Study of the Real Estate Project Management Maturity Model

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Abstract: The project management maturity model of the real estate enterprises is mainly studied in this paper. As one of the methods of project management of the real estate enterprises, the project management maturity model can not only be used for rating of the construction project management capability but also assess the current project management level of the real estate enterprises to find the gap and provide the approaches of continuous improvement for the real estate enterprises. In the paper, the characteristics of project management and project management maturity model of the real estate enterprises are first introduced, and then some international project management maturity models widely applied are compared. Based on the above, the present situation of application of the project management maturity model in the real estate enterprises of China and some main problems needed to be resolved for establishment of the project management maturity model suitable to the real estate enterprises of our country are finally pointed out.

Key Words: project management maturity, optimal approach, organizational project management

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1 Project Management and Project Management Maturity of The real estate Enterprises

1.1 Project management of the real estate enterprises

The project management of the real estate enterprises refers to the management of all the projects that the real estate enterprises participate in, including the projects of the real estate enterprises for meeting their own internal demand and projects of products or services provided for the external customers. The project management of the real estate enterprises is mainly characterized as follows:

Full-life project management

The management of the real estate enterprises should necessarily consider the contradiction between the provisionality of project organization and long term of operation of the real estate enterprises. Therefore, the project management of the real estate enterprises should consider not only the decision-making and implementation phases of the project but also the operating and service phases of the project after it is delivered.

Multiple-project management

The project management of the real estate enterprises is the management of multiple projects in the different full-life phases in most cases. In addition to the use of technologies and methods of a single project management, there should be the multiple-project management methods such as large project planning management and project combined management, etc.

Management of resources

The single project management emphasizes the realization of success of the project with the least resources in the restriction of resources. The project management of the real estate enterprises requires the maximized use of the resources of enterprises so as to achieve more interests or values.

1.2 Project management maturity model

Post 1990s, the study of the project management begins from the single project management to how the real estate enterprises or organizations make use of project management to realize their strategic objectives. In addition to the study of the methods and technologies of single project management, the real estate enterprises or organizations need a set of complete system, theory and methods to choose correct projects and continuously improve their own capability and level of completing the projects, keep their competitive power...
and achieve the strategic success. It is under this background that the project management maturity model is developed and used to assess the project management capability of the real estate enterprises and help the enterprises continuously improve their own management.

As far as the project management of the real estate enterprises and organizations is concerned, the most important is the successful realization of project objectives, making the customers satisfied with the final delivered things of projects. The projects are completed continuously to achieve the objectives of the real estate enterprises and organizations. At the same time, with the completion of projects one by one, the project management of the real estate enterprises or organizations will also be continuously improved. The problem is that time and resources are limited for the real estate enterprises and organizations. How to continuously keep advancing in competition? In which aspects are the real estate enterprises and organizations in the biggest gap to the other in the same industry? How to find the weakest link of the enterprises in the aspect of project management? The resources should be first used in the places where the resources are most needed to improve the capability in these aspects. It is the project management maturity model that provides such a framework, which can help the real estate enterprises assess their own current project management level, find the gaps and weaknesses, continuously improve their own project management capability and finally successfully carry out projects.

2 Main Foreign Project Management Maturity Model

2.1 The US Project Management Institute (PMI) presents the project management maturity model (OPM3) from the level of organizational project management

In 1998, the PMI began the OPM3 plan and expected it as a standard model to be put into the market for competition. John Schlichter acted as the director of the OPM3 plan and employed about 800 professors from the different professions of 35 different countries including China. With the efforts of five years, the OPM3 (Organizational Project Management Maturity Model) finally came into being in December, 2003, starting another surge of the real estate enterprises seeking to establish the “comprehensive organizational project management capability” following CMM. PMI gives the definition of OPM3 as follows: the methods of capability of the evaluating organizations managing the single project and combination of projects to carry out their own strategic objectives and the methods of helping the organizations improve the competitive power in the market. The objectives of OPM3 are to “help the organizations successfully and reliably choose and deliver the projects in the plans to realize their strategies through their development capability”. OPM3 provides the users with rich knowledge and self-evaluating criteria used to determine the current state of the organizations and establish the relevant plans of improvement.

The elements of the OPM3 model consist of optimal practice, capability, achievements and key performance indexes (KPI). The OPM3 model is a three-dimensional one. The first dimension includes the three levels of project management (project investment combination management, combined project management, project management). The second dimension includes 9 knowledge fields and 4 basic processes of project management (criteria, measurement, control, continuous improvement). The third dimension is the project development period (initialization, planning, implementation, control and ending). Its framework diagram is shown as Fig. 1.
OPM3 is also divided into 5 levels, but its contents are not divided into levels subject to maturity. It focuses on how to make the organizations able to identify and improve the project management process. The application process of the OPM3 includes organizing assessment, determining the improved important points and path, establishing the improving plan, execution of improvement and repeating and continuous improvement, etc., shown as Fig. 2.


![Fig. 2 Application Process of OPM3 Model](image_url)

2. Doctor Kerzner’s Project Management Maturity Model (K-PMMM)

K-PMMM was presented by Doctor Harold Kerzner, a famous US consultant and trainer in his writing “Strategic Planning for Project Management Using a Project Management Maturity Model” in 2001. The book has been translated into many languages. K-PMMM, like CMM, shown as Fig. 3, is divided into 5 levels, starting from the angle of project management strategic planning of enterprises. 5. Continuous improvement 4. Comparison of benchmarks 3. Single method 2. General process 1. General terminologies

The application of the model adopts the questionnaire method different from the common one. Some self-assessment questions are given in the different levels. There are 80 multiple choices similar to the PMP examination for the first level; there are 20 grading questions for the second level; there are 42 multiple choices for the third level; there are 24 grading questions for the fourth level and there are 16 grading questions for the fifth level. Answering these questions can analyze, treat and judge the problems existing in the project management of enterprises, which provides the criteria for improving the project management level of the real estate enterprises. The model includes 5 steps. Each step represents a different degree of project management maturity. The grade of project management maturity refers to the platform with some clear definitions, expressing the project management process capability maturity in the process of the project management level of the real estate enterprises or organizations becoming mature. Therefore, based on project management, the project management level of the real estate enterprises is divided into 5 orderly grades in the process developing from the confused one to the standardized one and then to the optimized one, forming a gradual upgrading platform. Each grade is the basis of the higher grade. The process of the project management level of the real estate enterprises continuously improving is also the one of the gradual accumulation of their project management level. Therefore, the improving strategies resulting from the project management maturity model will provide a road sign for the real estate enterprises to improve their project management level. It directs the real estate enterprise to...
continuously improve its defects and guides it to do "what is improved" in its own grade of project management level, providing a direction for it to improve its project management level. With the help of the project management maturity model, the real estate enterprise can identify its weaknesses of project management and form the improving strategies of its project management by resolving some problems essential to the project management level. It pays attention to the careful implementation of some critical practical activities to make the project management capability of the real estate enterprise continuously improving. The assessment method of the model is simple, which is favorable to the assessment of the real estate enterprise in the low grade. For the enterprises in the high grades, because the assessed problems are relatively simple, it is very difficult to truly show the problems and gaps of the real estate enterprises or organizations in the project management. If the model is used to assess the project management maturity of the domestic real estate enterprises, attention should also be paid to the design of some questions in the questionnaire. They should be improved according to the domestic environment and market.

Doctor Kerner also re-explains the definition of successful project, that is, not only the three objectives of project time, expense and performance should be realized and satisfy the customers but also the progress of the project should have the minimum or both-party agreed change of scope, culture or outlook on value as well as work progress of the real estate enterprise without any interfering organization. Such a change mainly comes from the fact that more and more real estate enterprises are transferring the original management oriented to functions and process to the one oriented to objects (that is, projects). Therefore, the link of project management in the strategic planning of the real estate enterprises becomes more and more important. Whether the project management capability of the real estate enterprises is mature or not directly influences the realization of strategic objectives of the real estate enterprises.

The organizational project management maturity model of the PMI is a three-dimensional one. Based on the former models, in addition to the two dimensions of five processes (starting, planning, implementation, control and ending) of project management and four steps (standardized, measurable, controllable and continuous improving) of the process improvement, the model increases the third dimension in the level of organizational project management, that is, three fields of project management, large project plan management and project combination management. The different fields deal with the problems of project management in the different levels in the organization.

3 Analysis of Applications of the Project Management Maturity Model in the Domestic Real Estate Enterprises

3.1 Principles of Division of Project Management Maturity Model PM3 Maturity Grades

The principles of division of maturity grades are to establish the different maturity criteria for each grade and then establish the concrete contents according to the different maturity of each grade. There are mainly two approaches to improve the project management process capability, that is, realization of sustainable process improvement and quantitative management. The division of PM3 grades is mainly based on two approaches, shown as Fig. 4. The division of PM3 grades is mainly based on the expansion of the above two approaches in the two-dimensional space.

In the three aspects of project management, the process control is the basis of continuous improvement. The final purpose of sustainable process improvement is to better carry out the effective control of the process, and the strategic planning is to carry out the strategic planning of all the project management processes of the enterprise in a higher altitude. However, the three aspects are based on knowing the activities and products of the project management process so as to assure that the established rules are abided by, the products meet the criteria for process definition, and the workload, cost and product quality are measured to guide the control and
improve strategies and then the effects of project management process control and improvement are further judged according to the measured results. The process control process continuously improves the strategic planning: confusing grade 1: simple grade 2: standardized grade 3: quantified grade 4: quantitative and qualitative strategic grade 5. In the grade 1, PM3 does not have the requirements of process control, sustainable process improvement and equal-quantity management. Its measuring standard is relative to the second grade, that is, all the enterprises that cannot meet the requirements of grade 2 are in the first grade. In the grade 2, PM3 asks to establish the basic project management system so as to be able to carry out the effective control of the project management process. This grade presents some requirements for the equal-quantity management, asking to measure the states of work and activities so as to make the project management personnel know the process state and assure that the process regulations are abided by. In the grade 3, PM3 is represented as the standard consistent process. In the grade, the continuous process improvement is required. With the improvement of process control requirements and introduction of the continuous process improvement, the relevant requirements in the quantitative management are also higher than those in the grade 2. The requirements in the grade 4 are mainly represented in the quantitative management, asking the quantitative process management and quantitative quality management. The grade 5 is represented as the project strategic planning process in the improvement of project level of the real estate enterprises and the strategic planning capability of projects in the real estate enterprises.

3.2 Application of the project management maturity model in China

Since 1990s, more and more the real estate enterprises have realized the importance of project management and begun to use the project management to the management of the real estate enterprises. Some individual project certifications such as builders’ practicing qualification certification developed by the the real estate industry and the invested construction project manager developed by the State Commission of Development and Reform show that the domestic the real estate enterprises have attached great importance to the training of the project management talents. However, the widely approved criteria and methods on how to assess the project management capability of the real estate enterprises have not been developed in China.

3.3 Application of the Project Management Maturity Model in the The real estate Enterprises

1) The integrated project management of the real estate enterprises is to assure the mutual coordination of the different elements of the project. The success of both the project and organization depends on the integration of the PM effective strategies and correct use of PM technique in the different mature phases. Some similar topics such as integration, application, process and each phase of project lifecycle, etc. of the project management are included in this area. The first class is that the project plan is not established according to the structural form without the project management information system. The second class is that the informal PM tools including the basic project plan and organizational structure and practice are determined. The third class is to establish a set of formal PM methods and subsequently carry out management in addition that the PM information system has been established and managed to collect, process and distribute some necessary data. The fourth class is that the organization has established the project control process and carried out the integration and coordination between the different knowledge areas and projects. Many project managers and directors integrate the PM information system used for many projects. In addition, in the project control process, the comprehensive integration is also made to minimize the risks of scope, cost, schedule and quality management, etc. The fifth class is that the whole integration management process is carefully planned and optimized so that the PM process is continuously improved.

2) The project scope management of the real estate enterprises is the process of defining and controlling all the elements and variables of the project, including project planning, project control, comparative analysis,
project qualification guide, starting meeting, description of work range, legalization of project scope and starting of the control process, etc. The first class is that the project manager is designated in the confused conditions without a set of methods to carry out and control the project. The second class is that the informal work disassembly structure and range change control process have been determined and the PM team agrees informally to start the project. The third class is that the formal project manager’s qualification guide and project manager’s functions have been established and the scope plan, definitions and process of verification, etc. have been managed. The fourth class is that the product and scope management has been integrated in order to assure the success of the project, the scope change control and process of verification have been made into documents and integrated. The fifth class is that the whole scope management process has been planned and optimized and the PM process has been continuously improved.

(3) The time (schedule) management of the real estate enterprises is to assure the completion of the project in time, which is a challenge to any project manager, including definitions of activities, procedures of activities, budget of construction period, development of construction schedule and control of construction schedule, etc. Various technologies and methods such as horizontal way diagram, CPM/PERT (critical path method) technology, allocation and division of layers of resources, network collision, rapid project tracking, etc. are used to effectively manage the project schedule. The first class is that the project schedule has no standard template and the schedule development process is neither realistic nor orderly. The second class that the organization can develop the informal project schedule used for planning and tracking, and the list of activities and the structural template of work disassembly are also defined. The third class is that various tools and technologies of schedule plan have been available to effectively control the schedule. The fourth class is that the formal schedule control process and methods have been integrated. The fifth class is that the formal project schedule management tools have been optimized and the PM process has been continuously improved.

(4) The project cost management of the real estate enterprises is to assure the completion of the project in the audited budget. The cost management is very important. The cost over-expenditure will cause the serious problems in the phase of project implementation and even the project to be stopped, including planning of resources, cost estimate, cost budget and control, analysis of increased value, depreciation and capital budget, etc. The first class is that the results are very poor without the cost budget process and the original budget may be broken through. The second class is that the informal cost budget tools and technologies have been available, and the cost baseline, resource requirements and structure of work disassembly, etc. have been defined. The third class is that the plan of resources and cost budget have been coordinated well, the lifecycle cost has also been used and managed. The fourth class is that the formal plan of resources, cost estimate and budget processes have been integrated. In addition, project investors (shareholders) have a correct judgment of the different project cost metrics. The fifth class is that there have been the formal cost budget tools and technologies, which have been optimized, and the PM process has been continuously improved.

(5) The project quality management of the real estate enterprises is assure that the project will agree with or exceed the requirements of all the activities of the whole management function, including overall review of quality concepts, quality cost, statistic process control, variance and checking and quality improvement, etc. The first class is project overtime and over-expenditure. The rework is common, without quality auditing, quality assurance and quality control process. It is only inspected and checked on site. The second class is that the organization has had the informal quality management system, but the problems found in inspection and auditing can be presented in the case of the compulsory establishment of the project contract. The third class is that the formal quality policies and standards have been established to carry out management of all the activities such as quality plan and quality assurance, etc. and the quality problems are found in implementing these activities. The fourth class is that the targets of obtaining
the good-quality project management process and project activities are integrated, the schedule of obtaining the project quality targets has been measured in quantification and started as well as implemented and finally comprehensively integrated. The fifth class is that the quality management system is optimized and the PM process is continuously improved.

(6) The project human resource management of the real estate enterprises is to assure the most effective use of project participants. The project human resource management carries out the effective management, encouragement and organization of human resources, including project tasks, work responsibility, organizational reporting relations, arrangement of personnel, encouragement and motivation mechanism, leadership system, team development and resolution of conflicts, etc. The first class is that the contradictions of concepts with the project as the driving force and organizational management cause the conflicts and contradictions of all the project executive managers. The second class is to determine the informal organizational and structural diagram and personnel management plan. The third class is that the customers and suppliers are often incorporated into the project members to jointly accept the activities of team construction and training. The fourth class is the improvement of personal skills and team capability are integrated and the project is effectively carried out. The team oriented by the project clearly realizes the organizational management and benefits much from the organization. The fifth is that the human resource management system is optimized and the PM process is continuously improved.

(7) The project communication management of the real estate enterprises is to assure the production, collection, publishing, storage and allocation of project information in time and appropriately and there must be a clear communication between the planning personnel and implementation personnel at all the levels of the organization, including information plan, information distribution channels, schedule development report, information sharing system of the management level and customers. The first class is that the organization has no formal system of implementing the report, the project inspection is often limited to the basic situation report and the project inspection is only carried out in the case of the compulsory regulations in the contract. The second class is that the information searching and distribution system has been defined and the informal implementation report and review have been carried out. The third class is that the project data are stored and maintained according to the structural classifying types, and the project implementation data are regularly analyzed, reviewed and revised for the project assessment. The fourth class is that the information including scope, schedule, cost, risks, quality and human resources of all the knowledge areas in the project implementation report system has been comprehensively integrated. In addition, the project communication management process and technique are also comprehensively integrated with the organizational structure of the enterprise. The fifth class is that the organization has had the optimized system to communicate with the management system and the PM process has been continuously improved.

(8) The project risk management of the real estate enterprises is identification, analysis and response of the project risks, including confirmation, verification and quantification of risks, establishment of the strategies reducing risks and development of appropriate risk response and control procedures. The first class is that the organization has no project risk identification procedure, the risks are only realized before something occurs but not after something occurs, without the formal risk management plan. The second class is that the informal identification analysis of the project risks can be made. The third class is that the organization has had the formal risk management tools and technologies and the risk management has become a continuous piece of work in the whole project lifecycle. The fourth class is that the organization uses experience, lessons and information in learning to identify, respond to and control the risks. The potential risk sources for the use of the other PM knowledge areas have been prepared for reviewing. The risk identification, quantification and response plan are comprehensively integrated between some projects to minimize the risks. The fifth class is to
optimize the risk management system and the PM process has been continuously improved.

The project purchase management of the real estate enterprises is to assure that the organization can obtain the external cargo and service, including contract management, contract risks, contract negotiation and contract termination, etc. The first class does not relate to the market situation analysis or establish the purchase plan and inquiry plan. The second class is the informal communication with sellers and suppliers has been made and the informal project purchase management process has been determined. The third class is that the formal purchase management tools and technologies have been managed, the purchase data have been established into documents after analysis and the project managers coordinate with the suppliers. The fourth class is that the purchase auditing and the whole purchase process are comprehensively integrated, and the supply-purchase relations are developed in multiple levels, multiple projects and all the phases. The long-term relations between the employers and suppliers have been established and the project quality is kept stable. The fifth class is that the PM process has been optimized and continuously improved.

4 Conclusion

Entering the 21st century, with the acceleration of the global economic integration and the continuous intensification of competition in various aspects, the domestic the real estate enterprises are facing the unprecedented challenges and opportunities. The management capability and efficiency of the decision-making departments, the real estate enterprises and great investment projects have become the key to improve the international competitive power of the enterprises. Although the importance of project management has been realized by the real estate enterprises or organizations, the study of project management of the domestic the real estate enterprises is still backward. At present, it is very necessary to carry out the study of the project management maturity of the real estate enterprises. The value of the paper lies in that it studies the main foreign maturity model and analyze how the project management maturity model should be applied according to the the real estate enterprises on the basis of introducing the project management maturity model. Not only the successful foreign experience in this field should be referred to but also the characteristics and development of the project management of the domestic the real estate enterprises should be combined to establish the project management maturity model suitable to the domestic the real estate enterprises, making the maturity model become the powerful tool and the optimal guide for the the real estate enterprises to improve the project management level.

References