U.S. Institute of Building Documentation
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CORNERSTONE™ REPORT

CSR010 – SOFTWARE

This report is intended to review the Building Documentation Industry's opinion of the current state of software and support available on the market.

TABLE OF CONTENTS

Table of Contents

INTRODUCTION

Presidents Message

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

First, I would like to thank everyone who participated in this survey. Your participation resulted in this survey having received the highest response rate since its inception back in 2013. This gives further evidence of a desire 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 might be interested and benefit. 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 revealed some exciting trends in the adoption of Building Documentation technologies. You will learn whether the current software offering is meeting the needs of the industry. In addition, you will find answers to questions asking whether we are satisfied with the current state of interoperability of software, and who among us is really qualified to operate the software. Respondents also indicated their preference for the value of both software maintenance and the big question of whether to “rent” or “own.”

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

John M. Russo, AIA
President, USIBD

Interpretation of Data

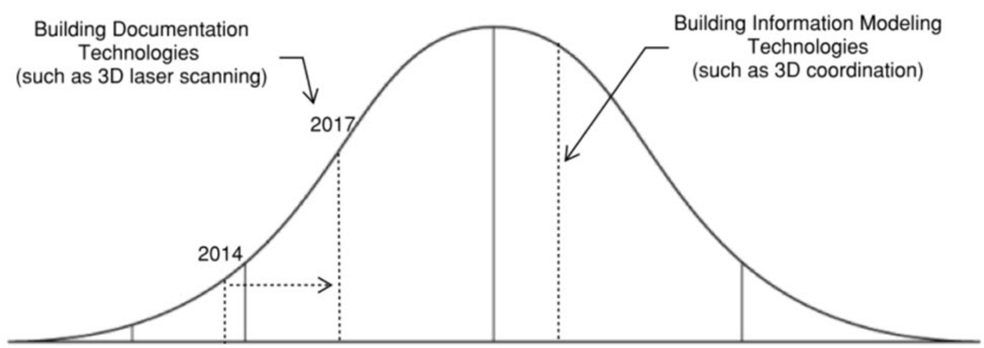
This report will include an analysis of responses to the survey with brief discussions regarding trends based on similar questions presented 3 years prior in 2014.

Readers should consider the length of time between the last Cornerstone Report on Technology as well as the increase in contractor engagement in producing this report. An equal number of general contractors and service providers have participated in this survey. In contrast, the majority of respondents in 2014 had been service providers.

We should also note building documentation technologies (both software and hardware) have gained significant adoption over the past few years. This adoption can be represented in the "Technology Adoption Curve" which describes the speed of adoption and the transition from "Innovators" and "Early Adopter" to the majority and "Laggards". The results of this survey generally seem to indicate the current position of building documentation technologies on the curve as nearing the "early majority phase". If this holds true, we should expect to see a continued increase of the use of documentation tech over the next few years. No doubt an exciting time in the building documentation industry!

The Technology Adoption Curve

As captured by Everett Rogers in his book Diffusion of Innovations*, people tend to adopt new technologies at varying rates. Their relative speed of adoption can be plotted as a normal distribution, with the primary differentiator being individuals' psychological disposition to new ideas.*



Innovators
(2.5%) are risk takers who have the resources and desire to try new things, even if they fail.

Early Adopters
(13.5%) are selective about which technologies they start using. They are considered the "one to check in with" for new information and reduce others' uncertainty about a new technology by adopting it.

Early Majority
(34%) take their time before adopting a new idea. They are willing to embrace a new technology as long as they understand how it fits with their lives.

Late Majority
(34%) adopt in reaction to peer pressure, emerging norms, or economic necessity. Most of the uncertainty around an idea must be resolved before they adopt.

Laggards
(16%) are traditional and make decisions based on past experience. They are often economically unable to take risks on new ideas.

source: smartideastore.com

INTERPRETATION OF DATA

1. IS SOFTWARE MEETING THE NEEDS OF THE BUILDING DOCUMENTATION INDUSTRY?

Half of all respondents indicate software is "*somewhat*" meeting current needs (50%) while many others say that, "*yes*", current needs are being met (42%). A minority of those surveyed report software is insufficient at meeting their needs (6.4%).

The response is a significant departure from 2014, when the number of companies which indicated current software did not meet their needs was nearly 22%, over 3X as many as today. It appears this shift is due to a combination of the following:

- Software and hardware providers now offer solutions which are stable and simplified enough to be leveraged by building documentation professionals

- Features are being built by software providers which cater to vertical building documentation rather than horizontal construction and surveying applications, indicating a prioritization on buildings.

- Users are becoming more aware of available solutions

2. ARE WE SATISFIED WITH CURRENT INTEROPERABILITY OF SOFTWARE?

Most respondents (56%) indicate they are somewhat satisfied with software interoperability, with over a quarter (27%) not happy. 15% of respondents indicate current interoperability is sufficient to meet their needs.

This is a significant improvement from 2014, when most respondents (48%) were completely dissatisfied with current software interoperability and only 3% indicating that they were happy. **It seems software manufacturers recent focus on interoperability has made a positive impact**.
Efforts by the ASTM E57 Committee on the development of an open and interoperable point cloud format (.E57), as well as efforts by software manufacturers to support the export and import of such formats, has helped to increase interoperability in building documentation data.

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Additionally, the introduction of API's (Application Program Interface) has allowed for the ability to create customized solutions on top of existing "core" software which enhance software interoperability and dataflow to minimize the number of steps from field to deliverable. There is, however, still some room for improvement, as not all software providers provide an API to enable interoperability of their data.

INTERPRETATION OF DATA

3. ARE THERE ADEQUATE TRAINING RESOURCES TO PRODUCE QUALIFIED OPERATORS?

Up to a quarter of respondents (24%) are satisfied with the state of available training, while the majority (52%) are "*somewhat*" satisfied. Approximately 1/5 (21%) are still not satisfied with available training.

The trend from 2014 indicates positive improvements on the availability of training resources. We believe that there are numerous factors at play here:

- There seems to be a direct correlation with the increase in availability and popularity of online video platforms, such as YouTube, in recent years and the tendency of enterprises to leverage the availability of online training resources.

- The highly technical nature of most building documentation software especially benefits from step-by-step video tutorials on how to manipulate data and create deliverables, as opposed to traditional PDF or printed manuals.

4. ARE WE IMPLEMENTING COMMON STANDARDS WHEN DOCUMENTING BUILDINGS?

The leading response has been "*somewhat*" (48%), with over 1/3 (35%) feeling that common standards are insufficient, and only 15% indicating "*yes*".

In contrast with the 2014 survey, many more respondents had indicated "*no*" (56%), which indicates common standards for building documentation, such as the Level of Accuracy (LOA) specification, have been gaining some traction since 2014. The LOA represents a standard for the development of digital models or drawings from any building documentation technology used to capture measurement data (ranging from high-end 3D laser scanners to measuring tapes).

5. ARE YOUR DOCUMENTATION NEEDS MET WITH A SINGLE PLATFORM?

It's apparent by the results we're not meeting all our needs with a single software platform (only 4% are making that claim). So how many are we using?
Most of us (68%) report to be using 2-4 different platforms to accomplish our deliverable goal. What's also interesting is we're using platforms from up to 3 different manufacturers or developers.

INTERPRETATION OF DATA

The trend compared to 2014 has remained largely the same, which tells us that building documentation professionals prefer to leverage the "best tool for the job" and **no single software platform solves all the needs in building documentation**.

6. ARE WE CONVINCED THE PRICE IS RIGHT?

When asked if the "software pricing structure is in line with our expectations" we could all agree on one thing: *nothing is cheaper than we expected it to be!*

Everyone was split relatively evenly between "*in line with expectations*" and "*higher than expected*". Several commented that pricing is in-line with their expectations due to historical purchases but they **don't feel that the value derived is a true reflection of the asking price**. There have not been significant changes in this response from 2014.

7. WOULD YOU LIKE TO ADD THE MAINTENANCE PACKAGE?

Most of us do and find value in obtaining maintenance packages. 35% see value every time and 45% recognize the value on occasion. The type of value is very different though; some see the value for access to the latest product upgrades at a discounted price, others want to ensure they are compatible with their clients. Several expressed concerns the support function leaves something to be desired and the price structure for renewals is steep and out of line.

Compared to 2014, there is a slight trend towards users being *dissatisfied* with the value offered in software updates that justify paying for a maintenance package.

8. WHAT'S THE RATIO OF SOFTWARE OPERATOR TO LICENSES?

The results are mixed, but close to half (48%) report to have a ratio of either 2:1 or 3:1 (2 or 3 software licenses for every Software Operator), which represents a slight inefficiency from an equipment utilization standpoint. A full 27% of respondents have a ratio of at least 5:1!

The trend indicates that the number of programs a software operator must leverage is increasing. This means that an operator must overcome steeper learning curves to become effective in creating building documentation deliverables.

9. ARE OUR CLIENTS EQUIPPED TO RECEIVE FULL VALUE OF DELIVERABLES?

When asked if our clients own the appropriate software to receive full value from the deliverable, the most common response was "*on occasion*" at 60%. The rest had been relatively evenly split between "*yes*" (20%) and "*no*" (19%).

This is a significant improvement from 2014, when only 8.3% of respondents indicated that their clients were equipped to benefit from their deliverables.

10. ARE OUR CLIENTS PROPERLY TRAINED?

Sometimes, but it seems the responsibility of empowering the clients with "know-how" is being accepted by the industry. Many respondents recognized a general lack of client knowledge but confirmed they go out of their way to provide a training resource to help bridge the gap.

11. DO FREE/LOW COST VIEWERS WORK FOR OUR CLIENTS?

The industry is leaning toward "*yes*" when asked if the free viewer provide adequate function for clients. 85% respond that the free viewers work regularly or on occasion. However, there is still room for improvement by the software industry, as there are still 24% of respondents identify a lack of availability of such solutions.

Offline deliverables such as Leica Trueview or Faro Webshare, as well as more generic 3D models and PDFs/images are sufficient for clients to view data provided by building documentation professionals.

12. ARE WE SATISFIED WITH PROVIDED SOFTWARE SUPPORT?

The majority of responses (68%) state service is in-line with needs, but it's quickly noted that this is drastically different depending on the manufacturer/developer (according to comments). 26% don't feel support is being provided in an acceptable manner, and very few (4.8%) responded that support exceeded expectations.

The trend from 2014 is very similar, so no changes/trends have been observed. Overall, software manufacturers in the building documentation industry have been doing a good job, and it can be expected as an essential part of the software sales process.

13. ARE MANUFACTURES PROVIDING HIGH LEVEL EXPERTS TO ADDRESS ISSUES?

Similar to responses regarding support satisfaction, opinions vary dramatically between manufacturers. Most of the response were positive, with 62% satisfied with the technical expertise. There is a substantial chunk of users (30%) who are disappointed in the technical level of support and commonly attribute it to lack of applied "nitty gritty" knowledge. The results are very similar to the responses from 2014.

INTERPRETATION OF DATA

It is often a prerequisite for high performing and innovative building documentation teams to be able to troubleshoot and find an "on demand solution" to project-specific deliverables required by clients. Due to this tendency, it is no surprise the expertise (or even features) needed to support a new workflow is relatively lacking. Which is not a problem specific to building documentation.

It should also be noted building documentation professionals who acquire such knowledge through experimentation intend to keep the knowledge as a competitive advantage, and may view sharing against their best interest in an ever-increasing competitive landscape.

14. WHERE DO WE TURN FOR HELP?

The result of the survey shows the typical first stop to be independent online forums (53%). One top example is the Laser Scanning Forum. However, comments reveal a major source of help is peers and competitors. ***Less than 20% go to the manufacturer first.*** The trend from 2014 reveals that more and more people are relying on the forums than the manufacturers themselves.

15. ARE THERE QUALIFIED APPLICANTS TO FILL OPEN POSITIONS?

The majority (54%) don't feel that the available workforce can provide immediate value to the team. Some feel like the workforce has some basic skills that help translate into specific functions. Many convey the need for sufficient internal training to develop the skill required and others simply look at the competition for employees! No one felt that there was a properly prepared workforce. The trend is very similar to 2014.

16. WHICH GENERATIONS FILLS THE RANKS OF SOFTWARE OPERATORS?

Two major generations are staffing these roles, 40% of respondents state the typical age to be in the 20's and 42% have a workforce in their 30's. The trend from 2014 indicates that the typical age of these software operators is trending toward the younger generation. This may be more indicative of the AEC industry rather than building documentation alone.

17. ARE WE BEING ASKED FOR META DATA?

Out of those surveyed, 80% have never been asked or are only asked occasionally. Even with this infrequent behavior, respondents are surprised at how often it is happening and recognize a growing interest in this capability. Most who commented state that this responsibility is being pushed to the trades or third-party vendors due to the specific expertise that is often required. This trend has not changed significantly since 2014.

INTERPRETATION OF DATA

18. WHAT'S OUR AWARENESS OF RESOURCES AND STANDARDS FOR INFORMATION EXCHANGE?

Respondents are confident in the general knowledge of available resources with 86% reporting to have at least some awareness of what's available. There is a slight increase in number of "*yes*" responses compared to 2014.

19. IS THERE A PREFERENCE TO OWN OR RENT SOFTWARE?

The clear majority of respondents (69%) prefer to "own" software (i.e. permanent licensing with optional maintenance), as opposed to rent software on an as-needed basis (28%). This is indicative of users who purchase the software seeing building documentation as a permanent part of their business and their intent to perform services and provide deliverables themselves. It is perceived as generally more cost effective to own the software and use it more often.

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