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Role-Based Training Optimization A/B Testing Micro-Learning Vs. Traditional BIM-VDC Onboarding for Field Adoption - A Conceptual Framework

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Abstract

Over the last decade, many construction management organizations and the subcontractors have spent time buying different kinds of software that will streamline the process and communication using technology. A few of these common platforms include Autodesk Forma (previously Autodesk Construction Cloud), Revizto, Dronedeploy, and a bunch of adjacent platforms. While this software offers a great set of solutions, they do come with a requirement of having a human capability to use it, understand it, and then train it further. Every time a researcher has delivered a training to the project team there has been one lesson understanding that the same set of trainings and tools for the same software cannot be delivered to a large domain of audience that has personnel from different scope within the business, like the architects or the designers, field superintendents, project managers, QAQC personnel etc., across active job sites. This way of delivery may give initial boost to the usage of software but the observation shows that there has been decline in the use of right tool after two weeks of training where people go back to the physical drawings standard phone pictures (that are dated) and the text communication to resolve the issue. The technology was never the issue but the way it was implemented made the difference in the efficiency of trainings.

Building on lessons from on-field training and notes captured during these sessions, this paper focuses on two major arguments. First, utilizing the actual job site examples across five different construction personas which will define and demonstrate how the Autodesk Forma, Drone deploy and Revizto implementation can create a value-based ecosystem for tech stacks depending on who is using them and how are they utilizing it. Second, it gives the parameters for the evaluation by proposing and specifying an experimental framework - A/B test comparing micro learning modules, simulating the actual job site condition in some cases and having a traditional office-led onboarding to move the data from just being in the "lessons learned" silo to a good implementation strategy that is not just a generic training agenda but turns training session into a successful outcome. This is based on the author's observations and on-field training recommendations. The paper does not give the results from any of the actual experimental micro-learning performed but provides different methods in which it could be implemented.

Keywords: Construction Technology Adoption; Digital Workflows; Persona-Based Training; Microlearning Framework; A/B Testing; Software Implementation Strategy.

1. Introduction

The launch of any typical construction technology usually begins with a pragmatic approach, clear results and optimistic assumption and the industrial saying that follows it "if the software is good enough people will use it". In reality though, the actual implementation and adoption practice for the software will act more as a change management agent (AECbytes, 2025). The softwares like Autodesk Formas, DroneDeploy, and Revizto are very well established in the market and have shown their capabilities on multiple occasions in their respective domains very well, and the various general contracting firms have consistently associated the data and the workflow from these softwares as one of the meaningfully proven technologies that have reduced rework and improved the cross-stream collaboration efficiency (Revizto., 2025).

But at the same time, the same publisher of the article that mentioned the probabilities and surge in the efficiencies of these platforms documents clear gap between the actual purchase of the product and the skill set achieved by the individual as well as the software to provide the desired outcome. A McKinsey- cited analysis mentioned that around 70% of the construction technologies that have failed the adoption are not just because of their technical limitations or the difficulty to understand or use but it goes back to the cultural resistance of the industry in general. A PRISMA based review of the adoption of the BIM -VDC workflows shows that the barriers and the sluggish development in the industry have been consistent for a decade and further states that training and education, along with the resistance to change, unclear or inconsistent business value are the most prominent among the few most cited obstacles to adopt (Independent researchers, 2024)

2. Background and Problem Statement

The construction technology software adoption is typically measured at the license level (Aibinu & Venkatesh, 2014); meaning how many users have actually logged in or have an activated license rather than at the behavioral level or individual metric. For example, it would be difficult to measure whether a superintendent actually resolves a Revizto issue in the field instead of writing it on a physical drawing that an individual carries along, or if the project management team is actually looking at the forms for daily reports submitted through the Autodesk forma to validate their pay applications and provide the data of accurate material and equipment tracking (Badawi, et al., 2025). The license activation is more of initial metric that would provide data of how many people are really interested to use or start using the product whereas the behavioral change could be defined more from how consistently those individuals stay active on that platform and that change is real target which is more of training design problem and not the software utilization or configuration issue (Vendome, Bavota, Di Penta, Linares-Vásquez, German, & Poshyvanyk, 2017).

The BIM-VDC manager role itself has been evolving regardless if the individual is deployed on a project versus if it it's just working remote (Gustafsson, Gluch, Gunnemark, Heinke, & Engström, 2015). The role now is not just limited to being just a model management or a 3D simulation person but this name now also involves the operational leadership as a digital delivery person who not just understands the standards and modeling which are deeply technically (Davies, Wilkinson, & McMeel, 2017). Elaborative skills but furthermore also give an adoption curve of the entire technology stack across multiple silos of the project depending on the needs of individuals or subgroups amongst different set of project teams.

Some of the structural problems that keep recurring across the projects and even different companies I have trained are:

- "Autodesk forma Standard Training" - Typically a standardized Autodesk forma (previously ACC) training template is being utilized to train all the people in the room which includes project engineers, document controllers', QA/QC team, superintendents or sometimes the safety team as well. These are very distinct roles when considered individually with little bit of overlap in responsibilities but still have distinctive workflow within their own capacities (Tayeh, Bademosi, & Issa, 2019).
- "Field Condition Mismatch" - Most of the time, when the field engineers or superintendents are trained, they're trained in the office environment where the conditions are not the same as the actual field where the superintendents use gloves, use a mobile device like a tablet or a phone rather than a laptop and work in a condition with a different internet speed (Lekan, Aigbavboa, Babatunde, Olabosipo, & Christiana, 2022).
- "Measurement metrics" - The effectiveness of the training for a tool like dronedeploy or Autodesk forma is not easy to track in terms of the "standard parameters" and the outcomes that the team has provided at the best. We can track the number of people who attended the training but the post-training efficiency of the team and how many of them actually used certain tool to develop their own process is hard to measure (Arthur, Bennett, Edens, & Bell, 2003).

In the upcoming part of this paper, we will walk through the three areas of improvement that we initially discussed. First by showing the actual scenarios and using those real use cases to understand why role matters. Next, highlighting training format experiment which can be proposed directly for these use cases and then this can be concluded by backing the solution by metrics.

3. Software Landscape and Real-World Use Case by Disciplines

The three major platforms which is the Autodesk forma, Revizto and Dronedeploy do have use cases that might overlap each other but when thinking of all these types of software, individually, perform very different functions (TopBIMCompany, 2025). Autodesk Forma is the primary common data environment for storing all the information of project right from pre-construction to closeout and turnover which could include anything and everything from documents, submittals, RFIs, forms, issues etcetera (Anantatmula, 2008). Revizto is a real time coordination software where you combine all the models that you receive from different entities like the subcontractors or the design team and then act as a repository to provide the information required for the project site (Revizto, 2025). And the dronedeploy is a reality capture and progress verification platform which performs the capture of aerial 360° pictures and different kinds of reality capture on ground as well which provides the project team necessary information and keeps the time track of when and where this picture was captured (Bhonde, Zadeh, & Staub-French, 2026).

a. Design Team

Starting at the design phase from the architects it begins primarily with the Autodesk forma (previously known as ACC) as their common data environment where they can share the data amongst the team or some of them have BIM collaborate pro. The model

coordination tool under the Autodesk forma would allow them to upload the models that were created on Revit and exported as Navisworks file to have a easy way of collaboration process or under the design collaborate tool under ACC. Lately, with the growing influence of Revizto, some of the design teams have also started using it as a central model hub since it allows more flexibility for federated clash detection and tracking the issues or the clashes in the workspace as a general contractor trying to collaborate with the design team. In the first part of this resolution, the most important would be to train the design teams on how to have a proper process of uploading the model so that it's consumable for the general contractor (Changsalak & Tiansawat, 2022).

The important step would be to make sure that the design team does not omit any of the models that are part of the host model or are linked into those host models. It is generally a good practice to have the latest and greatest model along with the linked files with every addendum, even if the linked file has not undergone any change. The next thing to note is to make sure that the architects don't export their models with the versioning in the name of the file. The reason to ensure this is done correctly is because otherwise and make the consumption process on the contractor side smoother as now the 3D model's name is consistent and the version number is not part of the main file name and it will not change with every update. Therefore, the file can now be directly overwritten and will not need a local download and re-upload process, which might result in corrupting some of the links (Chaisaard, Seehatrai, Ngowtanasuwan, & Suraprasert, 2025). For Revizto, the training would include how to assign the issues, who to assign the issues and making sure the process is followed properly so that the superintendent on the site is aware of taking the action in correct manner and in the right sequence.

b. Field Team

When it comes to the field the usual observation is that the field people are the ones who execute it and are the absolute end users of all the information that we provide through these softwares. Their role in the industry demands critical way in completing the assignments in time and that makes it most challenging because then they have highest leverage over the information but also become the lowest tolerant audience. With the amount of pressure that they go under it is highly possible that they are just going to abandoned the use of any of the tools just buy one bad experience on job site if it costs them time and they won't take any hesitation on going back to the conventional radio or a physical paper workflow. For them, the training can only work if it is not only done in the office environment but also demonstrated in the actual field conditions with bright sunlight, safety gloves on, bad network connection and a mobile device (like an iPad) in hand (Taneja, et al., 2011).

c. PM teams

The project management team generally sits in the middle of the information flow, where they are the ones who act as the information seeker as well as transmitter. From one end they have to receive the information which could be either from the design team, the owner team or even their own BIM team. They act as a looping mechanism amongst multiple teams and therefore use of ACC, Revizto and DroneDeploy is very different for them compared to others. They need not be experts in all the software, but they cannot abandon any of these if implemented on a project. For example, project managers not only need to know how the workflow of an RFI is but also need to follow up if the RFI has passed the due date and they might have to do this not just with a follow up through transmittal sent via ACC but

a phone call reminder. Delay in the information from their end cannot become the cause of delaying the project schedule (Anantatmula, 2008).

d. Document Control Team

This team is the backbone of the entire setup of any common data environment used on the project. Focusing on the Autodesk forma, a document control team training will be completely different from any other persona because they act a lot in the background. It will be a lot more on the process, workflow setups and governance training first and then move on to the tool mechanism training second. One of the recurring issues that the industry has observed as the failure of document control team is primarily because they are expected to know every button in Autodesk forma but were never formally trained for it. From the part of establishing the folder structure to storing the documents, creating the RFI and submittal workflows, creating the project member permission matrix and nonetheless to establishing the point of contact with the owners or the design team to distribute the transmittals, it all falls under document control responsibility (Al Qady & Kandil, 2013).

e. QA/QC Team

Now when it comes to the quality team, the use case is completely different where the use of Revizto and DroneDeploy collaboratively is the most effective. In their case, there are different ways on Revizto where the punch list can be created and verified in the 3D model with the existing coordination scenario whereas DroneDeploy, at the same time, can be used to look at the visual reference of the picture from the same spot with a dated time check. All of these can be then linked to Autodesk forma so doing this can help the team verify different design intents like waterproofing, façade inspection, overhead sequencing and/or MEP rough-in (Delgado-Hernandez, Bampton, & Aspinwall, 2007). Under Autodesk forma, all these linked issues can be communicated and referenced to the existing RFIs or forms so that the project team is aware of what is holding up the process (Chaisaard, Seehatrai, Ngowtanasuwan, & Suraprasert, 2025).

The big lesson learned from the different set of personas using the exact same software is that the output of an individual will change just based on the efficiency and the ability to use the right tool in right way. So when we consider this parameter of success or failure, just our attitude to adapt and implement a process of change of training to an individual or the category of the individual based on their scope of work can make the project tech stack more credible.

4. The Case for Role Based, Differentiated Training

There was a pattern that was observed while providing a structure to this use cases which is the software or the platform that we used to deliver our projects could only provide its 100% efficiency if the personas were using the right tool in the right way and if the ability to use them was addressed properly during the training once the training addressed all the features and the workflows properly for individuals it was then up to the individuals on how much they can really leverage using the same process this was all based on the practical argument for having a role based training design and it essentially relies on 3 mechanisms:

4.1. Cognitive Load and Relevance

Just providing a high level overall training to the entire project team and having them sit through that screening while addressing the small portion of work which is relevant to different personas is not just minor inefficiency but it does actively degrades the retention time of the audience that you are presenting it to and reduces the relevance of material that you are using as a resource if this thing keeps continuing a lot during the training the presenter will lose its credibility eventually. Since attention spans are shorter and working memory can only hold a finite amount of information, irrelevant content will compete with the attendees' brains for the same cognitive resources as the content that matters (Chong, Wong, & Wang, 2014). The role-based training can alleviate this issue so that 100% of the session time is focused on the individual personas, making it relevant to the individual, and it maps to a decision where the learner will actually make a process update or efficiency in the use of the tool.

4.2. Workflow Alignment Reduces Time-to-Value

Showing the relation with the real-world scenarios to the adults who are being trained in the room makes the training and the tool more efficient. The field superintendents who usually work on site with their safety gloves on and the bright sun reflecting on their screens of the of their mobile devices, it becomes very important to stimulate the similar situation in the classroom while they are being taught (ABC Greater Tennessee, 2026). In such cases training the superintendents or the field engineers while they are on the job site makes it more relevant for them because now they can actually understand the use case and come up with the right questions while they are being taught there could be other issues with the network while they're on site which as a tutor you might also encounter but if that really happens you will be able to give a work around of providing a quick hotspot and not relying on these site Wi-Fi to get the latest and greatest information (Delgado-Hernandez, Bampton, & Aspinwall, 2007).

4.3. Differentiated Metrics of Success

For the different roles on the construction project, the efficient use of the right tool might have a different definition for individuals. For example, the success in Autodesk forma might mean something different to a document controller, where he/she might evaluate the efficiency by the zero (0) misfiled transmittals, whereas for a Superintendent, it might mean fewer paper RFIs so that information is easily accessible within a few clicks or it is readily available in the same location as he/she is habitual of looking at. On the other hand, for a project manager it could be to have an accurate dashboard reporting which captures the information from all the connected tools. Having a single success metric for the single training program without actually masking the underperformance in one persona behind over performance in the other is not really justifiable and unfair scenario to evaluate. In the context of efficiency, differentiated training is required as it also enables different ways of measurement, which will be part of the upcoming section that discusses the metrics.

Concluding to the scenario, when considered in whole perspective, these three mechanisms help in predicting if the training strategy which is bifurcated by different roles on the project, and the efficiency of those tools dedicated to those personas working condition can outperform a high-level overall strategy at every step of adoption metric. The upcoming section will discuss the scenario in proper detail and provide some testable experiment that will justify the argument.

5. Research Design: A/B Testing Training Formats

Any construction decision has to be justified with a proper source of information or a proof that was obtained from a similar experience in the past the same philosophy would run for a role-based training, where having a good understanding of how this idea could work will make it more credible then just blindly believing in the concept (Castagnino, Rothballer, & Gerbert, 2016). This decision will also further influence the other decisions of the project that could include anything from what the different staffing models are that can be utilized, which vendors can be leveraged, and what changes can be made in the budget. This section will focus on how a single large project, a program of projects, or even the idea of rolling out the same experimental design for the company will compare the three training formats based on personas. Furthermore, it dives a little into how we can create a measurable impact on adopting this behavior.

5.1 Training Formats Under Test

a. **Micro-learning Modules -** This will involve a very specific use of individual tool that will be focused only on individual persona. There can be a pre-recorded video that you can put forward focused on the project or use the existing video from the website of the software that explains the tool exactly the way we want. The other way could be to have an interactive lesson via tablet, phone or an iPad. The idea here is to have a focus on a on individual tool like using a section cut tool on iPad instead of having a training on entire module.

b. **Jobsite simulation training -** Having an actual hands-on session with preferably active job site conditions using the same level of network connectivity, actual device, and lighting that the end user is going to encounter when he or she walks out on the construction project site. For instance, creating a punch list workflow all the way from the design team initiating it while walking the project site, the general contractor team reviewing it and assigning it to the right subcontractor, and then the subcontractor resolving the issue.

c. **Traditional office-led sessions** - This is the conventional way of delivering the walkthrough of the tools within each of the software. Most of the time it is delivered to a mixed audience. It provides a high-level idea of what the software or an individual tool can be capable of or how it can be utilized more efficiently. This format of delivery typically involves having the standard slide deck, and the tutor will walk through the prepared slides.

The last format discussed is mostly dominated in the industry because it's easier, convenient and broader for the tutor in terms of approach but that does not necessarily define that it is more efficient then the first two approaches. It just makes it easy for tutor to reach the wider range of audience and keep the agenda generic so that more audience is invited and encouraged to join.

5.2 Experimental Structure

The cleaner way of having it streamlined would be to have a persona matched training rather than having an entire company wide split since the five different personas that were mentioned in the Section 3 individually have different kinds of roles, disciplines, scope of work and expectations from the project team. On a further note of complication, there could

be more division within these personas, especially for a larger project. The document control team might have further division on how they handle the packages received from the design team and which individual from the document control team is assigned to finish this task whereas there could be someone else doing the set up for RFI and submittal on Autodesk forma. Similarly, in the project management team, there could be categorization of the project managers based on their discipline. So, the project manager handling the MEP scope of work might have more relevance on software like Revizto, whereas a site utility project manager might find it more crucial to get trained on Dronedeploy.

The next chronological action this paper will uncover is how to set up an experimental workflow to identify the way a role-based training can help improve the adoption of the tool and result in higher efficiency. In this process, we can divide the set of people based on their disciplines into a group of 15 to 20 individuals. This number should be fairly good since it's not big enough where we are involving the entire company nationwide but also not small enough to give the irrelevant or baseless data. At the same time any given construction project that is above a certain threshold amount will have a large project team which can be used to test this out.

When backing this data with the timeline, 90 days threshold is a good number because usually after three months of the training day, the users start to reduce their reliability and go back to the conventional ways of doing things. The right usage of any tool within these softwares cannot just be justified on how much the adoption came within the first few days after the training but what was the retention of people using these softwares and the right tools in a process and the workflow that was established during the training. A typical decay of going back to the conventional way of doing things has been observed anywhere between three (3) to eight (8) weeks of adoption (Taneja, et al., 2011).

5.3 Controlling for Confounds

The other 3 factors that will affect the adoption of a construction technology on the project and their efficiency of implementation will also be governed by the following:

- **Project team's experience:** There would be certain people on the project who have used either of the technologies like Autodesk forma or Revizto in a past project, so they might be slightly more aware and comfortable with the use of those tools, while there could be another set of people who are more comfortable with tools like DroneDeploy. So, while grouping these people, we should be mindful that the division is fair and also takes into account the previous experience.
- **Complexity and pace of the project:** Some construction projects could be more complicated and schedule driven than the others. For example, a lot of data center projects come with very close calling deadlines compared to the real estate project where the schedule might be slightly flexible depending on the budget and the owners release of funds. In such scenarios the project team might be occupied by other tasks leaving the narrow window for adoption. Since they are under pressure of schedule the team might not be available to spend as much time to learn a new tool. During the cohort division of personas for training, it is also important to consider workload and the project phase.
- **Trainer's ability:** A lot of times trainer's personal relations with the team, knowledge about the tool and ability to share the knowledge also drives how effectively the team is going to receive the information. In certain cases, there could be a trainer who is expert

in using Revizto but is not as well-versed using Autodesk forma. So, there could be multiple individuals with expertise in different tools. This also drives the results of the training.

6. Metrics Framework and Measurement Logic

All the metrics that are listed in the table are selected because they were able to identify certain changes in the behavior of individuals rather than just having opinions of the quality of the training. Moreover, there are also satisfaction surveys but those are only included as secondary signal that justify what the paper is trying to explain rather than being a primary measure of the outcome.

6.1. Primary Metrics

The table 1 below lists out all the criteria and then further justifies what metrics were used to explain the criteria, what was the source of information for those metrics, and how those criteria are related for our research.

Table 1: Primary Metrics for Role-based training

Criteria	Metric	Source of info	Relevance
Tool Usage Rate	% of expected actions (RFIs, issues, daily logs) logged in-platform vs. off-platform (email, paper, text)	ACC / Revizto activity logs vs. project communications audit (through email, texting, or offline means or the official communication platforms of the project team.	It uses the actual adoption rate directly, and it is not governed by attendance.
Issue / Markup Quality	Completeness of an issue: the data input (location tag, assignee, priority, comments) for the issue.	Revizto issue export, as a detailed PDF with comments. Autodesk Forma Issue export.	Distinguishes surface-level usage to a level where it could be competent for the workflow.
Cycle Time	Timeline of resolving the RFI/stamp/issue from the date of creation to resolution	ACC / Revizto timestamps and activity logs.	It directly impacts the project schedule and the cost.
Time-to-Competency	Number of issues logged in the platform for a certain threshold after the day of training. E.g.: 90% of the issues were logged in the Revizto	Revizto activity logs, cohort-tracked from training date	Measures the speed of adoption and not just initial usage
90-Day Retention	Usage rate at day 90 as a % of peak usage rate in the first two weeks	Autodesk Forma activity logs, Revizto user data dashboard.	This will help identify if the team is going back to the conventional workflow or if the platform is able to retain the users

6.2 Secondary / Diagnostic Metrics

Similar to the primary metrics, the table 2 also defines the criteria for the secondary metrics and lists out the sources and the relevance of those criteria. The reason this is termed as secondary metric is because it may not be the preliminary criteria of bringing in the result of the research that we are expecting. But it can act as a helping hand to supplement the initial judgement.

Table 2: Secondary Metrics for Role-based training]

Criteria	Metric	Source	Relevance
Training NPS / confidence self-rating	Training participants were more confident of using the software.	Feedback survey	This provides a quick, initial sense of the training's relevance and helps clarify the user's requirements.
Support ticket volume	IT tickets or peer-support requests per learner in the first 30 days	User interactions and engagement	Shows the user's early engagement and interest in learning, but it is not a direct metric.
Escalation / rework avoided	Tracking and documenting the instances where the platform or the user team identified some issues beforehand and resolved them before they went into the field.	Case-by-case over the issues tool.	This connects the training relevance that resulted in saving the cost and time of explaining the direct ROI.

7. Organizational and ROI Implications

The primary focus of this paper is to identify the relevance of training for the field adoption. When that actually happens, it doesn't mean it will justify the cost or the financial framework of utilizing the BIM and coordination software but the actual ROI depends on how much of that workflow is welcomed by the field team. While a few organizations do realize these metrics, most of them are still left to chance on understanding this thin line between effective adoption of these softwares on the field and the justifiable return on the technology investment. Some of the other research papers and the company data have been reporting positive ROI from BIM-enabled workflows and have significantly shown the difference on the project in terms of cost and schedule when the software's are used versus when they are not utilized. Such sources of information have helped address a small portion of adoption and openness issues and have positively impacted the industry.

A lot of organizations try to implement overall trainings for Autodesk Forma, Revizto and Dronedeploy and it includes the implementation of their licenses and helping the team

understand how the process works while they are already buried in the cost of subscriptions, the further added cost of these tools will cost the project (Changsalak & Tiansawat, 2022). The framework proposed in the previous section of this paper about having a persona-based training with proper curriculum and using just those specific formats improves the overall implementation based on the individual and helps track the relevance of the software tool not just based on impact on the cost or schedule to the project but also by giving the organization an idea about which employee is skilled in which software up to what level. Furthermore, this metric can also be utilized to understand which specific technology could be relevant on certain projects because not necessarily all these softwares will be feasible by all the projects at all the times (Gustafsson, Gluch, Gunnemark, Heinke, & Engström, 2015).

The idea of having persona-based training helps the organization rephrase the definition of training budget from just being a compliance line item where they discuss about having a kick off session just to train entire project team but also has a very well documented and measured process with its own ROI calculation which does not negate what the construction industry already has based on the cost avoidance logic for prefabrication investments or safety initiatives (CIC Construction Group, 2025). Moreover, these kinds of formats also focus on the individual's relevance and respect the time and efficiency. A document controller will not be sitting and learning in a training about the workflow usage for a superintendent and trying to get a generic understanding, but rather have its own specific expertise within using that tool that can not only now be performed by him/her but can also be used to support the field or the project team as and when necessary (Arthur, Bennett, Edens, & Bell, 2003).

8. Limitations and Future research.

Although this research paper extensively covers all the aspects of how and what should be considered in the role-based training, it does come with its own set of challenges and drawbacks of the parameters that needs to be considered. Firstly, the framework and data consideration in Section 3 come from the actual field condition experienced by the researchers, but they are just observations in an ideal condition and not part of a careful controlled experiment. This is where the Section 5 about testing these ideas properly with the actual data comes into place and based on this paper we can verify if it's true. Secondly, as far as the construction industry goes it could vary a lot between project to project and depending on the size of the project it can become very hard to run a specific experiment on an ongoing construction project because this usually comes with time constraints and the readiness of personas to try out something new. So instead of assigning this processed loud we focus on changing only one step at a time and that is completely acceptable as long as we understand how that comparison parameter between two different projects fits in (Independent researchers, 2024).

Thirdly, the success of the project or the failure of the project cannot solely be dependent only on the trainings provided to the individuals or the tools used to coordinate the project but it can involve multiple factors. A bad weather could ruin the concrete pour, the delay in the design changes can delay the overall critical path or the quality provided by the subcontractor can determine how much rework could be required for this project. So, all these numbers can also become helpful cues and therefore the results obtained from the training data can be used as a basis for certain projects but may not be implemented in a literal manner. Next, in this form of training delivery, both the audience and the content are changed together, so it could become difficult to figure out which one exactly is making a bigger

difference in the future. The same training style can be used as it is but only changing the training content can help us figure out which one between the two of these styles is actually the key differentiator. Also, the software, project teams requirements and its usage can keep changing based on the individual as well as phase of the project. For example, clash review tool of Revizto could be utilized a lot more during the coordination process as compared to the 3D model utilization on the field during the actual construction. In the similar manner, the use of new tools or updates within the software could help benefit the team more and it requires a constant reconfiguration. Lastly, the training is an important responsibility of the BIM-VDC teams to make sure that the project team is understanding and implementing the tools in the right way. But as a BIM coordinator, who has other responsibilities including (but not limited to*)* the BIM coordination, communicating the clashes, slab penetration coordination, the RCP coordination etc. and therefore setting up time aside to create these persona-based trainings is a commitment that individual or the BIM-VDC team has to undertake.

9. Conclusion

Revizto, Dronedeploy and Autodesk forma have been in the industry for a while now (with slight changes in their brand names) and they have proven their worth evidently from time to time across multiple regions, organizations and projects. The bigger factor here is not if these platforms are actually filling any gap and providing a solution but it's if the tools are being utilized properly by the project team. The role of organization becomes bigger in this case based on how they are implementing the strategies of having these softwares utilized by the end users. Within any project teams the owners, the subcontractors, the design team, the QA-QC team, the field team, the document control team and the project management, each extract a different value based on their requirements from the same baseline software. The softwares are designed to respect each other's workflows under different working conditions and the metric of success changes for individual category of people based on what value they can add by the use of right tool and process improvement.

The way of teaching and training the project team that was proposed in this paper, referred as the A/B testing framework, compares the individual learning modules based on the scope and discipline of the work performed on the construction project site, actual field conditions simulating the network issues, extreme weather conditions and operating with gloves on the mobile devices. As a measurement parameter, it utilizes the 90 days retention time of the individual on the software, the quality of the issue that includes completeness of the information, tool usage rate, cycle time, and it's time-to-competency that gives the construction technology leaders an evidence-based way to replicate the answer to the question which is usually just left on intuition and not data. It gives the proof and a data backed decision making power on which training investment actually changes behavior for which role, by how much and on which job site conditions. The more this practice is followed the more industry leaders realized that a larger share of ROI is being documented in the broader "Digital Delivery" literature which is not just because of the software tool and its capabilities but also because the people or the end user is well equipped to use it.

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