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# The Effects of BIM Maturity Level on the 4D Simulation Performance: An Empirical Study

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*ABSTRACT*

Building information modeling (BIM) has attracted considerable interest in the area of 4D simulation. The performance and benefits of the 4D simulation can be affected by different factors, such as the organizational integration of the teams involved in the project and the models' content, which is recognized as the maturity level of BIM. Despite the various advantages of implementing 4D BIM and the significance of obtaining the full potential of 4D simulation, there is a scant number of researches that have considered this issue. Thus, this study aims not only to assess the relationship between the performance of 4D simulation and different maturity levels but also to clarify the required Level of Development (LOD) and maturity level in BIM application to synchronize the BIM implementation process with its expected benefits. For this purpose, the differences in gained benefits of implementing 4D BIM in various projects, which had different BIM maturity levels, were examined. The results showed that promoting the integration of the BIM implementation process, considering suitable LOD for modeling, and clarifying the expectation from different parts of a project lead to an enhancement in the performance of BIM 4D simulation.

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**NOMENCLATURE**

| | | | |
|---|---|---|---|
| AIA | American Institute of Architecture | LOD | Level of development |
| AEC | Architecture, engineering, and construction | MEP | Mechanical, electrical, and plumbing |
| BIM | Building information modeling | NBIMS | The National BIM Standard |
| ISPS | Integrated Site Planning System | PMO | Project management office |

## 1. INTRODUCTION

Nowadays, one of the main goals of every country is obtaining faster growth compared to others. Adopting new technologies and the need for modernization play a significant role in achieving this objective [1]. For instance, the advent of science and technology parks, which intend to develop new techniques, skills, methods, and processes used for producing goods or services or the accomplishment of objectives, provides a mechanism for sustainable development [2]. In this regard, researchers have been trying to reduce the negative impact of new technologies and improve their capabilities [3]. For example, different studies aimed to decrease global environmental problems by offering new suggestions [4-6]. Building information modeling (BIM) as a relatively new technology in the construction industry can play a crucial role in industry development.

Before discussing any aspects of building information modeling, it is necessary to establish a clear definition of the term. Since BIM has drawn the interest of researchers in recent years, they have also attempted to define their terms that have led to a proliferation of definitions for BIM in the literature [7]. It is most frequently perceived as a tool for visualizing and coordinating architecture, engineering, and construction (AEC) tasks to avoid errors and omissions while improving the productivity, schedule, safety, cost, and quality of construction

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projects [8]. The National BIM Standard (NBIMS) presented the most common definition that conforms with the aims of this study. It defines BIM as "a digital representation of physical and functional characteristics of a facility. As such, it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle from inception onward. The BIM is a shared digital representation founded on open standards for interoperability" [9]. In recent years, the use of BIM among the AEC industry for visualization has shifted from vision to realization. Moreover, according to the different levels of understanding of a construction project that a BIM model can provide, various dimensions are described. BIM technology has evolved from a basic 3D model to a more sophisticated 4D, 5D, 6D, and 7D. Every dimension has its specific purpose and usage in a project.

One of the fundamental concepts in BIM is maturity level, which is commonly defined as the quality, repeatability, and degree of excellence within a BIM capability. Differences in BIM maturity level can be distinguished by factors such as level of development (LOD), integration through the project's organization, economic purposes, and BIM implementation procedures [10]. Therefore, a literature review has been undertaken to collect available information about the benefits of 4D BIM and BIM maturity levels to form a holistic view of 4D modeling and its expected advantages, to identify the characteristics of different maturity levels, and to explore the level of development as a significant factor in modeling for visualization.

## 1. 1. Benefits Expected from BIM 4D Simulation

4D modeling refers to the linking of individual elements of 3D models or assemblies to the time or schedule for allowing the project team to coordinate stages of work [11]. Benjaoran and Bhokha proposed a structured method to develop 4D models. According to the method, 4D modeling starts with collecting the design information and transferring it into 3D models. Assigning different characteristic colors to groups of elements or categorizing them while undergoing the 3D modeling process not only makes it possible to identify the components quicker [12] but also facilitates the modification process of elements attributes [13]. As an instance of such grouping, different BIM software provides the possibility of placing elements in a selection set. Afterward, the previously prepared construction schedules can be integrated with the model using BIM tools to run the analysis. Based on the literature review, different research papers published within the last decade have studied the benefits of 4D BIM. Table 1 illustrates these advantages, which have been categorized into six groups.

A) 4D simulation can be used as a tool for revealing time-based risks [14, 15]. It plays a fundamental role in analyzing what, when, why, and where safety measures are needed for preventing accidents [16]. Integrated safety management systems for projects during the construction phase include 4D models to automate hazard identification processes by linking models to risk data. This process would make it possible to visualize the risks of each activity [17-19].

**TABLE 1.** Benefits of 4D simulation in BIM

| # | 4D simulation benefits | References |
|---|---|---|
| A | Increasing project safety | [16-19] |
| B | Enhancing project site analysis and project monitoring | [20-23] |
| C | Improving integration of project schedule | [24-28] |
| D | Reducing change orders in construction phase | [11, 29, 30] |
| E | Reducing time due to the decrease in clashes and reworks | [11, 13, 28] |
| F | Improving coordination and contribution among different project stakeholders | [11, 27, 28, 31, 32] |

B) A project's site analysis and monitoring can be enhanced by using 4D models. A 4D Integrated Site Planning System (4D-ISPS) allows for better control of the construction phase by integrating progress measurements with existing 4D models [20, 23]. Using technologies such as Laser Scanner can improve the controlling process by providing 3D as-built models that can be compared with 4D models [21]. Visualizing the performance metrics has also been used for representing progress deviations by superimposing 4D as-planned models over time-lapsed photographs [22].

C) 4D simulation improves the integration of the project schedule when the integrated database is used as an information resource to support improved planning of project activities. Furthermore, the capability to implement upgraded approaches, such as resource flow, during a project's progress boosted this process [24, 25]. Exploring various construction strategies to meet delivery dates, and to assure stakeholders about the achievability and accuracy of a schedule has enhanced the reliability of the constructability review process [26, 28].

D) The virtual execution of a project led the decision-makers to address construction-phase problems during the planning phase. Reducing change orders in the construction phase can unquestionably be counted as one of the benefits of 4D models [18].

E) Time-based clash detection has a significant role in verifying the planned construction sequences to confirm that activities can occur without creating conflicts [11].

F) 4D BIM modeling has also been used as a tool for improving the efficiency of decision-making meetings. Visualization techniques can allow for better coordination among the project planners. Moreover, clarifying the activities for project teams may cause a better understanding of the expectations and would make the schedule more reliable [11].

**1. 2. BIM Maturity Levels** BIM maturity levels have been established to define BIM capabilities clearly in the AEC industry. These refer to quality, repeatability, and degree of excellence within a BIM capability [32]. BIM maturity levels (depicted in Figure 1) are classified into five categories: (a) Initial, (b) Defined, (c) Managed, (d) Integrated and (e) Optimized.

Each maturity level is defined concerning the content of models, procedure and strategies, integration among different parts of a project, and purposes of BIM implementation [29]:

- **Maturity Level A (Initial)**: At this level, the lack or absence of an overall strategy and shortage of defined processes for BIM implementation is tangible. BIM software tools are applied without sufficient prior investigations and preparations. BIM adoption looks like separated islands through the project, and some individuals distinctively try to use the BIM tools in part of their activities. This process suffers from the lack of active and consistent support of middle and senior management. A low rate of collaboration is the main characteristic of this level. Hence, BIM implementation typically occurs with little or no pre-defined process guides or standards [29].
- **Maturity Level B (Defined)**: At this level, senior managers are familiar with BIM implementation. The processes and policies have been established to utilize BIM tools. Basic BIM guidelines are available, including training manuals, workflow guides, and BIM delivery standards. Training requirements are well-defined and typically provided only when needed. Collaboration between different parts of the project increases based on mutual relationships following process guides and standards [29].
- **Maturity Level C (Managed)**: The aims and processes of BIM implementation are understood by most staff at this level. Moreover, a monitoring system and a detailed action plan are being devised. Business opportunities arising from BIM are acknowledged and used in marketing efforts. Modeling, 2D representation, quantification, specifications, and analytical properties of 3D models are managed through detailed standards and quality plans. BIM managers are hired to collaborate the responsibilities based on temporary project alliances or longer-term partnerships [29].
- **Maturity Level D (Integrated)**: BIM implementation requirements and processes are integrated between different parts of a project through pre-defined channels at this level. Economic purposes of implementation are adopted with the activities of all staff involved in the project, from managers to lower-level team members. Software choice follows the main objectives of the projects, not just operational requirements. Documentation of gained experiences and knowledge is carried out systematically, making it easy to access and retrieve [29].

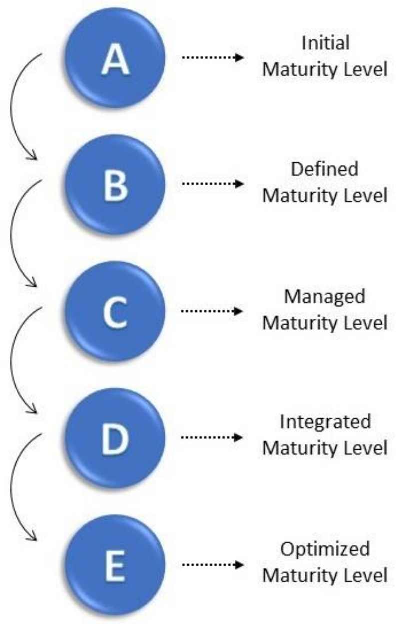


**Figure 1.** BIM Maturity Levels [27]

- **Maturity Level E (Optimized)**: BIM implementation at this level is pervasive among project stakeholders, as their strategies and processes are continuously monitored and revised to best match with each other. BIM software tools used in the project can change if needed to meet strategic benchmarks. Contractual models are also modified to achieve the highest value for all stakeholders [33].

**1. 3. Level of Development** The concept of level of development specifies the graphical representation and the information that a model must contain for its use at each phase of the project's life cycle [34]. One of the most cited definitions in the literature is related to the American Institute of Architecture (AIA), which categorizes the LOD into five levels [35, 36]: LOD100 to LOD500. At the first level, LOD100, a project model has represented generally, and some sorts of analysis (e.g., cost per square meter and building orientation) can be carried out. The next level, LOD200, is more precise than LOD100, and its generic elements can approximately represent the orientation, location, shape, size, and quantities. This level can be used for the analysis of selected systems by application of generalized performance criteria, such as investigation of the effects of colors in architecture [37]. In the third level, LOD300, building elements are specific and non-graphical information can be added into the model, making it viable for use in documentation. The next level is LOD400, in which detailed elements can be useful for accurately representing processes such as fabrication, assembly, and installation. The last level, LOD500, is the most detailed level corresponding to a project's as-built model. Models at this level can be used for facility management and maintenance. Additionally, an intermediary level, LOD350, has been proposed between LOD300 and LOD400 to support different trades during construction by adding requirements on interfaces with other building systems [38]. LOD300 or LOD350 is sufficient for modeling during design phases unless some parts of the project deal with fabrication and assembly procedures. LOD grows during the design phase and reaches its peak during the construction phase [39]. The level of development at the design stage usually concentrates on geometrical issues, while at the construction phase, resources including equipment, materials, and labor are dominant.

The level of development is also related to the BIM maturity level, especially at the initiation of the project and contractual phases. Implementing BIM at higher maturity levels entails addressing more issues and more complicated details based on the differences in the responsibilities, relationships, collaboration level, and technologies at each level of maturity [40].

In conclusion, BIM maturity level has been clarified in different contexts, such as software platforms [41]; however, a lack of assessment of the consequences of implementing BIM at those levels was apparent in past studies. Moreover, although Dakhil and Alshawi explained BIM implementation benefits within each BIM maturity level, they neglected to quantify such implementation benefits within each maturity level [42]. Furthermore, researchers have been studying the visualization provided by BIM, but few studies have examined the distinction in the benefits gained from implementing 4D BIM simulation at different levels of maturity. Thus, this research aims to empirically measure survey data from two actual construction projects with different BIM maturity levels to investigate the expected benefits of implementing 4D simulation.

The remainder of the article is organized as follows. The research methodology is discussed in section 2. Section 3 defines the details of projects, which are considered for the case study. Section 4 demonstrates the results and discussion. In the end, some conclusions are presented in Section 5.

## 2. METHODOLOGY

In this study, the benefits of increasing from the initial maturity level to the integrated maturity level, and the effectiveness of BIM maturity level for profitable BIM implementation are investigated empirically. For this intention, the BIM maturity level of two construction projects is determined. Next, the collected data about the gained benefits within each case is discussed. Figure 2 shows the proposed methodology of this study. The above two steps are further elaborated below.

For the first step, the major measuring aspects of BIM maturity level were investigated by reviewing the literature. Then, the procedure of BIM implementation, coordination, and integration between different parts of the project, the financial aims of implementation, and its perception in project organization were surveyed in both projects to determine their maturity levels.

Next, a questionnaire was designed to assess the benefits of increasing from the initial maturity level to the integrated maturity level, and the effectiveness of BIM maturity level for profitable BIM implementation based on the information gathered from the literature. Then, the questionnaire was reviewed and improved according to the comments of a group of six BIM experts, including both BIM engineers and academic researchers. Four of the BIM experts worked on both projects and also had experience in the field of building information modeling. The two others were academic experts who worked on BIM and project scheduling as their field of study. The questionnaire was distributed among 36 BIM experts chosen from design engineers, engineers of project management office (PMO), and teams of Research and Development involved in both projects. The questionnaire was distributed through individual

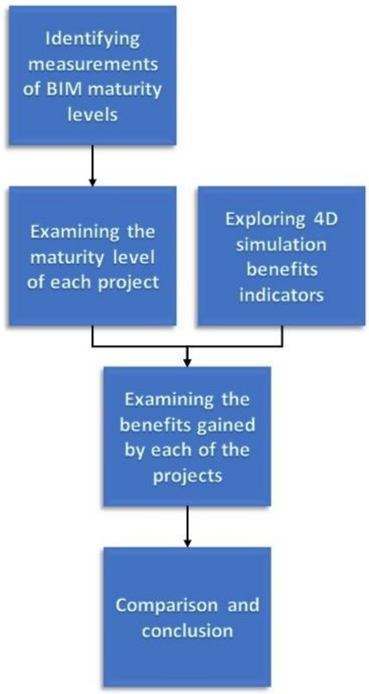


**Figure 2.** Flowchart of the proposed research methodology

interviews instead of sending via email, fax, or mailing them to clarify possible ambiguous questions for respondents. Ambiguities are one of the most dangerous elements of a survey that might affect the reliability and the usefulness of the results. In the survey, the following items were measured by reflective indicators with a five-point Likert scale (1= very low, 2= low, 3= medium, 4= high, 5= very high):

- improving integration of project schedule
- improving project site analysis and project monitoring
- increasing safety level in project
- reducing time-based clashes and reworks
- reducing change orders in construction phase
- enhancing coordination and contribution among different parts of the project

The reliability of the three questionnaires was measured by utilizing Cronbach's α coefficient, which is the most common measure of integral reliability when questions are asked on a Likert scale [43]. According to the definition of Cronbach's α coefficient, its normal range cannot be less than 0.0 and cannot be greater than +1.0. The reliability coefficients of 0.7 or higher are considered satisfactory, and the higher values reflect a higher degree of internal consistency.

## 3. CASE STUDIES

As mentioned, there are two construction projects in this study. The first case is a commercial building located in Tehran, named Atlas Mall. This project was the first of the company for BIM implementation. They utilized Autodesk products (e.g., Revit, Navisworks) to develop BIM models. The project details are as follows:

- Location of project: Tehran, Iran
- Number of floors: 19
- Total area: About 130,000 $m^2$
- Schedule: 48 months

The second project is a commercial-therapeutic building located in Kerman, named Atlas Clinic (Figure 3). The project details are as follows:

- Location of project: Kerman, Iran
- Number of floors: 11
- Total area: About 12,000 $m^2$
- Schedule: 48 months

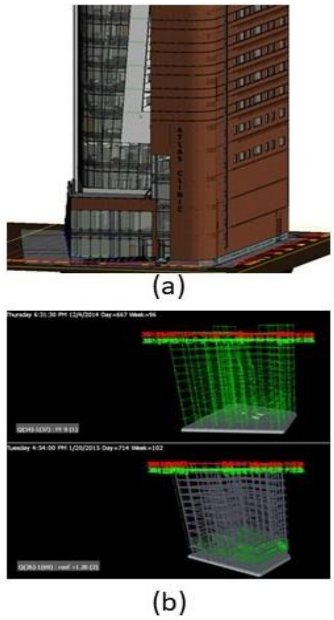

**Figure 3.** BIM model of Atlas Clinic project, a) 3D, b) 4D

## 4. RESULTS AND DISCUSSION

As mentioned, the survey was conducted among experts involved in two commercial construction projects undertaken by Iranian Atlas Company, a large-scale general contractor in Iran. All experts were familiar with the benefits and challenges of implementing 4D BIM in both projects. The calculated Cronbach's α coefficient of the questionnaires was 0.876, which means that the reliability of the questionnaires was assured. Atlas Mall was the first project that was investigated for determining its level of BIM maturity. Autodesk BIM software, such as Revit, was used to model the various disciplines of the project. As it was the first attempt of the company for BIM implementation and there was a lack of experience, no specified procedure was employed within the project. Additionally, there was inconsistent LOD for different disciplines due to a lack of integration among various parts of the project. For instance, no commercial advantage was gained from detailed architectural 3D modeling, in which interior furnishing was modeled completely. While the model of mechanical, electrical, and plumbing (MEP) was not developed in detail. Thus, BIM implementation was at the initial maturity level according to the available definition of the literature.

Atlas Clinic, the second project investigated for determining its BIM maturity level, was also modeled using Autodesk products. In contrary to Atlas Mall, BIM implementation procedures and standards were set systematically by senior managers. Additionally, a procedure was established to define the duties of each part of the project organization and determine their relations. For instance, a committee that includes structural, architectural, MEP designers, a project control manager, and a representative of the scheduling team was in charge of promoting the integration between different parts of the project. They aimed to select a suitable LOD for the model based on the project's phases and needs.

In the process of 3D modeling, the most time-consuming activity was developing an architectural model, and the wrong decision for LOD resulted in a large amount of time wasted on the first project. If the chosen LOD for the 3D model is higher than that required for scheduling, linking operations number and the length of time taken will increase. Moreover, the project schedule gains more details with the progress of the project. If any change is required in the 3D model or project scheduling, modifying the 4D simulation will be more difficult and time-consuming. Therefore, the joint committee played a significant role in better BIM implementation. The proposed LOD for the pre-construction phase was between LOD200 and LOD300, and the LOD for construction was developed from LOD100 to LOD400. One of the most significant issues noticed in the integration of design and project control sections was that LOD would not be the same for all the model's elements. For instance, in finding crane locations in the project site, LOD100 is adequate, and its increase does not impact the results.

Another challenging factor in the Atlas Clinic project was the process of matching the LOD of the 3D model to the required one for the project schedule in the 4D simulation. As the project schedule consisted of approximate activity sequences in the pre-construction phase, and it did not contain construction dates and project milestones. One of the experiences gained through this project was the preferability of providing a detailed schedule just before the construction phase. Consulting with the site manager can also be efficacious in optimizing the scheduling process. Moreover, the 4D modeler team devoted considerable effort to develop a project schedule that matches with the 3D models. Providing selection sets in 3D models and naming the elements helped reduce the amount of work necessary to link the model to the schedule. Furthermore, the anticipation of many problems and solving them before being encountered during project execution was the result of undertaking project simulation before on-site execution and caused considerable cost and time savings. The relation defined between the site and 4D modeling teams was improved by comments sent from the project's site through the BIM implementation process. Alternative solutions were assessed in 4D simulation to help managers choose the best option, such that 4D simulation played the role of decision support system. In conclusion, the Atlas Clinic project can be categorized at the fourth maturity level according to the literature. Table 2 shows a comparison of the two projects in regards to maturity criteria.

Considering the different criteria that are determinative of the BIM maturity level of a project, the maturity level of Atlas Mall and Atlas Clinic was initial and integrated, respectively. Figure 4 depicts the impacts of BIM maturity level on different benefits of BIM implementation. The chart is drawn based on the results of the questionnaire analysis. The positive effects of BIM maturity level on the advantages of BIM implementation can be concluded clearly.

**TABLE 2.** A comparison between Atlas Mall and Atlas Clinic projects

| Criteria | Atlas Mall | Atlas Clinic |
|---|---|---|
| BIM implementation process | No pre-defined process | BIM implementation procedure was defined concerning the integration and interaction between different parts of the project |
| Software selection | No strategy was defined for choosing software | The software was chosen based on the project's needs and the analysis required during project execution |
| Economic purposes of BIM implementation | No economic purpose | BIM models were used in the process of preselling |
| Systematic documentation | No BIM-based process | An internal system for communication, integration, and documentation was carried out |

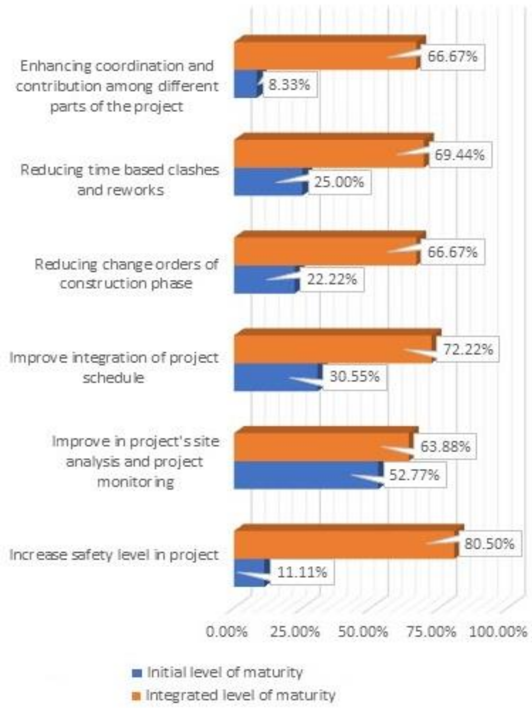


**Figure 4.** Effectiveness of BIM maturity level for advantageous BIM implementation

As shown in the chart, the 4D simulation of the Atlas Mall project had not gained the full potential of most of BIM 4D's benefits, including safety, schedule integration, change order reduction, decreased time-based clashes, and coordination improvement. However, it can be inferred that the first and most easily achieved benefit of 4D modeling is improving project site analysis and monitoring. This benefit stems from BIM’s visualization outputs provided by time-based modeling of the project. This capability allows for a visual comparison, even with low or inconsistent levels of detail among the elements, between a project’s real progress and what the managers expected to see. The media representing the discrepancies between planned and actual progress of the project (e.g., charts, graphs, and still photos) may not facilitate the communication of progress information clearly and quickly, which makes the process time-consuming and distracts decision-makers from the vital task of corrective decision making [44]. A series of conceptual visualization techniques have been recently developed to facilitate the communication of progress information and decision making on corrective actions. However, it should be considered that the increase in the effectiveness of 4D BIM in the project’s site analysis and monitoring was not dramatic by implementing BIM at a higher level of maturity.

The low maturity level of the Atlas Mall project caused many of the 4D modeling benefits to be marginalized, whereas Atlas Clinic had benefited remarkable advantages due to its increase in the level of maturity to the integrated stage. For instance, considering the results of time-based clash reduction and safety improvement can be concluded that in the Atlas Mall project time-based risk identification did not occur due to its initial maturity level. On the other hand, entering the high maturity level terms in the project execution process of Atlas Clinic improved BIM 4D utilization. One of the most significant applications of 4D models is discovering the time-based clashes. For instance, based on the experience of implementing BIM, simultaneous executions of a part of the roof and a lower floor’s shear wall was not possible. This fact’s clarification prevented unforeseen changes in the schedule during the construction phase. As shown in the result, the more detailed and integrated modeling process is, the more applicable the 4D models become.

In addition, the relationship between the number of BIM projects that each of the respondents experienced and their respective answers to the survey questions were analyzed. The results showed that former experience of working on BIM projects had a profound effect on respondents’ opinions. In other words, experts with three or more years of experience on BIM-based projects had a significantly higher evaluation of the benefits of 4D BIM simulation at the integrated level of maturity. Thus, it can be implied that highly experienced experts have a deeper insight into the potential of 4D BIM simulation. Figure 5 depicts the differences between the responses of experts considering their duration of BIM involvement experience.

Finally, this study results depict the positive impact of BIM maturity level on the 4D simulation, which is

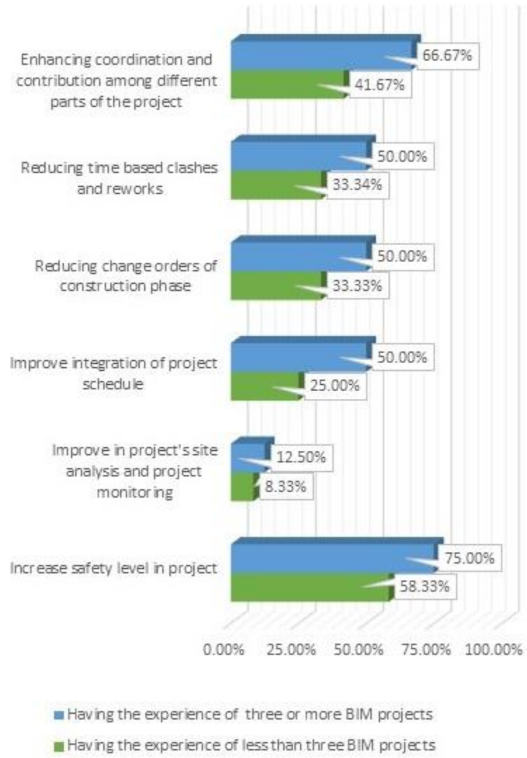


**Figure 5.** The effect of BIM experience on the experts' responses

consistent with existing literature. For instance, Smits et al. presented the maturity of the BIM implementation strategy as the only reliable predictor of time, cost, and quality performance [45]. In this study, other factors that would impact the project performance were examined, and their positive effects were shown. The other lesson following from this research was the significance of developing and observing specified standards and procedures for BIM implementation.

## 5. CONCLUSION

BIM, as a digital representation of physical and functional characteristics of a facility, has drawn exceptional attention from researchers and practitioners of the AEC industry. Among the vast area of BIM studies, 4D simulation is one of the prevalent issues that has been frequently investigated and implemented in many cases. Nonetheless, there is a lack of research that examines the relationship between the different factors, such as the BIM maturity level, and the potential benefits that can be gained from a 4D simulation of construction projects. The objective of this paper is to study the effects of BIM maturity level on the performance of the 4D simulation. For this purpose, two commercial construction projects, which were undertaken by the

Iranian Atlas Company, were selected as cases. Both projects have 4D BIM models, which were developed in different disciplines. The BIM maturity level and gained benefits of implementing the 4D simulation of each project were assessed to clarify whether there is a relationship between them.

BIM maturity level is illustrated the BIM capabilities in the AEC industry. The maturity level of projects' BIM models was investigated and determined, considering the criteria extracted from the literature. On the other hand, a questionnaire was distributed among 36 professionals engaged with both projects ask them to rate the achievability of various benefits expected from the 4D simulation. The results depict that enhancing the maturity from initial to integrated level has a profound effect on the achievement of expected benefits, such as increasing the safety level of a project, improving the integration of the project schedule, reducing change orders in the construction phase, improving coordination and contribution among different parts of projects and reducing time-based clashes and reworks. Moreover, it was notable that improving the project's site analysis and project monitoring is an advantage that can be obtained easily by implementing 4D BIM, regardless of considering inconsistent levels of detail in model elements, temporary facilities such as cranes or scaffolds, and an integrated procedure for BIM implementation. Additionally, the results showed that highly experienced experts have a deeper insight into the potential of 4D BIM simulation.

Future efforts will focus on extending the research scope to all stakeholders involved in construction projects and assessing all five levels of maturity by surveying on a higher number of projects.

## 6. ACKNOWLEDGEMENT

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## Persian Abstract


**چکیده**

ابعاد مختلف مدل‌سازی اطلاعات ساختمان و علی‌الخصوص شبیه‌سازی چهاربعدی پروژه در سالیان اخیر مورد توجه پژوهشگران مختلف قرار داشته‌است. اثرگذاری تفاوت‌های پیاده‌سازی مدل‌سازی اطلاعات ساختمان، که ذیل مبحث سطح بلوغ قرار می‌گیرد، می‌تواند کارکردهای مورد انتظار را تحت تأثیر قرار دهد. این تفاوت‌ها که از عوامل مختلفی از جمله یکپارچگی سازمان پیاده‌کننده و یا محتوای مدل، متأثر می‌باشد در پژوهش‌های انجام‌شده به طور کامل مورد توجه قرار نگرفته است. این پژوهش مزایای شبیه‌سازی چهاربعدی پیاده‌سازی‌شده در سطوح بلوغ متفاوت را مورد بررسی قرار داده است و با استفاده از تحلیل اطلاعات جمع‌آوری شده، سطح جزئیات و بلوغ مورد نیاز برای نیل به اهداف از پیش تعیین‌شده از پیاده‌سازی مدل اطلاعاتی ساختمان را تعیین می‌نماید. نتایج حاکی از این می‌باشد که یکپارچگی پیاده‌سازی مدل اطلاعاتی ساختمان در سازمان پروژه، درنظرگرفتن سطح جزئیات و شفاف‌سازی انتظارات بخش‌های مختلف سازمانی از پیاده سازی مدل اطلاعاتی ساختمان منجر به بهبود کارایی و اثربخشی پیاده‌سازی مدل اطلاعاتی ساختمان می‌شوند.