's (aka "drones") have become increasingly more popular for construction projects since the approval and release of Part 107 of Chapter 14 of the Code of Federal Regulations which makes it easier to deploy Unmanned Aerial Systems (UAS/UAV) for commercial use. This survey's results show that half of those who responded to this question are using UAV's on their projects. That 49% of respondents who filled out this section represent 29% of the total number of respondents to the survey in total. Only 15 people left the survey having completed the stationary and mobile scanning sections, so there was little drop off in respondents from the prior section to this one.

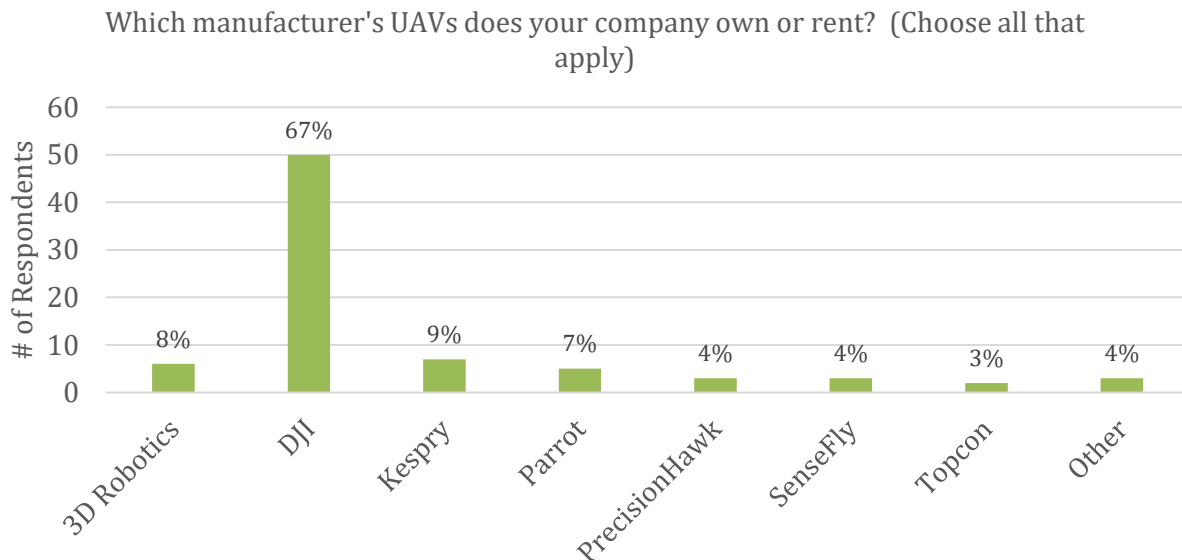


Most companies (38%) report owning 1-2 UAV's, and a surprising 17% state they have more than 20. Looking at each industry we can see that construction companies are behind that spike of companies that own 20+ UAVs, with most construction firms owning more than 10 UAVs. Interestingly, few construction firms report owning 3-5 or 5-10, which suggests that once the value is proven on a few projects with 1 or 2 drones, these firms are rapidly adopting the technology across their projects. This makes sense given the relatively low cost of the hardware.

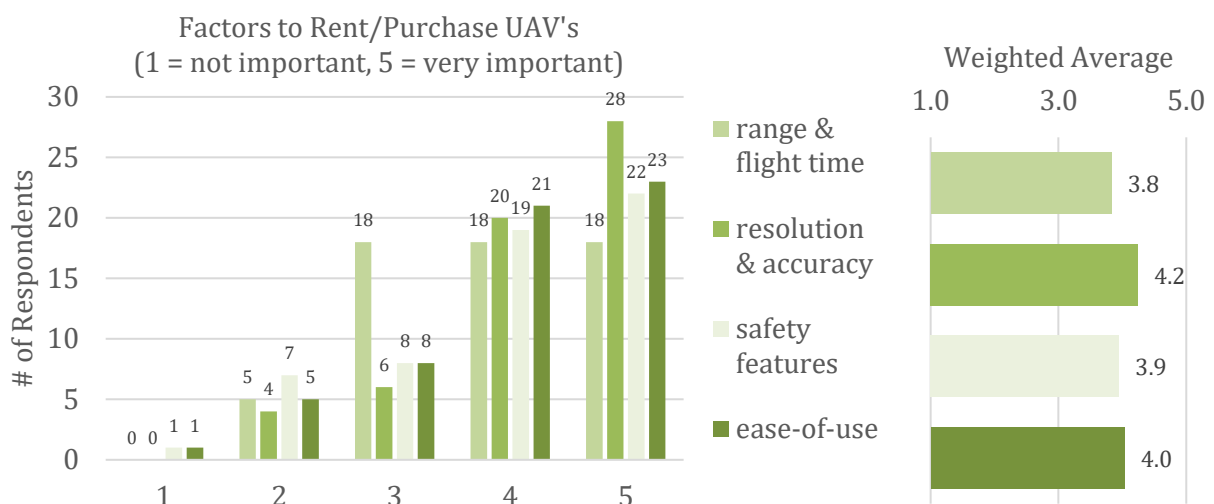


# INTERPRETATION

From our respondents, the clear majority are choosing DJI UAV's for their aerial photography needs. Far behind DJI are 3D Robotics and Kespry. Many of the respondents who chose other UAV manufacturers stated they are unaware of the manufacturer or that they hire a 3<sup>rd</sup> party provider and leave the choice to them.

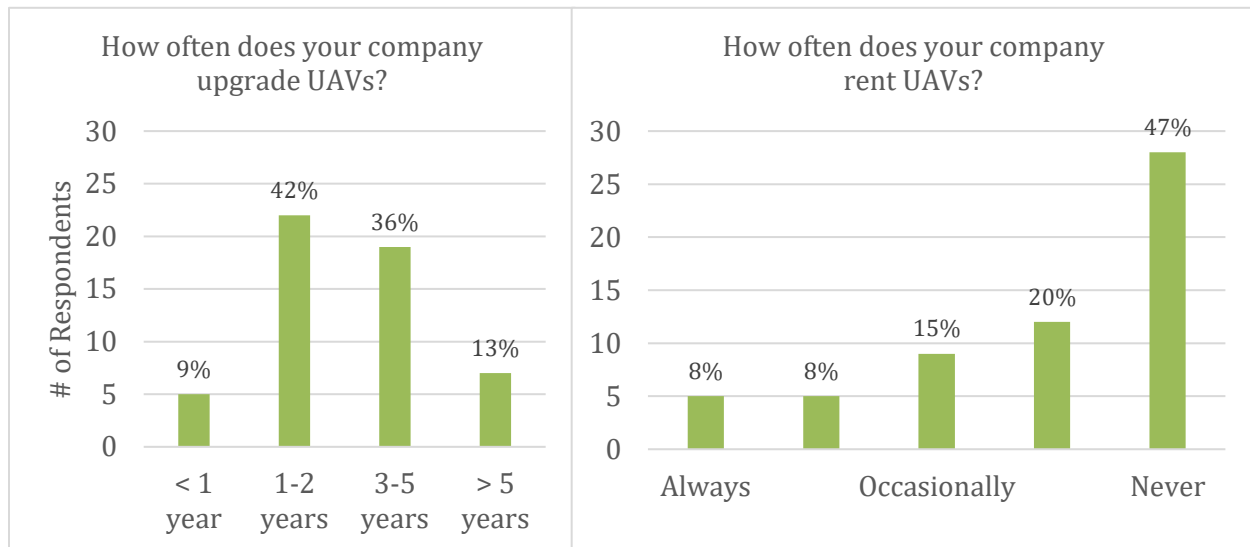


Four factors to rent or purchase UAV's were all rated close to "Important" (4.0) with resolution and accuracy receiving the highest rating of 4.2. Interestingly, range & flight time had a very even distribution from 3 to 5, while all other factors saw a steady increase up to 5. This suggests that for some UAV users the range and flight time has reached a point of being "good enough" that they aren't overly concerned about this feature when making purchasing decisions. This distribution of responses held true at the industry level (chart not shown) with no outliers or explanation of where this difference arises from.



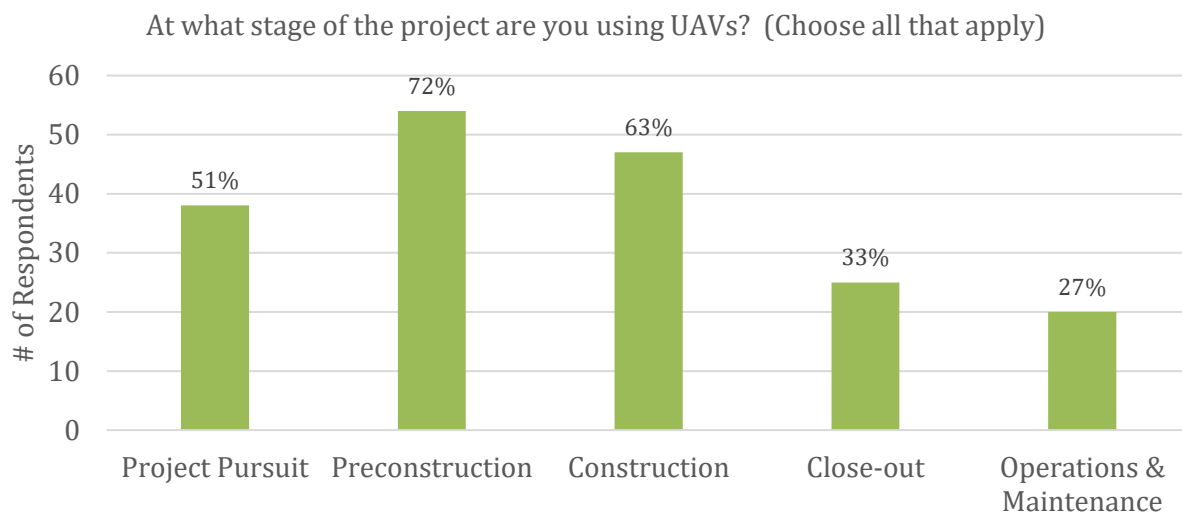
# INTERPRETATION

42% report upgrading their UAV's every 1-2 years while 36% are upgrading every 3-5 years.



Only 18% of UAV users reported owning 0 UAVs at their company, and that is reflected in the relatively low rental rates for UAV's. Owning UAV equipment seems to be strongly preferred with 47% stating that they never rent UAV's on their projects. None of this is surprising given the much lower cost of the equipment as compared to stationary scanners.

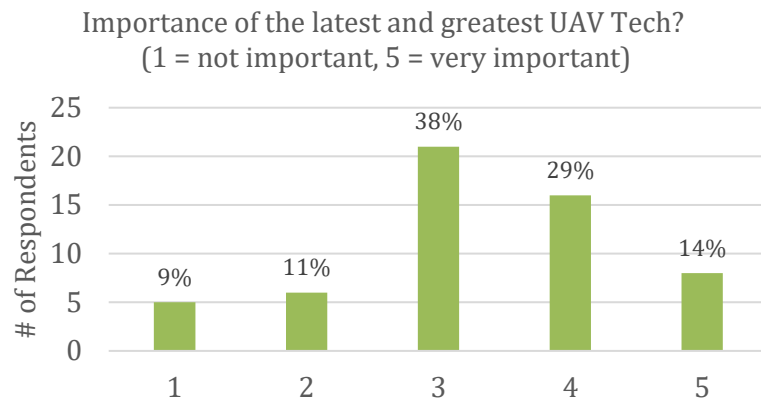
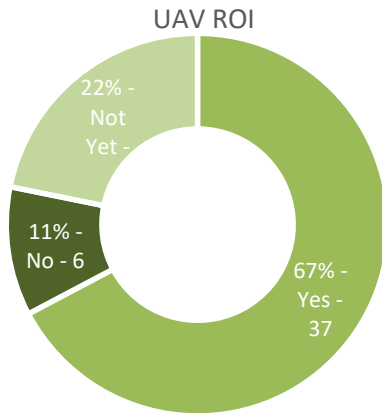
Respondents are making use of UAV's across all phases of their projects; though the most heavy use is during preconstruction at 72%, with construction, and the pursuit phase close behind.



It is exciting to see that UAVs have moved beyond the pursuit phase already and are providing value to the operational phases of respondents' projects this early in the adoption curve. This trend tracks across industries with little variation.

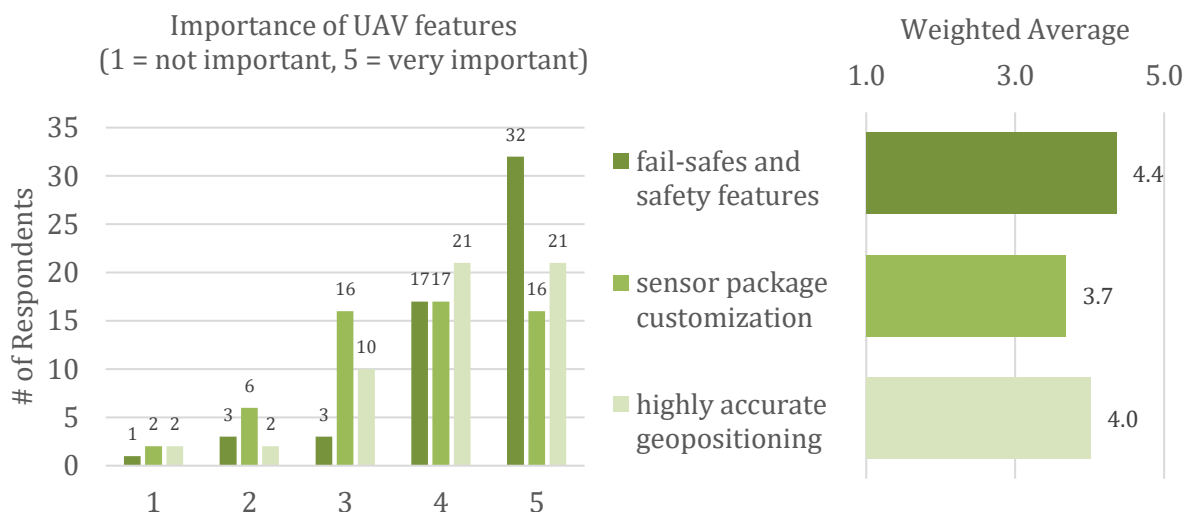
# INTERPRETATION

Most respondents (67%) report a positive ROI on their investment in UAV's with another 22% reporting they expected to achieve sufficient ROI to justify the cost of the equipment.



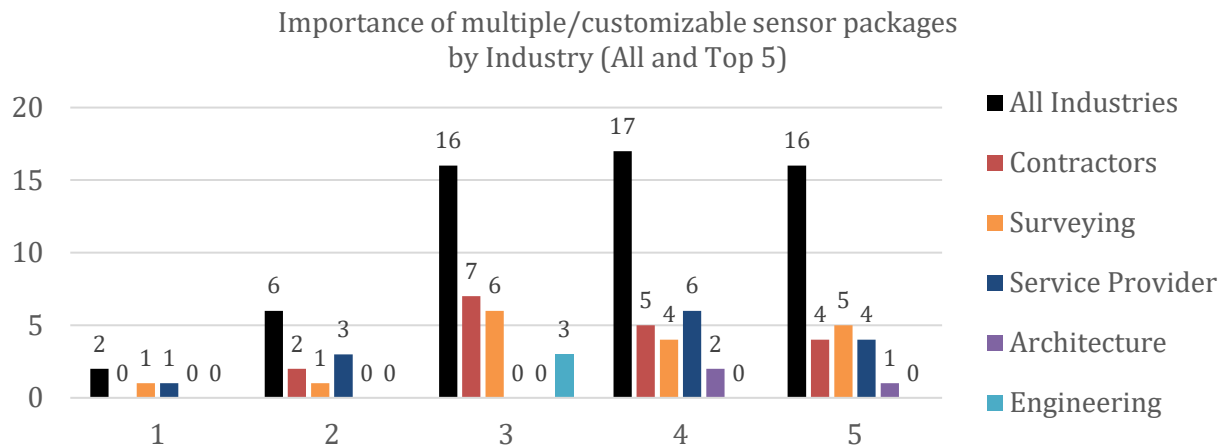
Interestingly, on the importance of having the latest and greatest UAV technology, 38% respondents selected the middle of the scale with all responses having a weighted average of 3.3 (chart not shown). This suggests that while the technology is rapidly evolving, the reason driving an upgrade cycle of 1-2 years isn't the need for the newest devices or capabilities.

When asked about the features that they most wanted to see improvement in, there were some interesting differences in people's responses. Fail-safes and other safety features was the clear stand-out in terms of an area for improvement for UAV manufacturers, with all respondents feeling that current offerings could do better. Anyone who has witnessed a UAV fail and drop out of the sky over a busy site can relate to why this is so important. However, accurate geopositioning and sensor package customization both plateaued with the same number of respondents in more than one ranking.

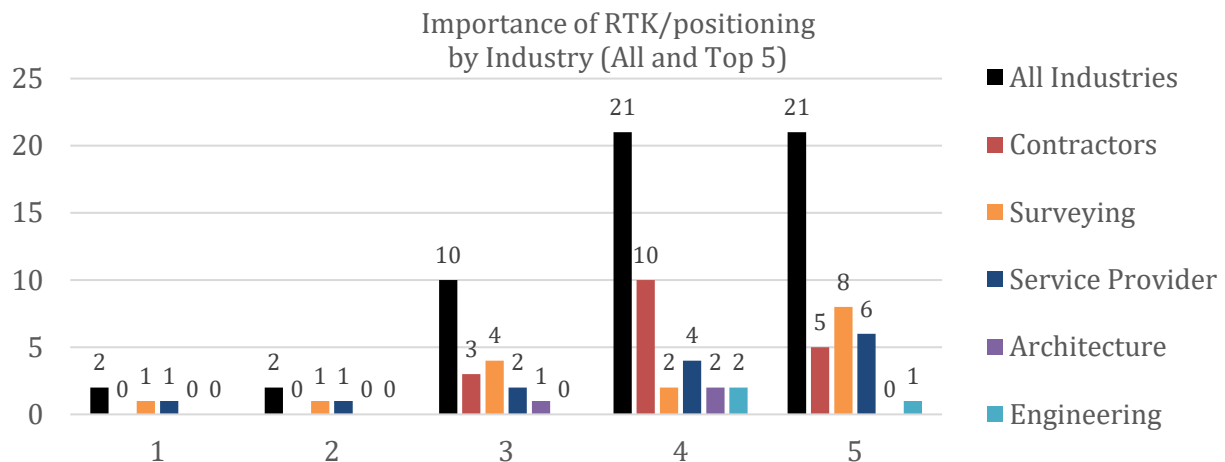


# INTERPRETATION

Looking more closely at each industry we can see that different industries diverge on the importance of some of these features. Service providers show a fairly strong preference towards customizable sensor packages for instance, which makes sense given the breadth of work they may need to perform with a UAV.



When it comes to highly accurate geopositioning with RTK or other methods, unsurprisingly we find survey firms and service providers find this very important compared to other users, while construction firms only find it to be moderately important. Again, this makes sense due to the different use cases, but it confirms that manufacturers targeting the construction industry don't need to be as focused on geopositioning to serve the needs of that user group.

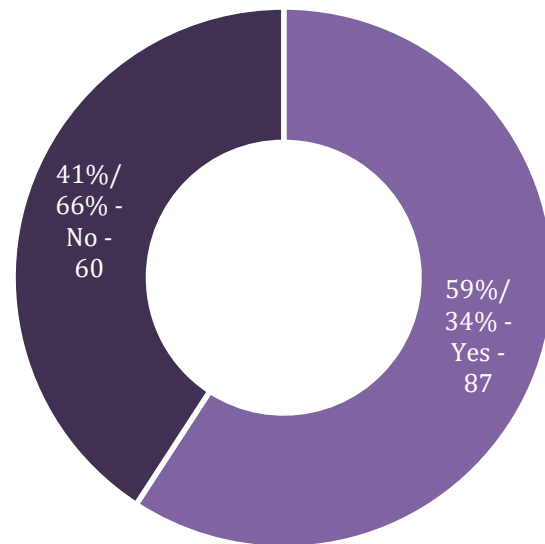


Overall, UAV adoption has been relatively rapid across the industry, with quick ROI and a fast path to enterprise implementations of the technology in larger construction firms. For vendors of technology, the number of firms with only a small number of UAV's points to a significant opportunity for growth within those firms as they too lean towards broader implementations of UAV technology. This survey also points to a strong desire for continued improvement of the safety features of UAV's so users can feel confident operating over active sites.

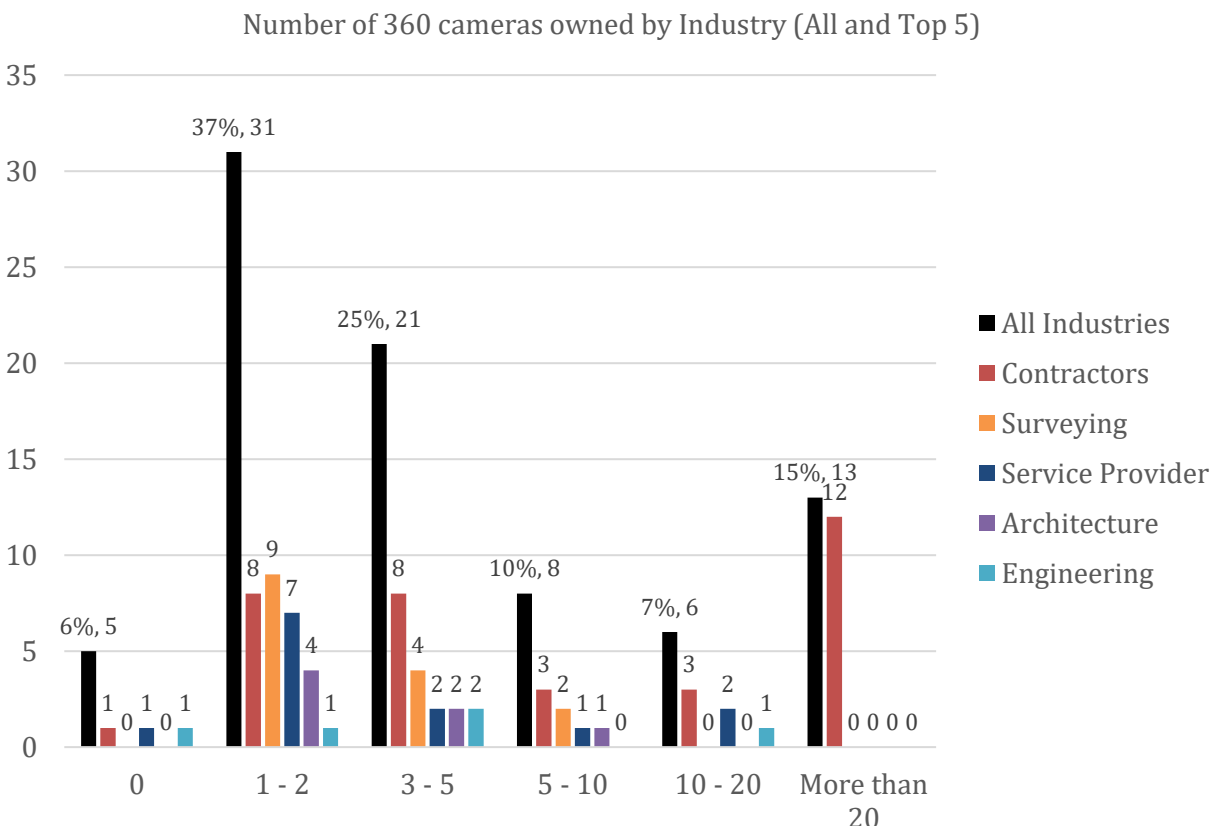
# INTERPRETATION

## 360° CAMERAS

Many compact and affordable 360° cameras have been released providing a quick and cost-effective way to capture project conditions at any time. This section of the survey suffered minimal drop-off from the prior section. Only 7 less respondents provided an answer to whether they used 360° cameras. The industry has been quick to adopt this technology as 60% report using 360° cameras on their projects.

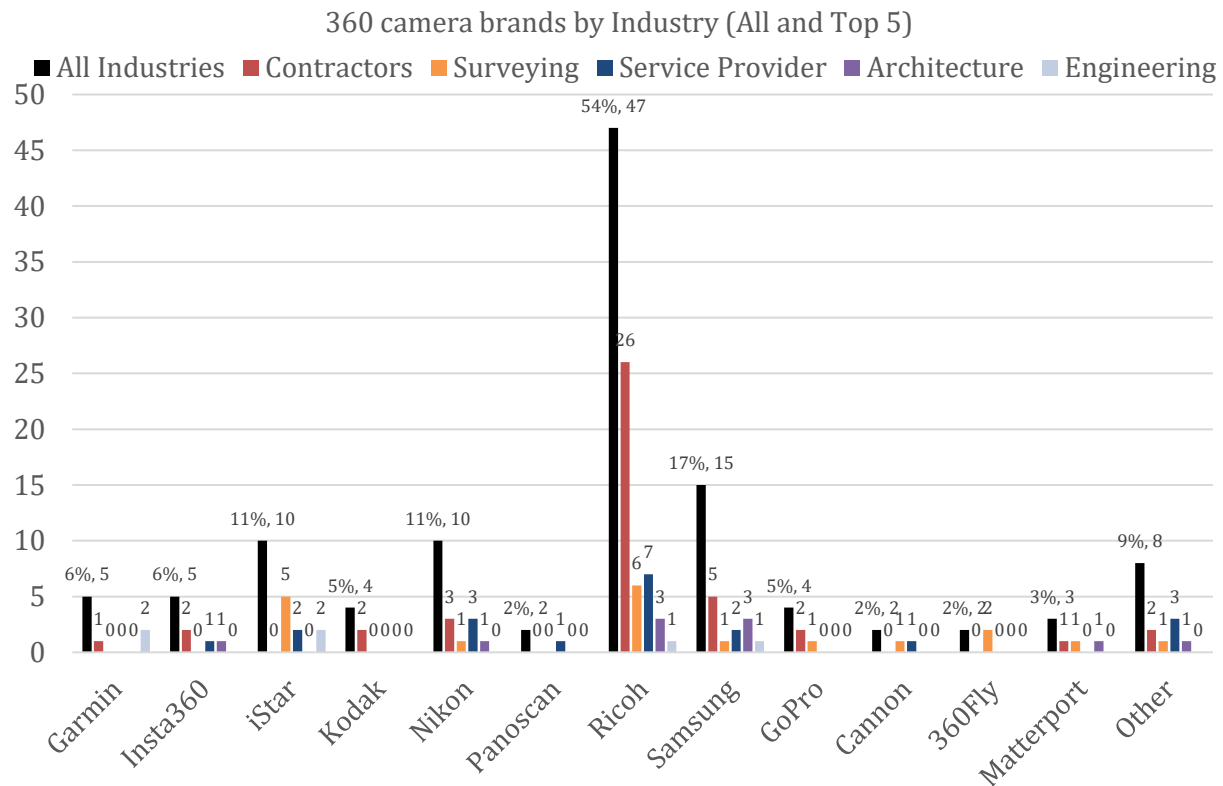


Many companies (37%) own 1 or 2 devices. One quarter of respondents (25%) report owning 3-5 cameras and 15% own more than 20. Again, we see a spike for responses in the more than 20 category as a result of large construction firms that have pursued enterprise implementations of the technology across multiple sites. We can also again see service providers and surveying companies peaking out with a smaller number of devices as they spread the equipment around multiple projects.

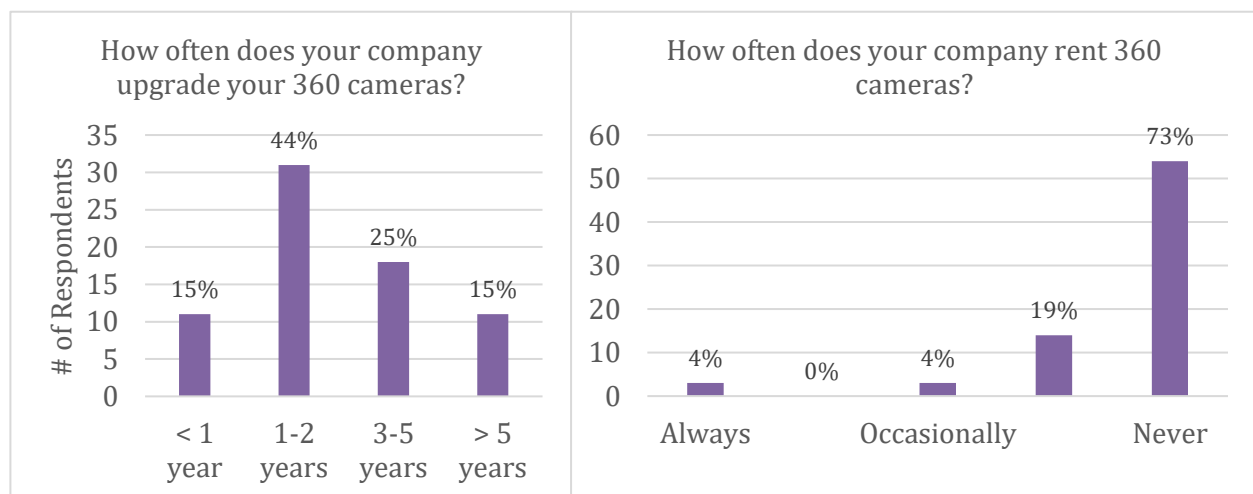


# INTERPRETATION

Ricoh 360° cameras (the Theta series) are the most popular with 54% of the market amongst our respondents; they are followed by Samsung, Nikon, and iStar. Again, the 5<sup>th</sup> spot is actually “Other”, which is indicative of the fragmentation in this market as well.

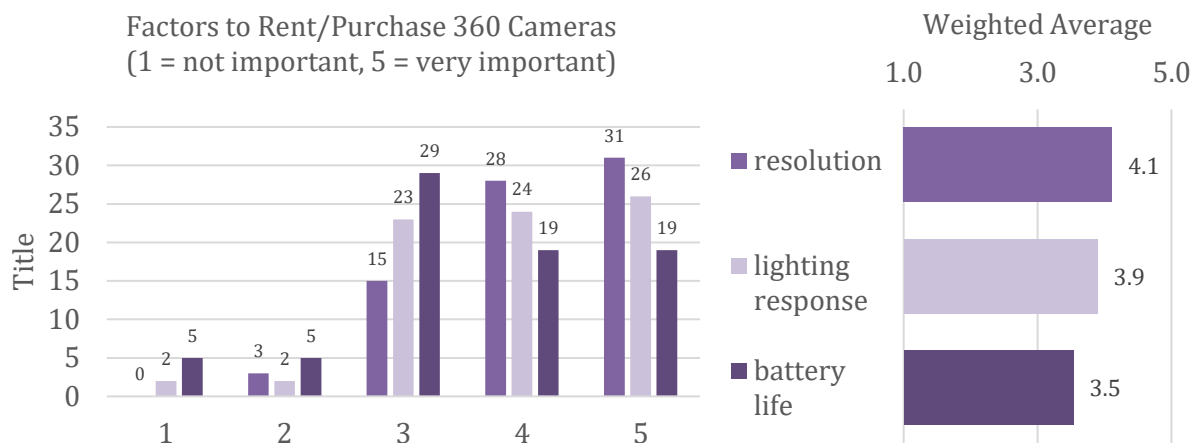


Over 40% of respondents are upgrading their 360° cameras in 1-2 years. Owning 360° cameras is the clear choice among survey respondents as well. The clear majority, 73% state that they never rent 360° cameras. Given the low price of most 360 cameras, this makes sense.

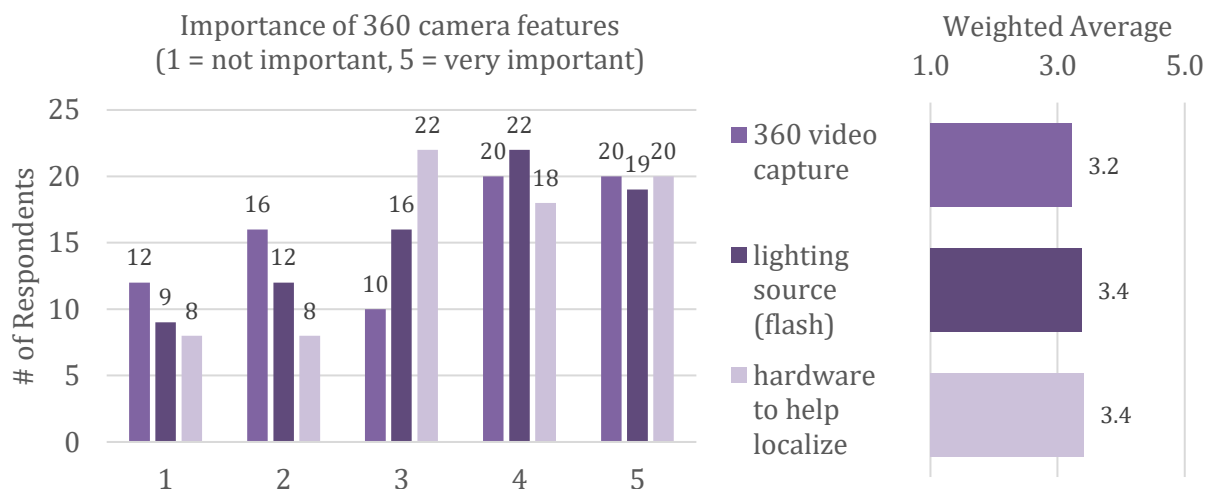


# INTERPRETATION

Resolution was rated the most important factor for renting or purchasing 360° cameras, with lighting responsiveness close behind. These trends were consistent within each industry as well (chart not shown), with the only outlier being construction companies divided on whether lighting response was only moderately important or very important.



That said, the weighted average of the importance of having the latest and greatest features was just 3.2, just barely above a neutral response (chart not shown).

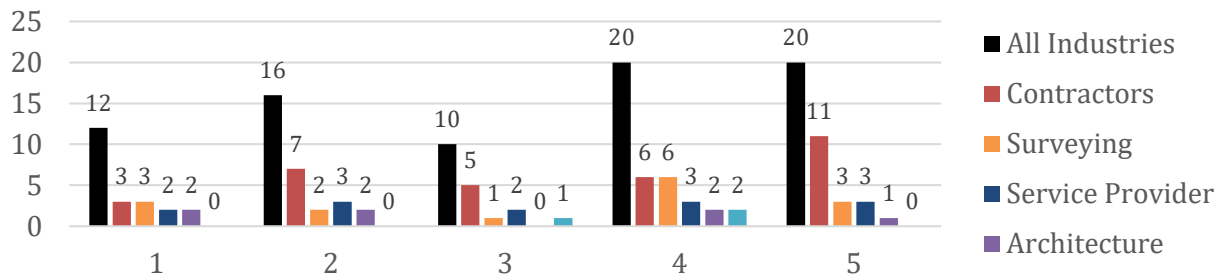


Respondents were far less consistent about what features they wanted to see improved, with all three close to a neutral response, due to a lot more of the respondents rating the features quite low. This points to a variance between the needs of the various professions we surveyed.



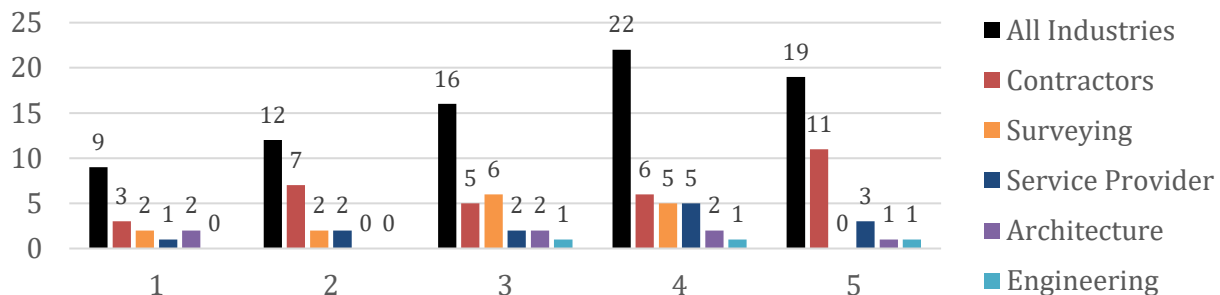
# INTERPRETATION

Importance of 360 video capture by Industry (All and Top 5)



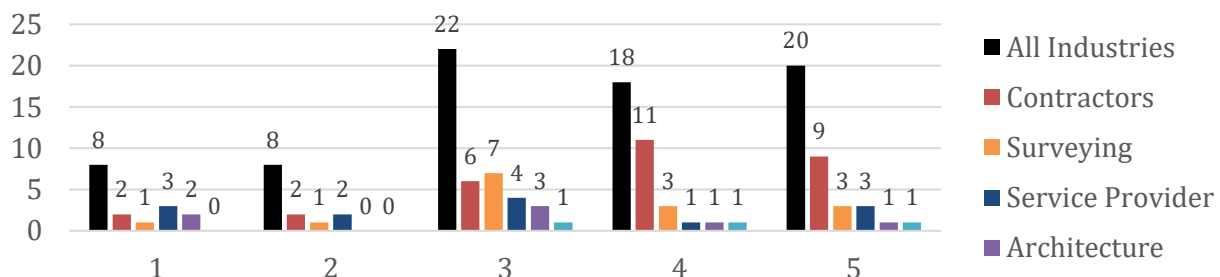
If we look at each industry's response, we can see some interesting differences emerge. Construction placed a much higher importance on 360° video capture than any other group, though there is an outlier group in construction ranking it relatively unimportant. This is likely because not all 360° photo applications can make use of 360° video, and for those standardized on a platform that can't leverage it, the feature isn't as important or useful.

Importance of lighting source by Industry (All and Top 5)



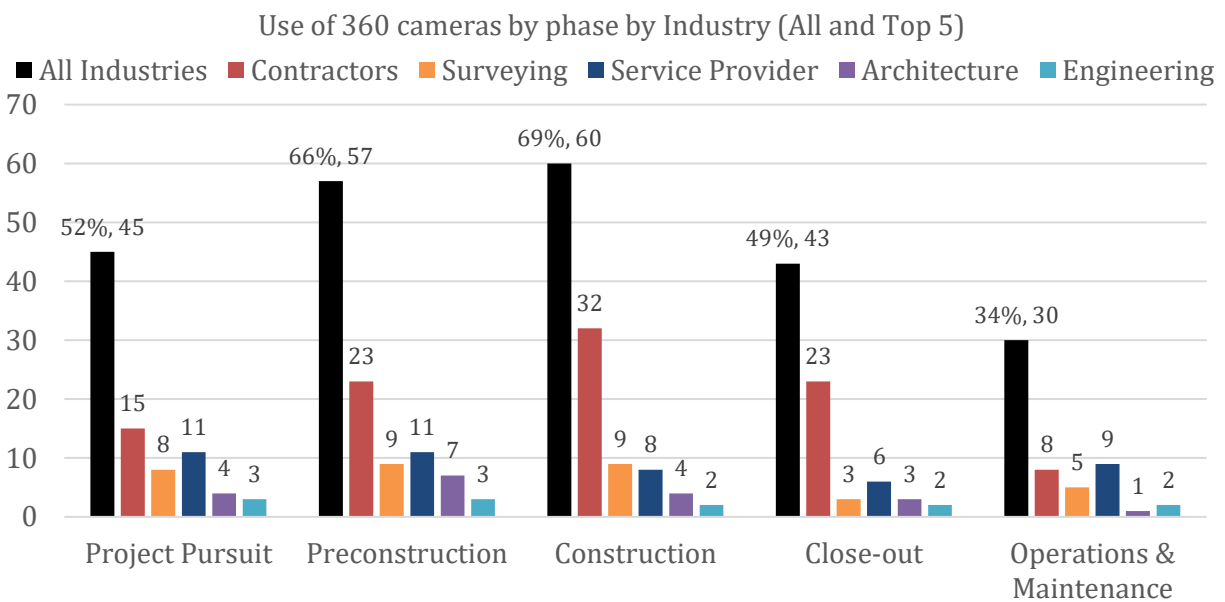
Likewise, we can see that providing a flash or other lighting source is also more important for construction. Given the use of these devices in dimly lit active jobsites, this makes perfect sense. Surveyors rated this feature less importantly than most other professions. Responses to the importance of localization also shows some differences across industries, with surveyors being unconcerned with localization hardware on the device while contractors felt it was relatively important.

Importance of localization hardware by Industry (All and Top 5)



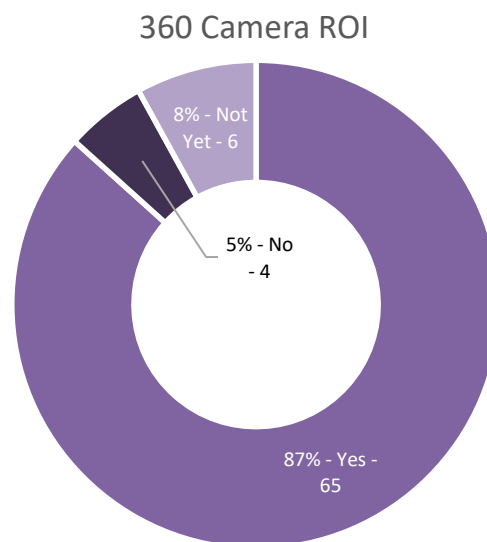
# INTERPRETATION

360° cameras are being used in all stages of projects, with construction and preconstruction both above 60%. It is interesting to note here that even at the industry level this trend is closely followed. Architecture and Engineering firms are using 360° cameras (by percentage) during construction just as heavily as construction firms.



360° cameras are delivering the strongest result for ROI of all the hardware devices we surveyed respondents about. 87% of respondents filling out this section had already achieved their ROI; and only 5% said they had not. This is an exceptionally low percentage even given the average cost of the equipment being asked about.

360° cameras are the second most used of the 5 hardware types surveyed, and represent a significant shift in the market over the last two years. While these devices existed when the last survey was put out, they played no significant role in our industry. Even three years ago it would have been a novelty item in our survey. So, to have jumped to the second most used category of hardware and to have surpassed UAVs in that short amount of time speaks to the value these devices are providing professionals and owners. Even amongst our focused group of reality capture centric respondents, we suspect this will surpass laser scanners as the most used tool in the next year. So, look for more questions in future surveys about this category of hardware.



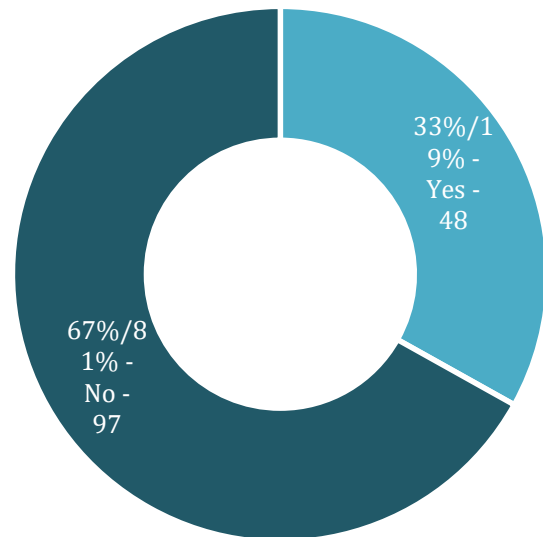
# INTERPRETATION

## FIXED SITE CAMERAS

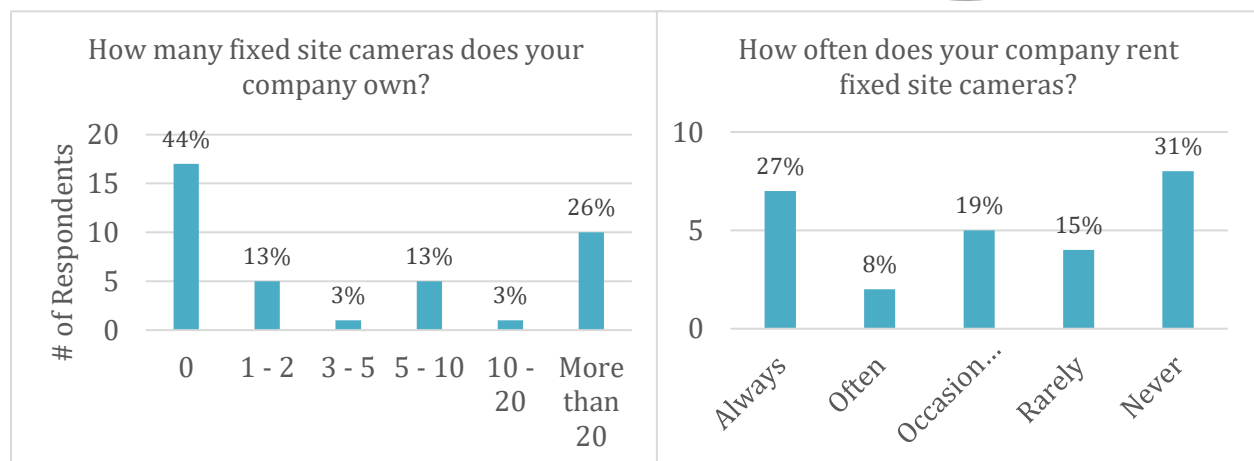
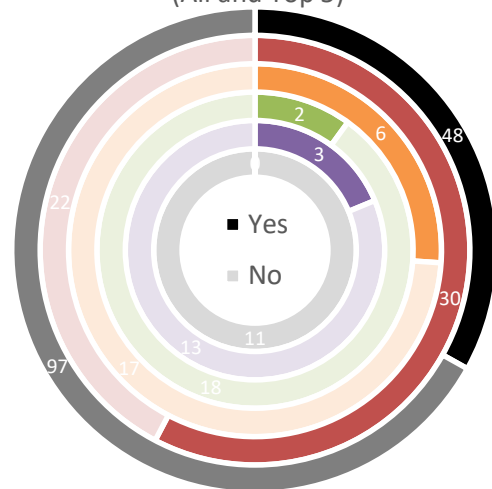
This was the last set of hardware questions on the survey, and while only one survey respondent that answered about their usage in the prior section failed to complete this section, the total number of respondents by this point of the survey is 57% of the total number of respondents that started the survey.

Of those who answered about their use of site cameras, only 33% of respondents to this question reported using fixed site cameras. Initially, this looked surprisingly low given how often these types of cameras are required by owners to document time lapse footage of projects. Looking at the industry data it becomes more reasonable. Just under 60% of contractors report usage of fixed site cameras on their sites. Surveyors are the next highest group of users, and only 25% are leveraging fixed cameras on their projects.

A significant number (44%) report they do not own fixed site cameras and this corresponds with the majority of respondents who prefer to always or regularly rent them. There are a significant number who rarely or never rent, and that closely matches with the percentage who own more 10 site cameras or more.

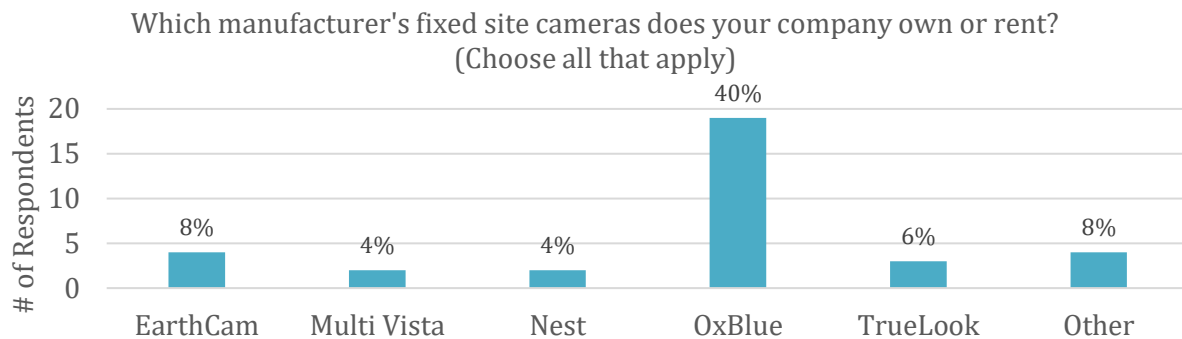


Fixed Site Camera usage by Industry  
(All and Top 5)

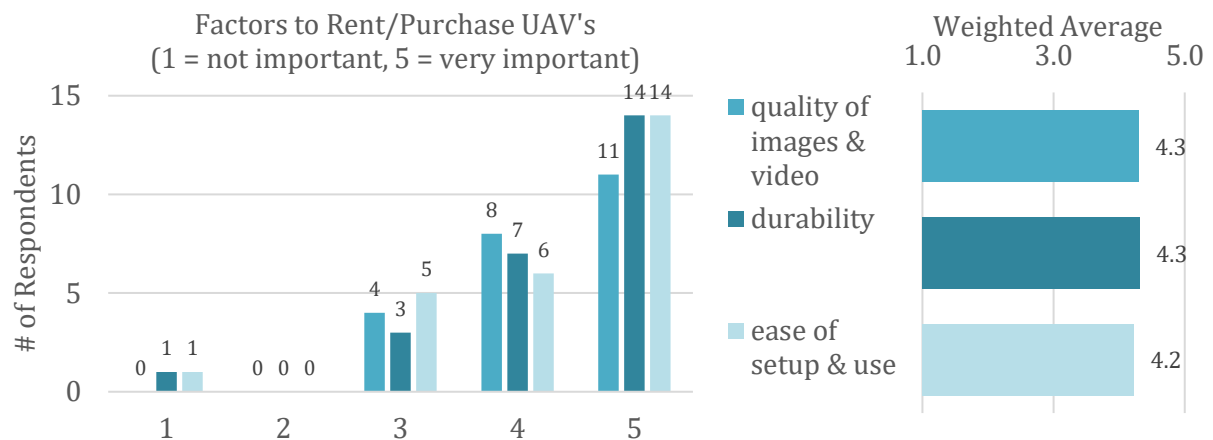


# INTERPRETATION

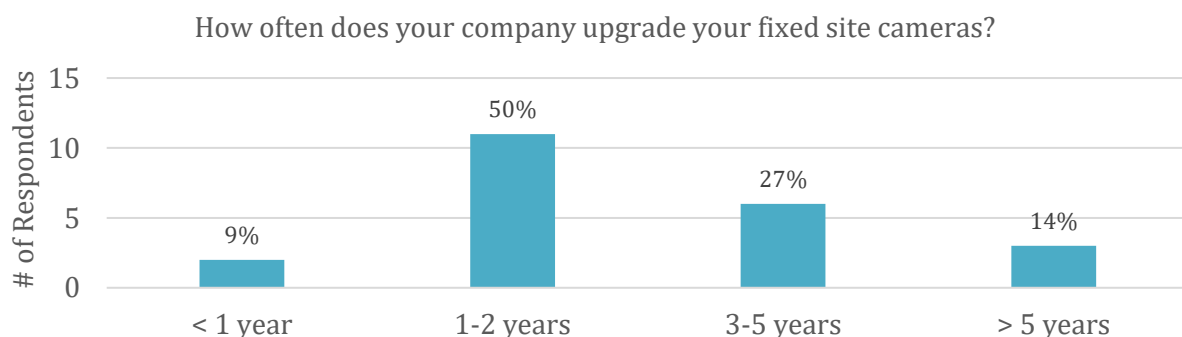
OxBlue, the most popular provider which is used by 40% of respondents, offers turn-key solutions for deploying fixed site cameras which have been available for many years. EarthCam and a number of other vendors below provide similar solutions. It was interesting to see Nest listed in several results as it suggests that some consumer grade cameras are providing good enough quality and durability for usage on construction projects.



Ease of use, durability, and image quality were all rated as important factors when making purchasing or rental decisions, with very little difference in their weighted averages.

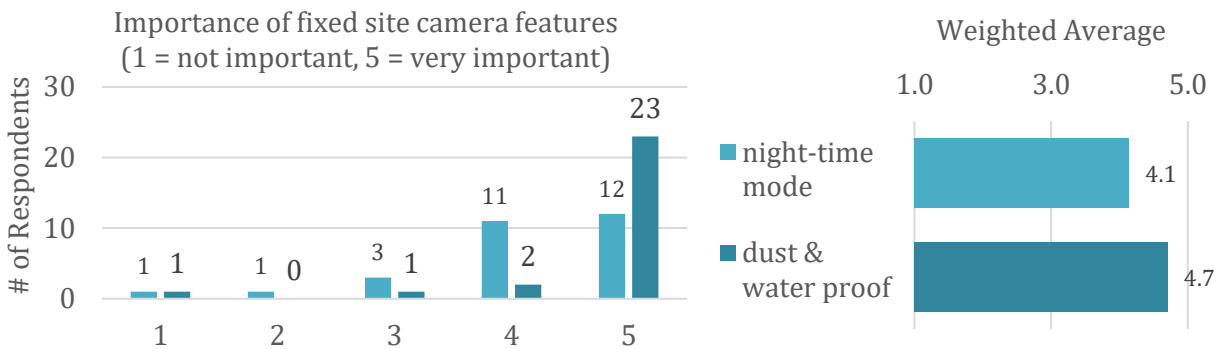


50% of respondents reported upgrading their cameras in 1 to 2 years, and greater than ¾ upgrade between 1 and 5 years. It makes sense that this corresponds with typical project durations since these cameras tend to be mounted once and taken down when the job is over.

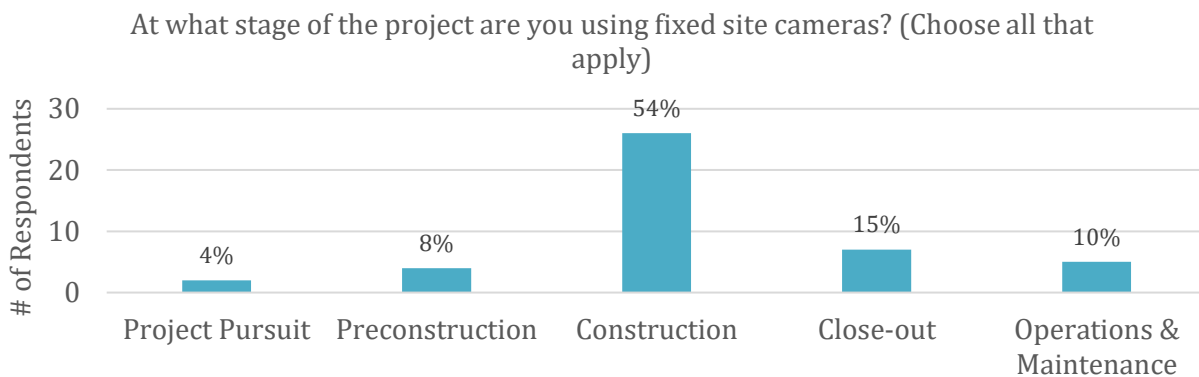


# INTERPRETATION

Having the latest equipment is only considered “moderately important” to success with a weighted average just above a neutral response of 3.2. However, it was clear that both a decent night-time mode and, most importantly, the camera being dust and water proof are critical features for consideration and remain areas of improvement for equipment vendors.

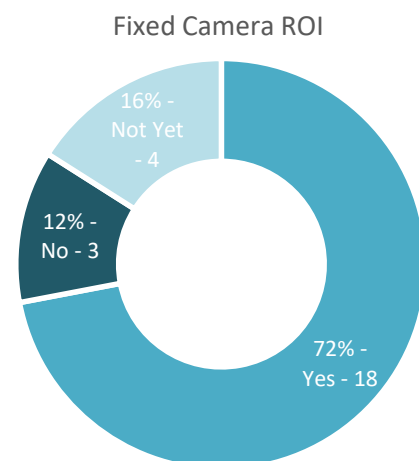


It is not surprising that fixed site cameras are being used primarily during the construction phase of projects. Construction progress is clearly the most popular use case for these devices, though it is interesting to see close-out and operations & maintenance at the 2<sup>nd</sup> and 3<sup>rd</sup> spots.



Most respondents (72%) report the benefits of fixed site cameras do justify the cost, with 12% saying they do not.

Fixed site cameras offer us a glimpse into a very different established market where a substantial part of the market is served through HaaS (Hardware as a Service) business models. While we are unlikely to see this model take over the other hardware categories we surveyed in the near future; HaaS is taking root in the UAV space and will likely gain popularity in stationary and mobile scanning over time. This makes site cameras an interesting point of comparison as we look forward.

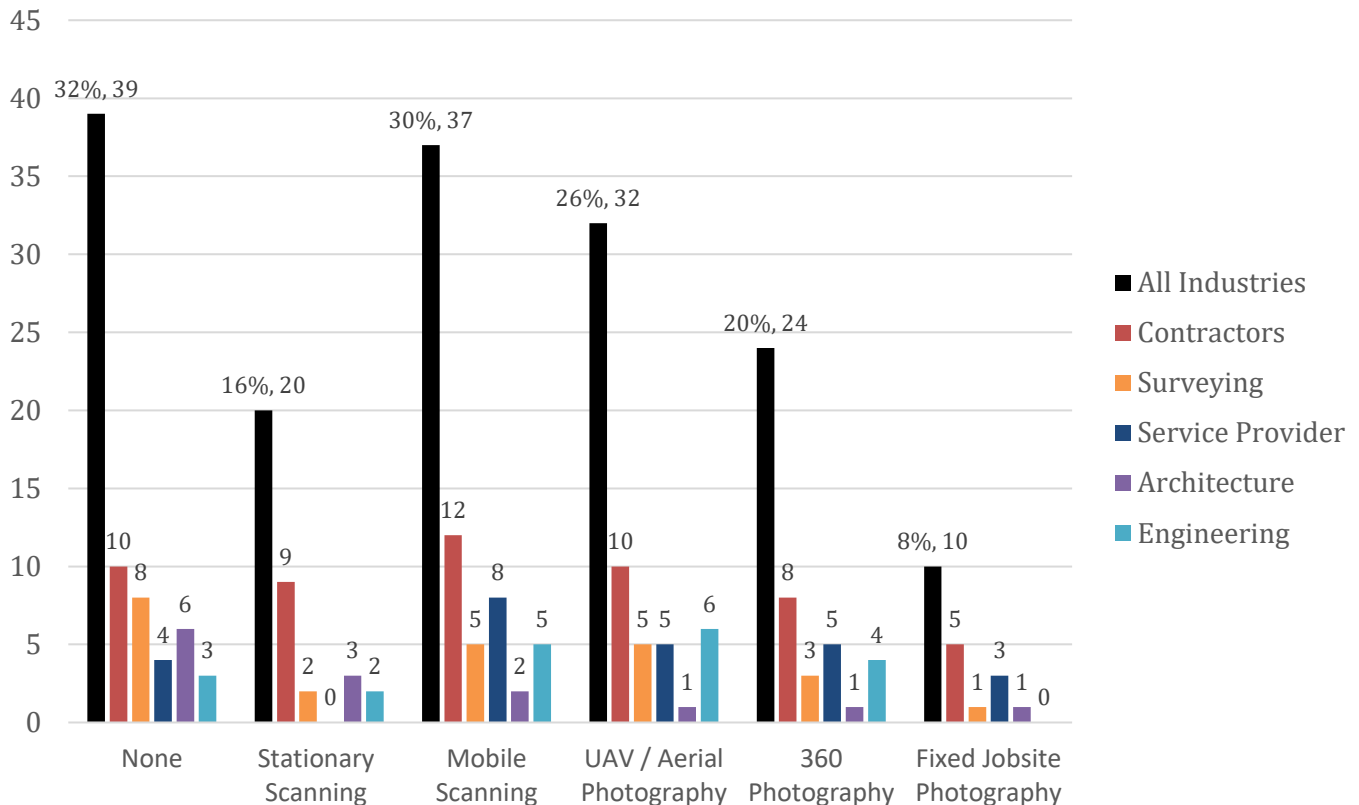


# CONCLUSION

## CONCLUSION

The last set of questions we asked our respondents were focused on their business lines as they relate to building documentation services. The most interesting data from this section came from this question:

Which building documentation services do you plan to add to your offerings in the next year? (choose all that apply)



Looking forward to next year, 26% of the remaining respondents intend to add mobile scanning services to their portfolio, with 22% planning to add UAVs and 17% planning to add 360 photography services. Stationary laser scanning and fixed jobsite photography are the most well-established of the 5 service types and look to see the least growth amongst survey respondents. Looking at each industry, we see these high-level trends are generally evenly distributed amongst each type of user; with the exception of construction which, even amongst our reality-capture focused group of respondents, points to a significant number of companies entering the market with in-house scanning services. While it is hard to project this data to the broader industry, it is interesting to see how this stacks up within our data sample.

This year's hardware survey provides a significantly deeper insight into the hardware our industry is using to meet project demands for building documentation than prior surveys. This gives us a wealth of information to digest and to share. This report looks at the overall trends and selectively dives into differences between the various professions that responded in sufficient numbers to look at individually.

# CONCLUSION

Everyone who took the time to complete the survey will receive this report, and we encourage you to look at the data and start a conversation through social media about what you see in these results. Our social media handles and contact information is on the last page, and we'd love to discuss our findings with everyone. That is ultimately the purpose of these surveys, to get people talking about where the industry has been and thinking about where it is going.

However, there is a lot more we can glean from the data ourselves, some of which we'll be sharing at upcoming conferences and through other venues throughout the year. And, of course, membership has its privileges, so for those of you who are USIBD members or sponsors, the raw anonymous data can be requested from USIBD directly. If you're curious to see what you can find in our data but aren't currently a member or sponsor, then head on over to our website ([usibd.org](https://usibd.org)) and sign up so you can get a hold of it for yourself!

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