Identifying Key Features of the Innovated Japanese Project Management: A Critical Review on its Philosophy

Low Foon Siang
Department of Mechanical and Materials Engineering, Universiti Tunku Abdul Rahman, Kuala Lumpur, Malaysia
Email: lowfs@ utar.edu.my

Chong Heap Yih and Lee Wah Peng
Department of Built Environment, Universiti Tunku Abdul Rahman, Kuala Lumpur, Malaysia
Email: {chonghy, leewp}@utar.edu.my

***Abstract*—Project management is an important skill that determines the success or failure of a project. The Japanese project management (JPM) methods, namely Project and Program Management (P2M) and *Kaikaku* Project Management (KPM), are innovated project management methodologies that have been proven to be effective. This paper presents a critical review of its key features and elements in terms of its philosophy, management tools and project models. The research findings will eventually bring awareness and provoke interest in organizations worldwide to implement or apply the methods if found to be suitable in their project management processes.**

***Index Terms*—kaihatsu, kaikaku, kaizen, kakusin, KPM, P2M**

I. Introduction

Projects can be implemented and executed in a smooth and time scale manner if they are managed with a proper management method. Management of projects can be much more effective with the appropriate project management methods and tools [1]. The success or failure of a company relies on how a particular project is managed, and the proper use of management techniques improves management performance. The Japanese have generated their own approach to project management, namely Project & Program Management (P2M). Although P2M is still being put into practical use both internationally and in Japan [2], an improved paradigm called *Kaikaku* (reforms or innovative reforms) Project Management (KPM) has been introduced [3]. Japanese project management (JPM) is a Japanese-style management system developed in Japan to effectively solve complex problems in enterprises, and manage projects and programs to promote value creation activities [4]. In recent years, many studies have shown an increased interest in and appreciation for Japanese management principles and practice [5]. Therefore, it will be interesting to address the features and elements of this innovated management method. The objective of this paper is to identify the key features of Japanese project management (JPM) methods, namely Project and Program Management (P2M) and *Kaikaku* Project Management (KPM), in terms of its philosophy, management tools, and applications.

II. P2M

P2M is the first Japanese project and program management for enterprise innovation developed by Professor Shigenobu Ohara in 2001 [3], [4]. The P2M model aims at creating a strategic framework of innovation to improve corporate values in project management methodologies [6] and to create a way for Japanese enterprises to develop more innovative approaches to ensure that their businesses can compete in the global business environment [7]. The P2M model has a combination of entry-level project management, program management, and 11 segment management frames, which are project strategy management, project systems management, project target management, risk management, relationship management, communication management, project finance management, project organization management, project resource management, information management, and value management [3], [4]. The essence of P2M is focused on the profiling ideas of complexity to implementation and finding solutions to complex issues [8]. The basic context of P2M defines program and program management as a practical capability to respond to external changes, allowing flexibility that copes with ambiguity, complexity, uncertainty, and expandability [4]. Japanese organizations place an emphasis on the flexibility to adapt to environmental changes, and their models are created based on this concept.

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III. KPM

In the 1990s, Japanese companies experienced a deflationary depression, and to survive and regain their global competitiveness, the Japanese looked for solutions in the *kaikaku* (reforms or innovative reforms) of business management, organization, and technology. *Kaikaku* is reformation or innovation in general, done at the management level. *Kaikaku* Project Management (KPM) is an advanced version of P2M. KPM consists of three significant elements for successful performance: 3K-*kakusin* (innovation), *kaihatsu* (development), and *kaizen* (improvement). *Kakusin* is anything to do with creation of new ideas, devices or processes based on combination of new knowledge; *kaihatsu* is the challenge to acquire the latest knowledge and information; and *kaizen* is the continuing efforts for improvement at the work-floor level [9]. In P2M, there was no classification with reference to *kakusin*, *kaihatsu*, and *kaizen*. In organizational models, 3S (scheme, system, service) project models in terms of lifecycle in value creation paradigm are proposed, and KPM is the core management for integration and innovation by 3S/3K combined methodology [3].

IV. Methodology

An exploratory study has been carried out to examine project management theories by extracting relevant information from Japanese project management guidebooks as well as from other major journals, articles, conference proceedings, and published books. In this article, the principles of P2M and KPM were summarized, analyzed, and discussed.

V. Results and Discussion

P2M/KPM method is mission-oriented where it uses clear and measureable success principles for each project which enables solving of complex problems by transforming strategic aims into value creation operations and capital recovery through the 3S project models [10].

JPM adapts to the environmental changes and applies the concept of *kaikaku* or reformation. When Japan's economy turned sour in the 1990s, their conventional model has to be reformed in order to survive the recession. Restructuring, which includes work force lay-offs, production and inventory reductions, and plant closures, was applied [11]. For example, the Toyota group has revised its conventional lifelong employment system by accepting contract workers and temporary employees extensively [12]. At the same time, *kaikaku* or innovative (*kakusin*) reformation also encompasses joint venture activities with foreign companies to overcome the recession [11], [13].

P2M/KPM emphasizes flexibility and adaptability, and proposes how organizations can achieve total optimization rather than focus on mere partial optimization [3]. When economic crises occurred in the 1980s and 1990s, Toyota maintained its market share by using the flexible *kaizen* philosophy. *Kaizen* is about continuous improvement in routine manufacturing activities for value creation at the work-floor level. This philosophy applied to manufacturing and production processes [14], [15], strive to eliminate waste and problems, and to improve quality through persistent efforts [16]. Other *kaizen* activities include continuous improvement of manufacturers' performance in terms of quality, productivity, products, business operations, and management systems, achieving highly flexible approaches to rapid changes, and learning from accumulated knowledge [4], [17].

P2M/KPM applies the parallel or concurrent development concept [18]. This approach is also known as the *kaihatsu*-style project which can shorten the duration of the whole project, where the downstream process needs to be executed even if the upstream process is not completed [19], [20].

In addition, P2M/KPM also incorporated knowledge and intellectual properties into the *kaihatsu* and reform processes [21]. *Kaihatsu* is enhancement plus expansion of knowledge and information, and involves visionary endeavors oriented toward using newly developed technologies, or existing technologies in a new manner. It is not limited to development of technology alone, but also covers business, product, process, and even markets as well [9]. Both *kaihatsu* and *kakusin* play an important role in development of new ideas, new inventions, R&D, and technological know-how in a company to secure the company's competitiveness and to increase the value of intellectual property rights [12]. After the development of new production materials, innovation takes place to enhance the new product or idea, and to expand its functionalities.

In view of social behavior in management, Japanese people tend to practice collectivism and humanism [24]. In the P2M/KPM method, collaboration with colleagues or cooperation among team members is common. Achieving group goals is much more emphasized rather than individual goals [17]. In addition, the Japanese people give priority to inter-human relations [22]. For instance, when making a decision, the Japanese business leaders tend to favor outcomes that preserve already established relationships or that could assist in cultivating new ones [23]. They will need to consider the other party's concerns before finalizing a conclusion or making a decision. Conclusions are often made based on a group verdict. Having a common goal facilitates good teamwork and eventually, enhances communication among project members.

Communication is one of the characteristics of Japanese management practices [24]. Project team members tend to have day-to-day communication through morning assemblies or daily early meetings to ensure better performance of the project and to detect any conflict before it turns into major problems [25]. It is also a culture in some Japanese factories to have a five to ten minute morning workout before the start of the day. This activity will enhance communication among co-workers as they have a chance to gather around and connect.

A management tool was also established from the importance of this feature. A project and program balanced scorecard (PBSC) was introduced by the Japanese study group as a concept for strategic planning and control for project [24]. PBSC is made up of Balanced Scorecard (BSC) for planning and control of projects that is managed with the concept and framework of P2M [24]. There are basically four procedures in the framework of PBSC. The first is description of strategy map, followed by build program BSC, and then build project BSC, and lastly, the outcome evaluation. Its concept framework is briefly illustrated in Fig. 1. PBSC requires several paths or programs to accomplish its strategic objectives. These paths are divided into numerous subpaths, also known as projects which are needed to execute each of its programs. To maintain the goal congruence among the project team members, program BSC suggests measurements and targets for evaluating each project outcome [24]. The steps and measures provided have to be of equal benefit to all project stakeholders as well. Emphasis on project planning and control at activity level is done at project BSC stage, and this feature distinguishes the project BSC from Earned Value Management (EVM), where in EVM it is done at task level [24]. Finally, a comparison on the targets and results between program and project BSC is done in the outcome evaluation. This procedure is essential to determine if the objectives are met. In a project, communication is especially important among cross-departmental project team members and PBSC was introduced to maintain the goal congruence of the entire project, and not just focus on individual profit of their own departments. Bad communication will result in communication conflicts that can provoke misunderstanding [27]. PBSC can be more effective when emphasis is placed on communication [24].

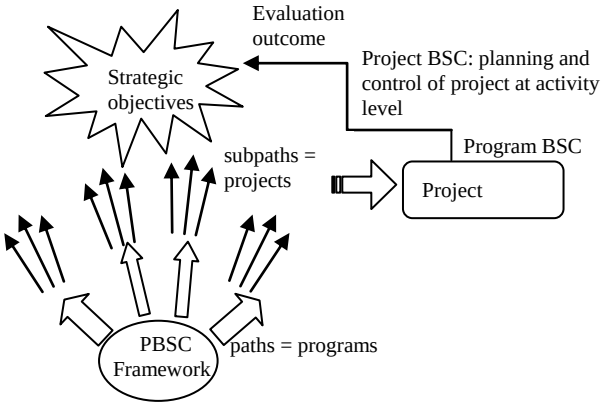

Figure 1. PBSC framework.

Basically, apart from PBSC, there are three other major skill set management tools in P2M/KPM; namely logic model, technology roadmap and platform management. These tools are applied in construction projects; IT related systems, and environmental project management such as improving the energy utilization for air conditioning in office buildings [28], [29]. The logic model is used by project managers to evaluate the effectiveness of a project or program. It plans out activities, normally in a graphical depiction design to obtain mutual understanding among stakeholders. It gives a logical relationship between the resource input, output, and outcomes of a program. This model was applied in a study done in Japan to enforce the verification of effectiveness of their research support system. Inputs and resources that included external and internal factors, long-term outputs, medium-term, and short-term outcomes or impacts were depicted in this model [30]. Subsequently, the results obtained were used to draw out the next action plan. As P2M/KPM emphasizes a lot on value creation, management tools are also structured to place weight not only on economic value creation, but also social values. The logic model has been applied to unite community network in the construction of social value environmental platform [31].

In the technology roadmap, the value of the technology is verified [32]. In order to achieve an ultimate goal, this roadmap helps in matching short-term and long-term goals with the help of a certain technology. Normally, project managers use this to plan for new product launching, or when there is an emergence of new technology.

Platform management forms the uniqueness of P2M theory as it is intended to promote standardization of effective design and operation for integration management [33]. P2M is the only standard that furnishes an integration management model across programs and portfolios of projects at enterprise level [21], [34]. The purpose of this platform management is to review existing business models [32]. In the context of P2M, platform works as a base that supports the whole project, and is made up of management system, service system, and information knowledge system, which mainly covers four major areas; i.e., environmental infrastructure, standard subsystem, collaborations, and knowledge accumulation system [35]. Platform and service supports are essential factors that provide knowledge on people, information, and cultures [33]. Platform management is applied in green infrastructure programs, IT system construction, green technology, and social infrastructure business, among others.

The above-mentioned four management tools work effectively together with the 3K/3S project models. The 3K ideology is important to be applied in these management tools as reformation, development, innovation, and improvement of management skills are essential to cope with the constant environmental changes that greatly influence the management methods of projects. In terms of *kaihatsu*, the development and advancement of strategies and methods were done in all four management tools. In response to external changes, new strategic planning, and evaluation methods are developed in PBSC, whereas research is often done to create new resources, for better outputs, and outcomes in logic maps. Evolution and breakthrough of new ideas and knowledge are practiced in technology roadmap and platform management. The *kaizen* concept is applied for continuous improvement of planning and evaluation methods in PBSC, suggestions of corrective actions from the outcomes obtained in logic model, efforts of improvement of technological ideas on a

daily basis in technology roadmap, and endless knowledge input to enhance the stabilization of platform management. Emphasis of *kakusin* can be found in modification of target control and evaluation methods in PBSC. These methods will be innovated to suit the targets and objectives of the project for a preferred outcome. In logic models, strategic planning and resource inputs are enhanced to provide more effective evaluation methods of projects. Timeless innovation of existing technology is done in technology roadmap, whereas enhancement of knowledge and information is carried out in platform management.

The concept of 3S - scheme, system, and service project models are also applied in these management tools in the context of P2M/KPM. In brief, justification of the project investment, risks, costs, budget, and feasibility are done at the initial scheme stage of a project lifecycle, followed by the system stage where a check is done on whether the members or organizations who were selected to manage the projects are doing their job according to original plan or whether they will bring it to completion; and finally, at the service stage, a confirmation will be done to see whether the business is maintained and operated smoothly or if expected results are attained [36].

Table I summarizes the four management tools along with the 3K/3S project models of P2M/KPM.

TABLE I. MANAGEMENT TOOLS WITH 3K/3S PROJECT MODELS

Management tools / 3K/3S	**PBSC**	**Logic model**	**Technology roadmap**	**Platform management**
Objective of management tools/skills	Strategic planning control, and evaluation of project targets	Evaluation of project effectiveness, strategic planning, and obtaining consent among stakeholders	Verification of value in terms of technology	Review of business model
Kaihatsu	Development of strategic planning, and evaluation methods	Research and advancement of resources, input and output	Evolution of new technology	Development of knowledge and information
Kaizen	Continuous improvement of target planning and control methods	Proposals of corrective actions based on output and outcomes	Continuous improvement of technological ideas on a routine basis	Continuous input of knowledge to enhance the stabilization of the platform base
Kakusin	Modification of target control and evaluation methods	Enhancement of strategic planning and resources input	Innovation of existing technology	Enhancement of knowledge and information
Scheme model	Management and evaluation of execution objectives , establishment of an independent execution method	Drawing up of execution plans and understanding its significance based on medium-term and long term visions	Adoption of technology	Mutual information network
System model	Management, control, evaluation of target and objectives	Setting of development targets/objectives	Affirmation of competitive developmental techniques	Open innovation
Service model	Execution of business models	Evaluation of business models	Technology updates	Updates on business models

VI. CONCLUSIONS

P2M/KPM is an innovated Japanese management technique that emphasizes the flexibility to adapt to environmental changes and respond to external changes that cope with ambiguity and expandability, in order to overcome crises. P2M/KPM is mission-oriented, and revolves around the idea of reformation together with the 3K – *kaihatsu*, *kaizen*, and *kakusin* ideology. Moreover, P2M/KPM also solves complex problems by stressing on value creation through the 3S – scheme, system, and service project models. In the perspective of social behavior in management, collectivism, humanism, and inter-human relations are important aspects for Japanese people. They put weightage on group verdicts, and in achieving group goals. Communication is a key element of the Japanese management practice.

Four management tools or skill sets are mainly utilized in the context of P2M/KPM. These are PBSC, logic models, technology roadmap, and platform management. They work effectively in managing projects which are related closely with the 3K ideology and 3S project models.

By identifying the key features and elements of P2M/KPM, project managers in worldwide organizations can have a better perception and deeper understanding of

JPM. Suitable and proper management methods can then be selected and applied for their future projects.

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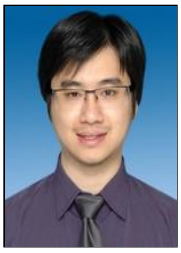

Chong Heap Yih was born in Ipoh, Perak, Malaysia on 17 April 1983. He is currently an Assistant Professor in the Department of Built Environment, Universiti Tunku Abdul Rahman (UTAR). He obtained his PhD in Civil Engineering (Construction Engineering & Management) in year 2010. Currently, he is pursuing his Bachelor of Law (LLB) degree from University of London, United Kingdom. Apart from his personal study, he is also actively involved in academic research and certain industrial activities. He has published several papers in international refereed journals (cited in ISI or Scopus) and a book in year 2013; while two consultancy projects (measurement and work program) were completed and one advisory project is on-going for a local construction firm on contracting and managing of infrastructure and piping works. Dr. Chong is a Corporate Member of Chartered Institute of Building, UK (MCIOB). He has also given lectures (invited speaker) regarding dispute resolution and construction contracts in the construction industry for the accredited seminars by The Institution of Engineers Malaysia and Board of Quantity Surveyors Malaysia. Besides, he has recently become a research member of the International Association of Project & Program Management (IAP2M), Japan.

Low Foon Siang obtained her Masters in Engineering and Bachelors in Engineering (Organic & Polymeric Materials) in Tokyo Institute of Technology, Tokyo, Japan in 2004 and 2002, respectively. She is currently working as a lecturer in Department of Mechanical and Materials, Faculty of Engineering & Science, Universiti Tunku Abdul Rahman, Kuala Lumpur, Malaysia. Her research interests include project management theories and Japanese studies. Low has also worked for a few Japanese organizations as an regional sales engineer and regional marketing manager prior to her appointment as a lecturer. Low is a member of the Board of Engineers Malaysia (BEM), and also a member of the International Association of Project & Program Management (IAP2M), Japan, as an international researcher.

Lee Wah Peng is a certified Professional Engineer (PE) with the Board of Engineers in Malaysia. He has a bachelor's degree in civil engineering from Universiti Kebangsaan Malaysia in 1996 and master's degree in business administration from Universiti Putra Malaysia in 2000. He obtained his PhD in project management from Universiti Putra Malaysia in 2005. He is currently an Assistant Professor in the Department of Built Environment at Universiti Tunku Abdul Rahman. Before joining the Universiti Tunku Abdul Rahman, he worked with consulting engineering firms and has more than 10 years of experience in the planning, design and construction of civil engineering projects, specializing in residential and commercial development projects. He has published a few international refereed journals cited in the ISI Thomson and Scopus.