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Adjusting Planning Management and Control to the Owner Environment
Case Study: Consultant Adjustment to the Owner Environment in Thailand

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Abstract: ***Consultant and owner play a very important role in the construction sector which is one of the main sectors in economic development. There are many stakeholders in a construction project including but not limited to: owner, consultant, contractor, sub-contractor, and supplier. The consultant is the party who is to stay in close touch with the project owner, which both consultant and owner are considered as the main key stakeholders to make the project happen. It's not a simple task for a consultant to just implement the same style of management and control within various projects that are of a different background and character of owners. Thus, the adjusting plan management and control to the owner environment has been an essential technique to drive the project to success. The objective of this paper is to identify the significant management techniques for adjusting a plan of management and control to the owner environment in Thailand. The methodology is the identification throughout the analogous to abduction from literature review and our empirical observations of Future Engineering Consultants Co, Ltd. We have been in consultation for twenty-five years (25) in Thailand with 209 projects from both public and private owners. As a result, there are (1) Project management styles, (2) Personal style, (3) Owner expectation management, (4) Scope Management, (5) Time Management, (6) Cost Management, (7) Quality Management, and (8) Environmental Management. The input are: a clear defined goal, showing respect by giving good service, maintaining high quality, keeping in touch with owners, and resources. This would give the output of the project's success by meeting the owner's expectation and requirements.***

Keywords: Construction, Project management, Owner, Consultant, Best practice

I. INTRODUCTION

A project is successful when it achieves its objectives and meets or exceeds the expectations of the stakeholders[1]. Project management has emerged as a strong discipline practiced by highly trained, certified professionals in order to create and deliver to internal and external customers efficiently and effectively[2]. Construction projects shape and build the environment in which people live and work. The built environment is not only a country's most important asset but also economically and socially necessary[3]. Uncertainty of the nature of construction projects requires an effective stakeholder management approach to accommodate conflicting stakeholder interests[4]. As the investment in a construction project, the owner is not only the purchaser and proprietor of the building products, but also the in depth participator of the whole building process, which has a huge, or even decisive impact on the whole building process[5]. When there is collaboration between owner and other stakeholders, there are sometimes conflicts. The main cause of conflicts is unsuccessful communication between the owner and the contractor[6, 7]. Major unsuccessful communication comes from the construction delay[8].

There is an agreement that owner interference, financing, and payments slow down decision making, and improper planning are the main factors causing project delay[9]. Moreover, the lack of commitment, inefficient site management, poor site coordination, improper planning, lack of clarity in the project scope, lack of good communication, and substandard contracts are also the causes[8]. There is a conflict of interest that the owner claims are the cause of delay are related to contractor and labour, while contractors considered severe causes of delay are related to owners[7, 10]. Too many changed orders by the owner are the leading causes of construction delay[11]. The collaboration is essential for the success of construction projects, but there appears to be no clear guide on the process of collaboration; therefore, making it difficult to effectively interact and achieve a common project goal within the bounds of cost, quality, and time[12]. Owner focus, competence, and compliance increase the likelihood of meeting the internal and the overall budget goals as well as the quality and the timeline goals[13]. Decision makers and owners involved can get knowledge of related issues and thus develop more appropriate organization and strategy arrangements for the project execution[14]. Anyhow, the stakeholders become increasingly dissatisfied with the legal methods of construction conflict resolution[15]. Thus, the consultant

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needs to adjust planning management and give more control to owner environment throughout the process of project in order to avoid conflict. The objective of this paper is to identify the significant management techniques for adjusting a plan of management and control.

II. Literature Reviews

The construction projects are typically characterized by the involvement of many agents, including the owner, consultant, general contractors, subcontractors, and construction material suppliers[16]. Construction projects bring great difficulties and challenges to project management[17], while consultant is one of the main important parties to manage the project by dealing with owner and other parties.

Many major projects contain a large element of technological innovation with associated high risk. Such risk tends to translate into cost increases, which are often not adequately accounted for initial cost estimates. To sum up, they consist that inappropriate data and methods is the main reason of projects overruns [18]. A construction project organization system usually involves these components as following: project structure, project management organizational structure, task division, function division and work flow organization. Project management organization structure reflects the relationships between the various subsystems and between the various elements in the system, and reflects the relationships between the various work units, departments and employees within the system[19]. For example, more than 50-60% of total project cost is spent on materials and equipment. An effective material management can increase a company's profit by reducing unnecessary costs such as those from delays, claims, etc. Hence, an effective material management is important for project success[20]. In addition, a well-organised human resource development programme is a critical strategy for consultant companies[21]. Achieving success is a highly critical issue for the companies to survive in a competitive business environment. There have been many factors such as qualified employees, quality workmanship and financial management that can lead to company success in the construction industry[22]. And as the reality, we could understand that top managers in construction firms can only manage a certain number of factors simultaneously[23].

Managers should design organizational structure on the basis of the characteristics of project, therefore establish good communication and cross-functional coordination mechanism, and create unity and cooperation partnership culture in the project conducting process. As the central status of construction project management, the owner organization is determined by factors such as owner management model, human resource, characteristics and scale, project structure, contract structure, etc.[24].

As a case study on high-rise building construction projects in Bangkok has found that Owner associations, consultants/designers, contractors, suppliers, finance houses, educational institutions, manufacturers and the government should cooperate to provide the infrastructure necessary for efficient project management. A means of achieving this is to formulate and execute a participatory programme for the development of the construction industry through a national agency dedicated to the industry. This should be followed by clients and consultants giving adequate support to contractors to execute efficiently the projects for which they are contracted[25].

Research on the management of major projects is one of the main themes[26]. In recent years, more and more researchers tend to study mega projects management in a strategic view, focus on project design, decision making, cooperation and cross-functional collaboration, etc. They have realized the limitation of traditional project management and defined programme management to managing complexity, mega or a portfolio of projects[24]. Programme management involve directing a portfolio of projects, one huge projects (mega projects), and managing a series of projects for the same client[27].

Throughout literature reviews, authors have noticed that the involvement of construction management from consultant to owner environment has not yet been conducted, while consultant and owner are the main key stakeholders for the success of construction project. So, this study is different from other researches as it concentrates only to the adjusting planning management and control to owner environment, which specifically concerns about consultant adjustment to owner environment in Thailand.

III. Characteristics of Owner and Consultant

The importance of trust is a facilitator of positive relationships among project stakeholders[28]. Practitioners shared a belief that an effective owner-contractor relationship should be based on trust, shared vision, and mutual attitudes such as open and honest communication, and solution seeking instead of blaming senior management leadership[1, 29]. The conflict factors resulting from both parties as shown in table 1. It needs to be considered for adjusting plan management and control.

TABLE 1
Common construction conflicting factors[30]

Owner	Confusing requirement of owner	Lack of space in construction site
	Excessive change orders	Financial failure of owner
	Supremacy of owner/consultant	Unbalanced risks
	Project scope definition not clear	Owner furnished material
	Site access delays	Delay in decision by owner
	Late handover of construction site	Delay in running bill payment
	Owner-furnished equipment	
Consul-tant	Error and omission in design	Specification related
	Excessive extra work	Defective design
	Differing site condition	Excessive quantity variations

Project owners need to promote financial incentives as a supporting tool in the development of trust, cooperation, and motivation and not as a performance control mechanism within the highly detailed contractual

specifications[3]. Motivations of participants and the owners' desired outcomes are also required[3]. The owner is the key component in project management, because of the central status of the owner management in the project management[24]. Owner management models in projects are usually divided into three models: (1) owners rely on their own human resources, (2) owners consign to one or more management consulting companies, (3) owners consign to one or more management consulting companies, and owners also are involved in the management[24]. Owners faced difficulty in preparing tender documents and selecting the most appropriate contractors. For example, they felt inadequate in terms of knowledge and experience on design-build projects, lacked manpower, resources, legal advice, needed assistance to prepare tender documents, and were unsure about how much information and scope of contract that should be specified in the tender[31]. In this case, the consultant could help them by sharing his expertise in management techniques.

The experience from the consultant: the private owner is more difficult to deal with than a public owner. The time of accepting the wording of a project from the date of proposal submission in a private project takes a longer time as compared with a public project, because a public owner has good human resources. A small project of a private owner is even more difficult than a large private owner, since those small owners have a lot of requirements/demands. Small private owners offer a low service fee as compared to a large private owner. Small private owners can learn by themselves of how to manage the project. A public owner is easier to deal with as most of them have a good plan and most of projects are in urgent that needs more attention. It takes a shorter time as compare with private project for the bidding process. A small public owner is more difficult to deal with than a large public owner, since they don't have much expertise or human resources.

The consultant needs to spend much time and pay more attention to small project, because its consultant has less team members at a construction site for supervision. In a small project, owners have many changes which tend to increase the lump sum cost. For a large project, the consultant needs to spend more time in the process with more team members, which is a difficult part for the consultant. Thus, on a small project, the consultant has difficulty to deal with owner, while on a large project; the consultant gets more difficulty in process which proposed by owners.

A. Public Owner

The regulatory framework for public procurement in Thailand is based on 1990s best practice and is not an international legal model[32]. The procurement team has to set up the procurement plan and budget plan when board committees have given an approval for project budget. The procurement process would start with many committees formed by odd numbers. The project team will prepare term of reference (TOR) and be approved by the board committee. In addition, the procurement committee may assign their subcommittees such specific tasks as the initial consideration or in order to select, evaluate, and choose the best contractor to be awarded for the project. During construction phase, they have to assign the project controlling and monitoring team [32]. The project selection process in the Thai Ministry of Defence, takes at least 18 months from the submittal of proposal up to the budget allocation. There are many officers working in the areas of planning and budgeting and have at least 4 committees such as Project Selection Committee and Resource Management Committee being involved in this process[33].

The experience from the consultant: public owners do not have a construction technical team, and they need to hire a consultant company to act on behalf of them. Normally, the public owner establish number of committees for construction projects with odd figure from 5 to 11, i.e., 5, 7, 9, and 11 in order to avoid being disqualified because of equivalent vote which can't be used to finalized the decision. Public procurement committee hires a consultant to work for them, but the procurement committee will be responsible for any risk in the project, and then that procurement committee will charge for Consultant work under them. Even though a consultant team works under them, the consultant always has to have evidence for all works to protect himself. Sometimes, committees from a public owner are not qualified because of the lack of knowledge in construction work. Some committees try not to make decision, while other committees tried to be involved but lack of knowledge in construction technique. There are number of factors that could disturb the projects. So the consultant needs to educate the owners in order to be knowledgeable in construction which could avoid or minimize the problem.

B. Private Owner

There are kinds of private owners, ranging from small to large projects. The owners should have related experience of briefing; they need a clear management organization structure for briefing, and the knowledge of the owner's responsibility[34].

The experience from the consultant: problems for the private owner are that a consultant needs to responsible for everything. For private owners of small a project, they don't have enough staffs/ human resources, so they have a lot of work to do. Normally, small project owners need to separate main stakeholders, for example: designer, consultant, from the contractor. The owner of a small project does not have enough team members to work with a consultant. They just ask consultant to help them a lot, and the inverse that is the owners try to help the consultant a lot when they become knowledgeable. Anyway, consultants need to be flexible in making decisions whether the consultant wants the help from owner or not in order to run project smoothly. If it is needed, then the consultant would educate them. Such an owner of a small project requires a lot of time from the

consultant in preparing and managing documents for them. While the private owner of a large project has their own construction teams, but they do not have enough staffs. They need to hire a consultant to help them in which the consultant has to follow their regulations. The consultant needs to adjust documents in order to meet their requirements. The owner of a large project is easy to manage as compare with an owner of a small project because the owner of large project is easy for a consultant to apply his management style to run a project for them.

C. *Type of management*

Management innovation for construction projects in planning, organizing, and controlling are important to push the construction project successful[35]. Specifically, trust is argued to enhance the strength of working relationships, to solidify partnering roles, and to increase the willingness of various project stakeholders to cooperate in non-self-motivated ways[28]. Management can create the desired psychological safety climate by efforts from structural, perceptual, interactive, and cultural perspectives. Barnard said an executive had both managerial and emotional functions, which he called cognitive and cathectic ("Cognitive" includes guiding, directing, and constraining choices and actions. "Cathectic" includes emotional and motivational aspects of goal-setting and developing faith and commitment to a larger moral purpose) [36]. Daniel Goleman categorized and defined management types as follows: (i) Authoritative: Manager has a vision and is happy to share it with their team, (ii) Coercive: project manager's strengths are essential in outlining an entire project, (iii) Democratic: all project team members are allowed input, (iv) All For One & One For All: People are encouraged to work at their own pace and use individual input, (v) Pacesetter: reward and offer clear goals to get the job done and expect a lot of stress within the teams, (vi) The Team Leader: A strong coaching trait and patience, as in experts in risk management[37]. Risk management in construction projects is still very ineffective and that the main cause of this situation is the lack of knowledge. It is expected that the application of the proposed approach will allow owners and consultants to develop a project's risk management function based on best practices, and also to improve the performance of this function.[38] One among other risks is that more than 50-60% of total project cost is spent on materials and equipment[39]. An effective material management can increase the profit by reducing unnecessary costs such as those from delays, claims, etc. Hence, an effective material management is important for project success[20]. Information technology is evolving from a tool that incrementally improves 'back-office' productivity to an essential component of strategic positioning that may alter the basic economics, organizational structure, and operational practices of facility management organizations and their interactions with service providers[40]. Below is the diagram showing how the dispute occurs which resulted from lacking of good planning management and control.

FIGURE I
RISK, CONFLICT, CLAIM AND DISPUTE CONTINUUM MODEL[30]

To get work done well, the efficiently and effectively implementation of Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management, and Project Stakeholder Management is necessary[41].

IV. MANAGEMENT TECHNIQUE

Organizations now use project management as a tactical tool to execute projects[2]. Effective leadership is a success factor in organizations and appropriate leadership style can lead to better performance[42]. Moreover, a construction project organization system which is usually involved with project structure, project management, organizational structure, task division, function division, and a work flow organization are also falling in this success scenario[24]. Managers should design organizational structure on the basis of the characteristics of the project; therefore, establish good communication and a cross-functional coordination mechanism, and create unity and cooperation with a partnership culture in the project conducting process and this is the central status of the construction project management[24]. The nature of construction projects and their delivery exposes participants to accidents and dangers. A safety climate serves as a frame of reference for employees to make sense of safety measures in the workplace and adapt to their behaviours[43].

An effective manager realizes the need for change in styles and adapts the correct style to the team or project goal. While no project management leadership style may be the best style, each should be considered when tackling projects. A manager should consider the project and then select an effective style to bring the projects to a successful completion[37]. The DICS model provides a better understand of oneself and to adapt behaviours with others as shown in figure 2[44]. DICS profiles help to[44]: (i) Increase self-knowledge, (ii) Facilitate better teamwork and minimize team conflict, (iii) Identifying and responding to customer styles, (iv) Manage more effectively by understanding the dispositions and priorities of employees and team members, (v) Become more self-knowledgeable, well-rounded, and effective.

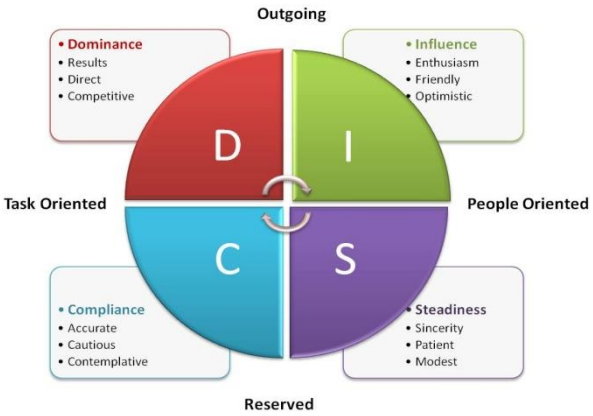

FIGURE II
DICS MODEL[44]

Cooperative procurement procedures are especially important in the management of complex and uncertain construction projects with time pressures for completion. Risk and uncertainty could be reduced by carefully selecting partners that match requirements of specific tasks as a specific part of the project[45]. Owner, designers, contractors, suppliers, finance houses, educational institutions, manufacturers, and the government should cooperate to provide the infrastructure and resource necessary for efficient project management[25].

The experience from the consultant: solution to deal with public owner in various kinds of communications, for example, kick off meeting, minutes of meeting, processing and updating all kind of documents, and consider what should be and what should not be implemented. Public owner may needs to talk with consultant, and consultant must help owner. Consultant's management team needs to educate owner for some construction techniques, help owner to clearly understand about the construction procedure before doing something, likewise making decision. Large projects mostly follow Design-Build scheme because they have enough team members and staff to work in the project. The consultant prepares project management to convince owner and tries to guide them when they want to know how we work for them. The consultant project manager should be an expert from a well-educated background with more experience. To encourage positive thinking; if owner knows well, they will need consultant to precede the project. The consultant has recognized that consultant's project management styles, personal styles, and owner expectation management were the techniques to establish control within the owner environment.

The techniques that consultant needs to process are his project management style and personal style, also he must consider the owner's expectation management, and apply the full scope of time, quality, cost, and environment management in such a way to meet the project success within the owner's expectation

A. Organization culture

Organizational culture is made up of the attitudes, values, beliefs, and behaviours of its employees and underlying assumptions. Bureaucratic culture is a key factor in an organization's overall behaviour and existence. It affects everything from decision-making processes, to morale, and to project deliverables[37]. In a survey conducted by the American Management Association (AMA), along with their global affiliates, it was found that "positive corporate cultures are associated with the greater facilitation. Cultures are more receptive to change and adapt quickly to meet new challenges," as opposed to strong cultures, which are resistant to change[46]. Organizations cannot expect change to be easy; overcoming resistance requires an understanding that changes implementation that is a long-term and strategic process[47]. Organizations must: (1) Define where the organization needs to be, (2) Understand its capacity to field project teams to effect change, (3) Invest in the best projects in terms of added value, (4) Execute flawlessly the demands of the client, (5) Continually monitor and manage project investments[2]. To improve the managerial decision, the following figure 3 of the project complexity should be considered.

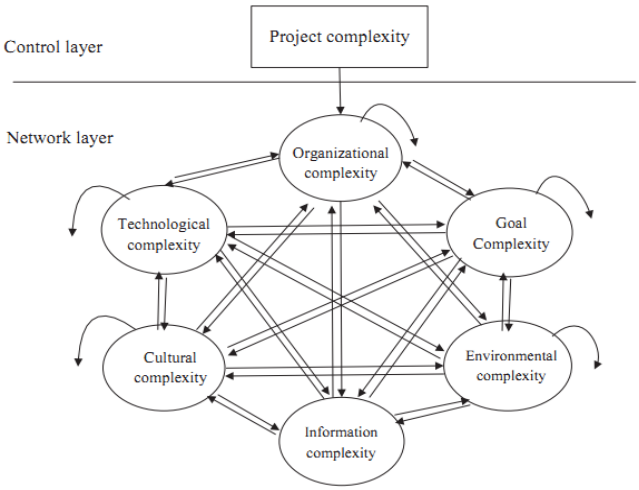

FIGURE III
STRUCTURE FOR PROJECT COMPLEXITY[14]

Construction procurement needs to be a change of culture and attitude in the construction industry, moving from traditional adversarial relationship into cooperative and collaborative relationship. Complexity, uncertainty, and time pressure that characterize construction projects are increasing the need for this change[48]. The construction procurement process has been heavily criticized for its fragmented approach toward the delivery of construction projects. This has affected project effectiveness in as much as the current procurement practices do not effectively encourage the integration, coordination, and communication between participants[49].

B. Type of Project

There is no general agreement of project types for the construction up till present day. The expert and practitioners use their common sense and their experience to categorize the project. The project can be categorized as Academic building, Commercial building, Health building, Industrial building, Infrastructure, Office building, and Residential building.[34, 50-53]. Table 2 and figure 4 show about the type and number of projects, and Percent (%) of each type of the project that Future Engineering Consultants Co., Ltd conducted from 1990-2015.

TABLE II
Type and number of projects conducted from 1990-2015

Sr. #	Type of Projects	Total number of projects (1990-2015)
1	Academic Building	78
2	Commercial Building	14
3	Health Building	17
4	Industrial Building	22
5	Infrastructure	23
6	Office Building	20
7	Residential Building	35
	Total	**209**

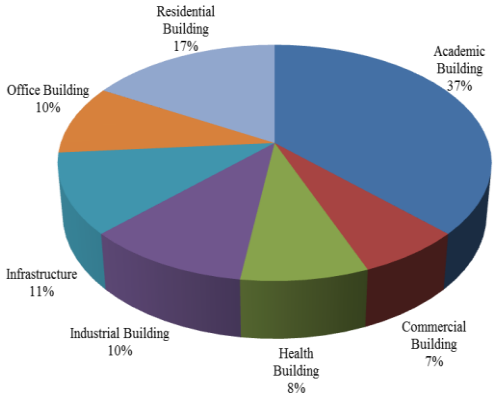

FIGURE IV
PERCENT (%) OF EACH TYPE OF PROJECTS CONDUCTED FROM 1990-2015

V. METHOD AND QUESTION

Our method is analogous to abduction from literature review and our empirical observations of existing documents as well as interviews with managers who had involved in the consulting project [26, 54, 55] with the intention to provide a concept [56] to stimulate future research of any related Consultant's adjusting plan management and control on project within the owner environment.

The criteria for choosing these were that there are a variety of situations based on the following variables[54]: type of project (Academic building, Commercial building, Health building, Industrial building, Infrastructure, Office building, and Residential building) [51], type of owners (public, private, large, medium, small), type of contract (fixed price, unit price, etc.). Abduction from our empirical observations of Future Engineering Consultants Co, Ltd consultation conducted for twenty-five years (25) in Thailand with 209 projects, from both public and private sectors. In addition, our literature review is based on extensive reading and knowledge of many related research fields of major projects which has drawn a conceptual framework that could offer the basis for a system review by others[26].

Throughout the structured interview, ten key personnels of various positions with at least seven years of work experience with owner were selected for an interview: one managing director, two project advisors, three project managers, one project coordinators, one construction department manager, one business development department manager, and one design department manager. In developing framework, we focused on the question: "How the consultant adjusts the project planning management and control within the owner environment?" which include:

1) What are the inputs?
2) What are the techniques?
3) What are the outputs?

Documents of all implemented projects were well recorded systematically in the network (sever) of Future Engineering Consultants Co., Ltd. They were prepared by each concerned key personnel and recorded by administration department every year. With the help of secretary, the authors could go through all records of each project.

VI. ANALYSIS AND DISCUSSION

Positive relationship within the main stakeholders with honest communication is an important input for project success. Major unsuccessful communication comes from construction delay [8], while construction delay could cause the conflict between owner and stakeholders which mostly impacts on increasing the budget, time lost, and quality can't be well guaranteed. Without a clear defined goal, the project couldn't progress well according to the time set. The consultant needs to help the owner obtain a clear defined goal of the project with respect to giving good service and maintaining a high quality of work. To process this smoothly, there must be good collaboration between consultants and owner and it is essential to avoid misunderstanding which could cause conflict that could result in delaying the project. To define a clear goal of the project, risk identification and a clear understanding are very necessary so that the consultant will need to propose an acceptance and agreement with the owner. Then both the consultant and owner need to arrange a meeting to identify risks together. During processing, if there would be any issue that might occur or might happen, the consultant can ask the owner for a kick off meeting in order to find a solution. Owner's decision making is very important, so the consultant has to educate them and help them make the right decision and on time. If there is some problem occurred, blaming is not the method that the consultant should use on the

owner, but instead, the consultant needs to propose and engage for a solution seeking among all stakeholders.

A kick-off meeting was a project management style that the consultant always used for all projects under this circumstance. All processes of works need to be planned by consultants with the agreement of the owner in order to manage and control contractors effectively. A contractor is a party to making the plan and management of the consultant comes true to meet the requirement of owner. That is why the consultant has to select a contractor with high qualifications and a strong financial status. In order to success in a plan management and control to meet the owner's expectation, the consultant needs to process his project management style and personal style, also he must consider the owner's expectation management, and apply the full scope of time, cost, quality, and environment. Figure 5 is the framework that consultant formulates for the successful adjusting of plan management and giving control to the owner for the success of the project.

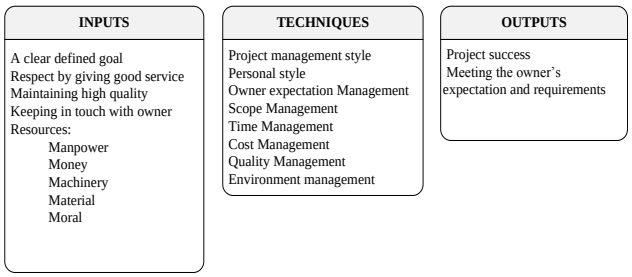

FIGURE V
PLANNING AND MANAGEMENT CONTROL TO OWNER ENVIRONMENT FRAMEWORK

It is agreed by other previous research that provides appropriate organization and strategy arrangement for project execution that the following be used to assure success. A contribution to practitioners is the empirical data that helps guide change management approaches within the owner organizations[47]. Improvement in the shortages of technical personnel and others of owners would be an essential for better understanding regarding decision making. Selecting the right contractor would be an advantage to produce the satisfaction of the owner. The project relies mainly on the innovation of the technology and management in order to enhance the efficiency and effectiveness [35].

VII. CONCLUSION

Our paper aims to identify significant management techniques for adjusting plan management and control. As the results, there are: (1) Project management styles, (2) Personal style, (3) Owner expectation management, and (4) scope management, time management, cost management, quality management, and environment management. The implementation of this could be successful by the input of a clear defined goal, showing respect by giving good service, maintain high quality, keeping in touch with owner, and resources (Manpower, Money, Machine, Material, and Moral). One must also adjust Planning Management and give control to the Owner Environment for consideration. This can be accomplished by offering the consultation services in order to run the project to meet the scope, budget, time, and quality. The final outputs are the project's success by meeting the owner's expectations and requirements.

The connection between research and real world relevance and impact is increasingly important to policymaker, project manager, and key person in the construction project. This research will contribute to further research on related topics of consultant's management team to the owner environment. Moreover, it will help key practitioners in the consulting firm to deal and manage their project with various inputs from the owners to improve the process and add to the efficiently.

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