

Assessing Autodesk Forma: Streamlining AEC Document Management for Triple A Contractors in Metro Manila

CHARLES JAKE V. BANNAWAGAN¹, PAUL MICHAEL GUNTALILIB²

^{1, 2} Open University System, Polytechnic University of the Philippines- Manila Campus, Philippines

Abstract- The rapid digital transformation in the Architecture, Engineering, and Construction (AEC) industry has necessitated the adoption of robust Common Data Environments (CDE) to manage the vast complexities of project documentation. This study assesses the efficacy of Autodesk Forma as a primary document management tool for Triple A construction firms in the Philippines. As these top-tier contractors handle large-scale, high-value projects, the need for a "single source of truth" is paramount to prevent data silos and costly on-site reworks. Using a descriptive-analytical research design, the study evaluates the performance of ACC across four critical dimensions: version control, interdisciplinary accessibility, real-time collaboration, and data security. Data were gathered through structured interviews and surveys from project managers, BIM coordinators, and site engineers within selected Triple A firms. Preliminary findings indicate that the implementation of ACC significantly reduces information latency and document-related errors compared to traditional server-based or fragmented cloud storage methods. However, challenges such as high licensing costs and the steep learning curve for field personnel remain significant barriers to full optimization. The study concludes that while ACC streamlines AEC workflows, its success is highly dependent on standardized digital protocols. A proposed implementation framework is provided to assist Triple A contractors in maximizing the return on investment for cloud-based document management system.

I. INTRODUCTION

The AEC industry is transitioning from traditional document-based project management toward digital information management through Building Information Modeling (BIM). Large-scale projects increasingly require a centralized source of information to prevent miscommunication, data duplication, and costly project delays.

In Metro Manila, Triple A contractors handle highly complex infrastructure and building projects that require efficient coordination among architects, engineers, BIM specialists, contractors, and site

personnel. Existing systems such as email-based workflows, shared drives, and communication platforms often create fragmented information environments, resulting in data silos and version conflicts. These inefficiencies contribute to project delays, rework, and financial losses.

The study investigated whether Autodesk Forma can serve as a BIM-native Common Data Environment capable of improving document management through centralized information sharing, workflow automation, and real-time collaboration.

II. METHODOLOGY

This study employed a descriptive-evaluative research design to assess the effectiveness of Autodesk Forma in streamlining document management among Triple A construction contractors in Metro Manila. The descriptive aspect focused on identifying existing document management challenges, such as data silos, communication gaps, workflow inefficiencies, and version control conflicts, while the evaluative aspect examined how Autodesk Forma addresses these issues through its Common Data Environment (CDE), workflow automation, real-time collaboration, and information governance features. The study was grounded in Information Management Theory and Integrated Project Delivery (IPD) principles, which emphasize centralized information systems, collaborative workflows, and structured project coordination.

The respondents consisted of 100 professionals from Triple A construction firms in Metro Manila, including project managers, BIM coordinators, site engineers, architects, document controllers, and consultants. A simple random sampling technique was used to ensure that all qualified professionals within the accessible population had an equal opportunity to participate in the study. Metro Manila was selected as

the research locale because of its high concentration of infrastructure and vertical development projects, the presence of major design and construction firms, and the complex coordination requirements between office-based and site-based teams.

Data were collected through a structured questionnaire developed according to the study's objectives and theoretical framework. The instrument measured respondents' perceptions regarding existing document management practices, Autodesk Forma's BIM integration capabilities, document management efficiency, readiness for adoption, and implementation barriers. Responses were assessed using a five-point Likert scale, ranging from Strongly Disagree to Strongly Agree and from Not Effective to Highly Effective. The questionnaire was divided into sections covering respondent profiles, current document management issues, Autodesk Forma features, and project performance outcomes.

To analyze the data, the study utilized several statistical tools, including frequency distribution, percentage, weighted mean, standard deviation, correlation analysis, regression analysis, ANOVA, and t-test. These techniques were used to evaluate the severity of existing document management problems, determine the effectiveness of Autodesk Forma's BIM-native features, compare its performance with other platforms such as Microsoft Teams, Procore, and Oracle Aconex, assess professional readiness for adoption, and identify the major barriers to implementation. All analyses were based on a consistent dataset of 100 respondents to ensure the reliability, validity, and comparability of the study's findings.

III. RESULTS AND DISCUSSION

The findings of the study revealed that existing document management systems used by Triple A contractors in Metro Manila continue to experience significant operational limitations, particularly in the areas of data silos, version control conflicts, delayed transmission of drawings, and the use of superseded documents. Among these issues, data silos were identified as the most critical problem, indicating that project information remains fragmented across departments and platforms. These limitations

contribute to information latency, poor coordination, and reduced decision-making efficiency, confirming that fragmented document management practices remain a major challenge in construction project delivery.

The study further found that Autodesk Forma is highly effective in improving BIM integration and document management processes. Respondents gave the platform high ratings across all evaluated features, with the highest score assigned to its ability to provide a Single Source of Truth (SSOT), followed by automated version control, real-time synchronization, and model coordination. These findings suggest that Autodesk Forma enables stakeholders to access centralized and updated project information, significantly reducing errors caused by outdated documents and improving collaboration among project teams. The results also indicate that the platform enhances information flow and coordination by ensuring that project updates are immediately reflected across all users within the system.

When compared with other document management platforms, Autodesk Forma emerged as the highest-performing system. The comparative analysis showed that Microsoft Teams was the least effective due to its general-purpose nature and lack of BIM-specific functionalities, while Procore and Oracle Aconex demonstrated moderate to high effectiveness but were limited by integration and workflow constraints. Autodesk Forma received the highest effectiveness rating because of its BIM-native architecture, seamless integration with the Autodesk ecosystem, automated workflows, and centralized information management capabilities. Statistical analysis through ANOVA confirmed that the differences among the platforms were significant, demonstrating that Autodesk Forma outperformed the other systems in terms of document management effectiveness and project coordination.

The results also showed that construction professionals generally exhibit a high level of readiness to adopt Autodesk Forma and similar BIM-native Common Data Environment platforms. Respondents strongly recognized the need for standardized document management processes and believed that the platform's interface and workflows were adaptable to their organizational needs. This

suggests that industry professionals are receptive to digital transformation initiatives and understand the importance of centralized information management for improving project performance. However, readiness alone does not guarantee successful implementation, as several organizational and infrastructure-related barriers remain present.

Finally, the study identified the major barriers to Autodesk Forma adoption. High licensing and implementation costs emerged as the most significant obstacle, followed by inadequate training support and poor internet connectivity. Resistance to change was identified as the least significant barrier, indicating that professionals are generally willing to embrace new technologies when adequate resources and support are available. These findings suggest that the primary challenges to adoption are structural rather than behavioral, emphasizing the need for strategic investments, training programs, and infrastructure improvements to maximize the benefits of BIM-native document management systems. Overall, the results demonstrate that Autodesk Forma is a highly effective solution for streamlining document management among Triple A contractors, provided that organizations address the financial, technical, and capacity-building requirements necessary for successful implementation.

IV. CONCLUSION

The study concluded that document management among Triple A contractors in Metro Manila continues to be hindered by fragmented workflows, data silos, version control conflicts, and information latency, which negatively affect project coordination and overall efficiency. The findings demonstrated that Autodesk Forma effectively addresses these challenges through its BIM-native Common Data Environment, providing a centralized Single Source of Truth, automated version control, real-time synchronization, and improved model coordination. Comparative analysis further confirmed that Autodesk Forma significantly outperforms other commonly used platforms such as Microsoft Teams, Procore, and Oracle Aconex in terms of document management effectiveness and BIM integration. The study also established that AEC professionals are generally ready and willing to adopt BIM-native platforms; however,

implementation remains constrained by high costs, insufficient training, and connectivity limitations. Overall, the research concludes that Autodesk Forma is a highly effective solution for streamlining document management and enhancing project delivery among Triple A contractors, provided that organizations support its adoption through proper investment, training, infrastructure development, and standardized digital governance practices aligned with ISO 19650 principles.

V. REFERENCES

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