

# **An Exploration of the Notion of Improvisation within Project and Project Management**

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## **Abstract**

Urgency of accomplishing a certain task within any project is always considered as a common situation. Improvisation happens when the project manager must deal with unexpected situations within a specific schedule and limited data. This paper aims to present a review of how improvisation has been addressed through the literature within projects and project management perspectives and what are the factors that affect it. This review has been undertaken by defining project, project management, improvisation, and how it leads to project success. This has been considered by analyzing various studies related to improvisation. The paper will help the project managers to understand the concept of improvisation, how it is important to project, and the required factors to be considered to obtain successful project outcomes. It has been proved in this research that a project manager to be able to improvise successfully must have knowledge, experience, and being trained. This research will help project managers to understand how to improvise successfully by knowing the required skills to focus on to improve themselves. Moreover, this research suggested a model that includes factors to be evaluated based on their impact on successful improvisation. The suggested factors that could impact the project manager decision are experience, age, and training. At the end, a successful improvisation will result in successful project outcome when the project is within the schedule, budget, and meets the quality requirement. In addition, the introduced model and hypotheses can be evaluated on further study and more factors can be considered.

## **Keywords**

Factors, Knowledge, Project, Project Management, and Improvisation.

## **1. Introduction**

Knowledge is considered as an essential topic to be focused on. Bredillet (2007) found out that project management is considered as an important field of study within the area of knowledge. McInerney (2002) described knowledge as dynamic and power because it creates a change. In addition, knowledge is always varying based on gaining new experience and learning and because of that it is described as dynamic. On the other hand, Gupta et al. (2000) defined knowledge management as a combination of searching, organizing, choosing, and conveying information and experience that help the organization in dealing with issues, educating, and making decisions.

There are various reasons that lead to project failure such as the lack of knowledge and it is essential in project management. In addition, the role of the project manager is essential to help the organization to reach its desired goals and to improve its services and handling of different projects. It is important to understand the difference between project and project management. Project means achieving the objectives based on certain tasks and activities by using resources to deliver the project outcomes. On the other hand, project management is a process for controlling the achievement of the objectives. The final project outcomes can be either success or fail and this can be decided based

on the schedule, budget, and quality. Moreover, Faridi & El-sayegh (2006) mentioned that project success is affected by delay which will impact the schedule, budget, and quality. Successful project means meeting the objectives and deliver the project outcomes based on the planned schedule and budget (Toader et al., 2010). However, most of the projects faces unexpected events such as in construction project it could be delay in obtaining approvals, lack of resources, pandemic such as COVID-19, and changes in the approved design. Accordingly, the factors can be divided into two types which are factors that are out of control and the other type is the factors that occurs because of lack of management. Dealing with unexpected events or circumstances requires a good management which can be gained through training, experience, and most importantly knowledge and education. In this matter, this research will focus on improvisation which is one of the considered topics among different scholars. Improvisation occurs when the organization faces an unexpected task and must deal with the task by depending on limited resources (Cunha et al. 2002). In the unexpected task and situation, the role of project manager is essential because it would either lead to successful or failure of project.

Therefore, there are projects that faced problems leads to failure such as lack of knowledge in the field by project manager, exceeding the estimated budget and time of delivering the project, and not meeting the quality requirements. Most of these issues occur because of unexpected situation and task which requires immediate decision in order to complete the project smoothly. In general, most of the projects face that and it is common among different types of projects which in some cases lead to project failure. Accordingly, project manager will always focus on accomplishing the project within budget, schedule, and quality requirements. Moreover, there is a need to explore in the notation of improvisation within project and project management.

This study will focus on presenting the project and project management, followed by the notion of improvisation which depends on the knowledge and experience of project manager and how to deal with unexpected situation. The next section will cover the existence of improvisation within project. After that, obtained factors that affect improvisation from the literature will highlighted. At the end, a model of the improvisation decision flow within organization will be presented along with the factors obtained from the literature that could affect the decision. In addition, hypotheses related to the factors will be highlighted for further research. This research will focus on highlighting the factors that affect the decision and to understand what the project manager needs to improvise successfully.

## **1.1 Objectives**

The subject of this paper is to undertake a review of the academic literature on ‘improvisation’ within the context of project and project management. In addition, to explore and found out what are the factors that affect improvisation within project. This research will introduce a model of improvisation decision and hypotheses to be evaluated in further study.

## **2. Literature Review**

### **2.1 Project and Project Management**

It is important to understand the terms ‘Project’ and ‘Project Management’ and what is the conceptual difference between them. Soderlund (2004) elaborated in the two terms and mentioned that every project is a unique and limited that includes complex tasks and it can be on small or large level. While project management is considered as a way of solving issues and dealing with activities and it covers different field such as planning and engineering application. Moreover, Pitsis et al. (2014) mentioned that a project is initiated to meet a desired goal by providing service or product. Within any project there is always a chance for uncertainty and ambiguity to occur so the organization should be capable to deal with these challenges.

Munns and Bjeirmi (1996) elaborated in the role of project management and how it leads to project success. A project is the achievement of the desired objectives by utilizing resources, and it includes tasks and activities. While project management contains a process that controls the attainment of the objectives. In addition, project management is responsible for scope of work establishment, resource allocation, execution, progress monitoring, and adjustment of any deviation from the original plan. It is also defined as the delivery of product or service within time, cost, and performance criteria. In the stage of the outcome delivery the management occurs, and it is related to planning and outcome controls. On the other hand, project is related to established and selected tasks that will lead to reach the organization objectives. In addition, the overlap between project and project management was highlighted and it

happened because of time frame, confusion of objectives and ease of measurement. Figure 1 presents the project lifecycle phases which are:

1. Conception: building the idea of the project.
2. Planning: process to obtain the original idea.
3. Production: transferring plans to reality.
4. Handover: handing over the accomplished project.
5. Utilization: using the project by the client.
6. Closedown: dismantling the project.

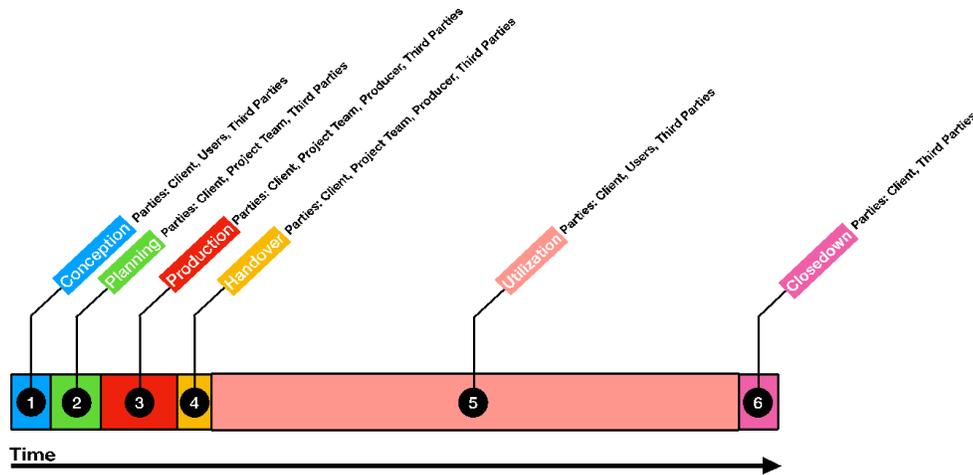


Figure 1. Project Lifecycle Phases (Adapted from Munns and Bjeirmi, 1996)

Figure 1 above also represents the occurrence of client, users, project team, producer, and third parties within the phases. In addition to that, Figure 2 below shows that the scope of project management success occurs in planning, production, and handover while project success occurs in all phases.

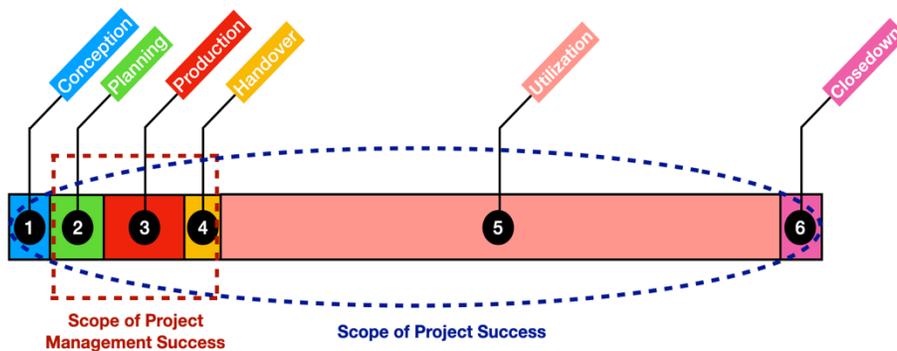


Figure 2. Project Lifecycle Phases (Adapted from Munns and Bjeirmi, 1996)

Montequina et al. (2016) elaborated in causes of project failures such as lack in management support and skills while the project success factors include continuous management support and having clear objectives. On the hand, Al-Hajj and Sayers (2014) mentioned that to consider a project as successful it is required to measure the project objectives and how it is accomplished through the project life cycle phases. However, the project management success is related to the evaluation of time, cost, and quality. In addition, Faridi & El-sayegh (2006) highlighted that project success is always affected by delay which will be reflecting on affecting the schedule, budget, quality, and safety factors. Project

evaluation is a way to know if the project is success or fail. In other word, according to Toader et al. (2010) a successful project from project management perspectives is to meet the objectives and deliver the project outcomes based on the planned schedule and budget. However, the authors suggested that if the project outcome meets the expectation of the client with over budget and different objectives is still considered a successful project.

The next section presents a review of the notion of improvisation. The purpose of this review is to understand what improvisation is and why it is important in project.

## **2.2 The notion of improvisation**

Improvisation has been defined widely in the literature within the project management concept. Moorman and Miner (1998) posited that when the design is implemented on time, it means that the activity is improvisational. The authors mentioned that the definition of improvisation involve innovation because of the action of going beyond the routines. Cunha et al. (2002) posited that improvisation would occur when an organization must deal with an unexpected task by depending on the available resources. Moreover, achieving a successful level of improvisation requires a clear understanding of the complexity of the task.

Improvisation was one of the considered topics among different scholars (Roux-Dufort and Vidaillet, 2003). Vera and Crossan (2004) posited that it is essential to have specific research that focus on improvisation and the relation with performance. Vera and Crossan (2004, p. 733) defined improvisation as “the spontaneous and creative process of attempting to achieve an objective in a new way. As a spontaneous process, improvisation is extemporaneous, unpremeditated, and unplanned. As a creative process, improvisation attempts to develop something new and useful to the situation, although it does not always achieve this”. E Cunha et al. (2012) defined the organizational improvisation as an action taken by depending on the available data. On the other hand, improvisation has been defined by Zarankin and Wang (2013) as a successful planning and action in surprising situation.

On the other hand, Mamedio and Jr (2020) found that strategic improvisation had a vital role in managing project difficulty. The authors mentioned that the level of complexity is one of the challenges to the decision makers or project managers that deal with surprising events, crises, and ambiguities. Moreover, balancing between improvisation and structure is the main challenge in managing the complexity in a project which depends on the following: (1) strategic improvisation; (2) flexibility; (3) adaptability, and (4) self-organization. Malucelli et al. (2019) suggested that a further study on how different factors affect the success of the project and improvisation in complex environments.

## **2.3 Improvisation within project**

This section aims to identify the concept of improvisation within project. Leybourne and Sadler-Smith (2006) elaborated in the role of improvisation and intuition. According to the authors, improvising means utilizing the available data and resources to deal with unexpected situation while intuition means the decision maker will be depending on the experience to take a decision. In addition, allowing employees to improvise within any given task in the organization will result in creating challenges in supervising the work. However, it is considered as a way of adding knowledge and encouraging learning by providing training courses for project managers. The study focused on four types of variables which are independent (need for cognition and faith in intuition), mediating (improvisation), project outcome (success in meeting the criteria), and control (age, gender, experience in project management in years, number of projects managed at the same time). The authors found out the following: (1) the use of improvisation and intuition in decision making are related; (2) project outcomes more related to intuition; (3) managers with more experiences are using improvisation and intuition more; (4) there is no relation between age for both improvisation and intuition; (5) the number of managed projects are impacted by project outcomes; and (6) there is no relation between the type of the manager experience with both improvisation and intuition.

Improvisation in project management was described by Klien et al. (2015) as the dependence on knowledge and experience of project manager to accomplish a task and achieve the desired goals. In addition, understanding improvisation is considered very essential in theory and practice. One of the main advantages of improvisation is the enhancement in practice and confidence in abilities of the project manager. Moreover, Krylova et al. (2016) mentioned that improvisation can occur with different activities and at any time regardless the size or type of the organization. On the other hand, Aram and Walochik (1996) found out from the questionnaire respondents that improvisation works better in small organizations. In addition, after studying the relation between improvisation and Spanish manager it was concluded that improvisation is a description of “Spanish Management Style”.

Sliva (2002) defined improvisation as the use of intuition to deal with unexpected task and elaborated in three moments of improvisation. The first moment is the response to issue and it takes place before the act of improvisation. After that, the action of improvisation is the second moment. While the third moment will be the understanding of the action and if the issue was solved this means that the improvisation was successful. In addition, the project manager should have the power to be able to improvise and this will occur in the second and third moments.

Leybourne and Kennedy (2015) studied the relation between knowledge management, project management, and improvisation. The authors presented the intersection between the three areas as shown in Figure 3 below. First, improvisation is considered as a tool in planning that utilize available resources. Second, project management covers planning, execution, and project lifecycle. Third, knowledge management includes data warehousing and knowledge objects and assets. Improvisation intersects with project management in intuition, emergent strategy, timescale comparison, and management adoption. In addition, improvisation intersects with knowledge management in sense making, routines, and best practices. While project management and knowledge management are intersecting in expertise directions, intellectual capitals, and lessons learned. Moreover, the three areas are intersecting in emerging best practices, learning, innovation, expertise, and individual and shared knowledge. The intersection of the three areas is essential in management and knowledge by providing definition and how it can be utilized in innovative practice.

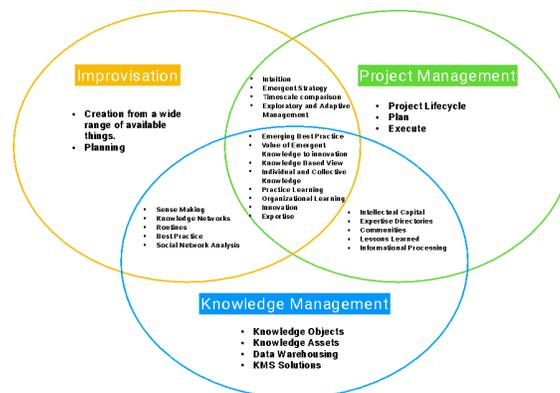


Figure 3. improvisation, management, and management in

Intersection of project knowledge project (Adapted

from Leybourne and Kennedy, 2015)

## 2.4 Factors affecting improvisation

Trotter et al. (2013) found out from the literature that improvisation can be affected by the following factors: (1) experience and training; (2) knowledge; (3) sense-making; (4) quality of teamwork; (5) feedback; (6) system; (7) culture and commitment; and (8) organizational structure and memory. On the hand, Samra et al. (2008) elaborated on how improvisation can affect the success of new product and its cycle. In the development of new product, having a well-structured process will help in increasing the possibilities of success and improvisation will help in increasing the accepted results chances. In addition, Aram and Walochik (1996) carried out a questionnaire and some respondents highlighted that the absence of well-structured process will impact on improvisation. Another respondent posited that improvisation increases the level of creativity among project managers because they deal with unexpected tasks.

Improvisation and gender were studied by Gniaka et al. (2019) and how they influence project. Improvisation occurs in different management fields. The degree of improvisation was studied as shown in Figure 4 below which represents the combination of the degree of uncertainty and urgency. When the project is considered high in urgency and uncertainty this will result in “total improvisation” to deal with the situation. While the low urgency and uncertainty will lead to “interpretation” which means that the occurrence of improvisation will almost be rarely. Moreover, when the situation is not considered to be urgent so there is enough time to deal with the case, but the level of uncertainty is high this will lead to the occurrence of improvisation, and it will be known as “variation”. On the hand, when there is little time to deal with a certain situation but the level of uncertainty is low, in this case improvisation will be

considered moderate type and known as “improvement”. The authors focused on the study to know if the gender influences the improvisation in any project includes managerial task. The study found out that there is no significant effect between gender and improvisation. However, the age shows a significant effect in improvisation situation.

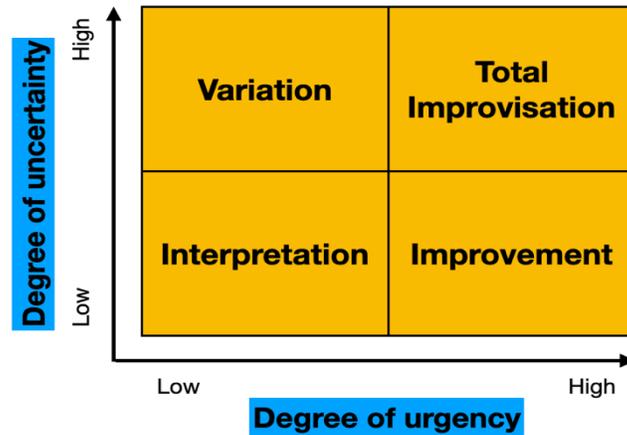


Figure 4. Degree of Improvisation in Project Management (Adapted from Gniaka et al., 2019)

Leybourne and Sadler-Smith (2006) found out that there are several essential characteristics for the managers to improvise successfully such as being educated, training, continuous improvement, and most importantly having more experience. In addition, providing enough time and chances while improvising in a certain task are always leading to create knowledge in the organization. In addition, the study was based on a survey with Likert scales and the results indicated that there is a significant relation between expertise factor and improvisation. However, age has no significant effect in improvisation. The studied factors by Vera and Crossan (2005) were experience and training. The study was based on Likert scale and the results indicated that there is a positive relation between improvisation and both expertise and training. On the other hand, Nisula and Kianto (2015) studied the effect of gender and the results indicated that there is no significant effect between improvisation and the factor of gender. Table 1 below summarize the mentioned factors and how it effects on improvisation.

Table 1. Factors and the effect on improvisation

Factor	Study	Method	Effect on improvisation
Expertise	(Vera & Crossan, 2005)	Likert Scale	There is a positive relation.
	(Leybourne & Sadler-Smith, 2006)	Likert Scale	There is significant effect.
Training	(Vera & Crossan, 2005)	Survey	Training helps in increasing the quality of improvisation.
Age	(Leybourne & Sadler-Smith, 2006)	Likert Scale	There is no significant effect.
	(Gniaka, et al., 2019)	Questionnaire	There is little effect.

Gender	(Nisula & Kianto, 2015)	Survey	There is no significant effect.
	(Gniaka, et al., 2019)	Questionnaire	There is no significant effect.

### 3. Discussion

The paper started by defining the terms of ‘project’ and ‘project management’. According to the literature review project is accomplishing specific tasks by utilizing the available resources in order to achieve the desired objectives. On the other hand, project management is an umbrella for different fields and applications that helps in solving issues and concerns to achieve the objectives. Munns and Bjeirmi (1996) elaborated in the phases of the project life cycle (Conception, Planning, Production, Handover, Utilization, and Closedown) as mentioned above in the literature review section. In order to obtain a successful project outcome, these six phases should be successful. While to consider the project management as successful it requires to be success in planning, production, and handover. The project success is always connected with achieving the project objectives and the successful project management is measured by time, cost, and quality as suggested in the literature.

According to the literature review McInerney (2002) and Gupta et al. (2000) agreed that knowledge and knowledge management are related to the level of experience and sharing it to deal with issues. In addition, improvisation was defined as a way of solving an unexpected issue based on experience and available resources. Successful improvisation requires a full understanding of the task and taking decision without delaying the project schedule. Moreover, there is a need to understand the factors that influence improvisation and the success of project (Malucelli et al., 2019). Leybourne and Sadler-Smith (2006) found out that the managers with more experience will be using improvisation. This was reflecting on what Klien at al. (2015) posited about the dependence on knowledge and experience of project manager to accomplish a task and achieve the desired goals. Experience has a significant impact on improvisation (Leybourne & Sadler-Smith, 2006; Vera & Crossan, 2005). On the other hand, Gniaka et al. (2019) found out that age has a little impact on improvisation while Leybourne and Sadler-Smith (2006) mentioned that there is no significant effect. The literature shows that Gender has no significant impact with improvisation (Gniaka, et al., 2019; Nisula & Kianto, 2015). In addition, Vera and Crossan (2005) found out that the factors of teamwork quality and training have a positive relation with improvisation.

After gathering the factors from the literature review section, Figure (5) below shows the sequence of improvisation within a project in an organization. First, it will be starting with the project manager and the factors that could affect the decision which are experience, age, and training. Second, the improvisation action. Third, reaching a successful level of improvisation will happen when the outcome meets with cost, time, and quality. The most important part in the sequence is the project outcome which will be measured based on the final cost of the project compared with the estimated budget in the beginning of the project. In addition, delivering the project outcome according to the established schedule is also considered as a measure of project success. Quality is also considered as one of the measures for the project outcome. Meeting these three measures (cost, time, and quality) will lead to successful project outcome and successful improvisation action.

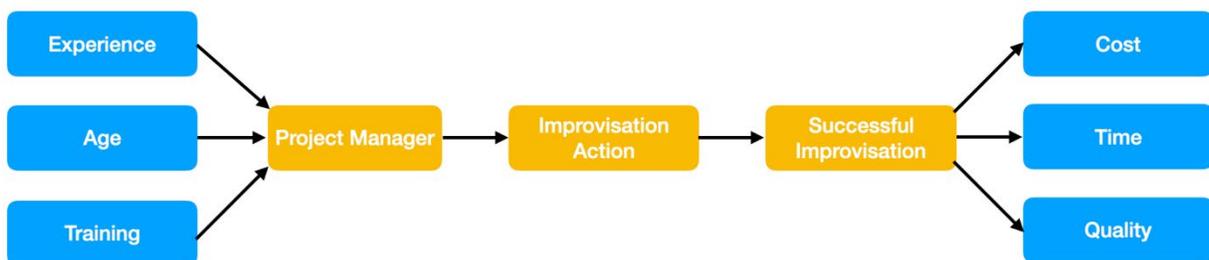


Figure 5. Improvisation Decision in Organization

To evaluate the impact of each factor mentioned in Figure (5) above, it is suggested to test the develop hypotheses as mentioned below. The hypotheses cover the factors that are related to project manager to evaluate how each factor

impacts on the decision. Based on the factors from the literature review, it is suggested to test three main factors which are experience, age, and training.

**Experience:** As it was found in the literature that experience is one of the most significant factors to improvisation and different studies proved that. In addition, it was mentioned by Klien et al. (2015) that improvisation is the dependence on knowledge and experience of project manager to accomplish a task and achieve the desired goals. In some cases, the project manager needs the opinion of the team members as they are more involved in the processes and details which means they understand more based on their experience in the field.

**Hypothesis (1):** The level of experience has a significant impact on project manager improvisation.

**Age:** The result in the literature varies from no affection on improvisation to slightly affection. Based on that, this factor may affect the success of improvisation and need to be evaluated. Age plays an important role in decision making because it is always connected with experience and education.

**Hypothesis (2):** Age has a significant impact on project manager improvisation.

**Training:** This factor is very important and useful for self-development, and it was found in the literature review that this factor influences improvisation. Training is not only important to project manager but also to the team members to help them in handling the project and delivering the result successfully.

**Hypothesis (3):** Training has a significant impact on project manager improvisation.

To test the developed hypotheses in this research, it is suggested to develop a survey to measure and evaluate the impact of each factor on the decision. It was found out in the literature that seven points Likert scales (1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Neither Agree nor Disagree, 5 = Somewhat Agree, 6 = Agree, 7 = Strongly Agree) was used to measure the factors in the survey. Questions can be added under each factor in the survey, and it is suggested to collect the data from different project managers within different fields. In addition, more factors can be added to test if they have an impact on the decision such as education, gender, and organization type.

#### **4. Conclusion**

The purpose of this paper was to undertake a review of the academic literature on ‘improvisation’ within the context of project management and the factors that affect improvisation. The literature review shows the importance of knowledge and experience in leading to successful project outcomes. Project and project management are two different terms that have been addressed in the literature review section. Project includes tasks and activities that lead to achieve objectives while project management is the process that control and lead to achieve objectives (Munns & Bjeirmi, 1996). On the other hand, improvisation is an act to unexpected situation that requires immediate decision with limited data and resources. It occurs to help continuing the project and the project manager must have enough experience to improvise with successful project outcome. It is also necessary for the project manager to focus on improving the quality of work, training, experience to have successful project outcomes. This research proposes a model for the sequence of improvisation within a project in an organization along with hypotheses which will help in understanding the factors that affect the decision making and in particular how it is related to improvisation. In addition, more factors can be studied along with the factors that have been introduced in this study which are experience, age, and training. These factors need to be studied to check the affection on final project outcomes in terms of cost, time, and quality. Moreover, for future research it is suggested to establish a survey that covers the factors that need to be evaluated in order to be able to check if the hypotheses are supported or not.

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