Software Project Management

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Abstract

Is introduced in this paper software project management, including the main content and management process, analyzes the main problems existing in current software project management, the causes and the resulting harm, and puts forward some suggestions for the future work.

Keywords : Software program management Quality control Configuration management Risk management.

1.Preface

Software project management is to make the project according to the scheduled cost, progress, quality of finish, analysis and management activities of the personnel, product, process and project. The fundamental purpose of software project management is to make software project, especially large software projects throughout the software lifecycle can be under the control of managers, to pre fixed costs on a regular basis, guarantee the quality of the completed and delivered to the user. Compared to software project management and other project management has its own particularity. First, the software is pure knowledge products, the development progress and the quality is sometimes difficult to estimate and measure, the production efficiency is also difficult to predict and guarantee. Secondly, the complexity of software system also led to difficult to predict and control the risks in the development process. Especially some large software system development without good management, the quality of the software is hard to imagine.

2.The contents of software project management

The content of software project management mainly includes the following aspects: organization and personnel management, software project planning, software quality assurance, software configuration management, risk management is through, interwoven in the software development process. To software production potential due to product quality and thus take measures to prevent the hazards of the personnel organization and management to focus on the composition of the project team, optimization, software project plan mainly includes the estimation of workload, cost and development time, and based on the estimated values to formulate and adjust the project team work; software quality assurance is to ensure the production goods and services fully meet the requirements of consumer quality in a planned and organized activities; with the software set management personnel in the development process, tools for configuration, proposed management strategy; risk management to predict possible future

Organization and management personnel

Software development in the work of developers is the largest resources. The allocation, scheduling, arrangements throughout the software development process of personnel, organization and management personnel properly, is an important factor in determining the success of software project. In the software development work, to the rational allocation of personnel, according to the amount of work of the project, need professional skills,

and then refer to the personnel at all ability, personality, experience, and other various factors, organization a efficient and harmonious development group. In the personnel selection problem, according to the actual situation to decide whether to choose into a developer. As the inspection standard, technical level, and the related skills and development experience, and team work ability are very important factors. It should also be considered division of labor needs, rational allocation of each special personnel proportion. As a kind of software project personnel management organization form, you can set up the project management committee, under the project management team, project panel and software project management committee is the highest decision-making body of software project management, generally by the development of the general manager, deputy general manager. The project management team on Project Management Committee is responsible for general development by unit management personnel. The project panel is responsible for the project management committee, under the development review team and product inspection team, generally by the developer of the technology and market experts. Software project team is responsible for the project management committee consists of software project and project group. The software project team and product project group respectively under the development manager and product manager. By members of the general technical personnel development units and personnel market.

The software project plan

Software project plan main work include: determine the detailed project implementation scope, definition of submitted work, assessment of the implementation of the major risk in the process, make project time plan, cost and budget planning, human resource planning,. The software project management process from the beginning of the project planning activities, while the first plan is to estimate the activity: how long does it take, how much, and how much the workload of developers. In addition, must also estimate the hardware resources and may involve risks. For a software project manager, his goal is to define all project tasks, identify key tasks, tracking the progress of the key task, to ensure timely detection of the delay in the schedule. Therefore, project managers must make a sufficiently detailed schedule, in order to supervise and control the whole project project schedule. Schedule is the primary task of software project planning, project planning is the most important part of software project management. Project plan important output document is the software project plan ", in the plan should be describes the software development schedule arrangement, resource requirements, project management of the general content, and sent them to the relevant personnel development units, making them a general understanding of the basic situation of the software project. For each item in the plan, should have the corresponding implementation manual, the manual operation is a guide to the project group members to complete their work.

Software quality management

Software quality management is to ensure the project can meet the provisions of the original requirements needed to process, refers to the overall management function determines the quality policy, objectives and responsibilities of the activities, and through a series of guarantee means within the quality system to be implemented. General including quality planning, project quality assurance, project quality control process. Quality planning is to determine which quality

standards related to the project, and decide how to reach the quality standard of work. The quality standard of the software system may include functionality, stability, economy, applicability, reliability, safety, maintainability, portability and other indicators. The project quality assurance is to evaluate the overall performance of the project regularly, to examine whether the project reached the relevant quality standards and to the extent. Software project quality assurance process responsible for the final results to the project, but also bear the responsibility for the quality of the whole project process. Software project management should require and mobilize all the developers in the quality assurance activities play a role, to the greatest degree and scope of implementation of software project quality assurance, and ensure its implementation effect. Project quality control is the overall results of monitoring items, to determine whether they comply with relevant quality standards, and find out how to eliminate substandard performance method. For a software project, commonly used in software testing and configuration management and quality control means to effective quality control system

Software configuration management

Software configuration management is a series of measures through technical or administrative means of software product and development process and life cycle control and standardize. The target is the evolution of software product records, ensure that the software developers in the software life cycle stages can get accurate product configuration. The configuration management process is the management process in constant evolution, the process of improvement of software products. The ultimate goal of completeness, consistency and controllability of software products, make the products greatly and the user needs to match. Through control, recording and tracking of software modification and each modified generation software components to achieve the software product management function. Software configuration management is a kind of identification, organization and control of modified technology is applied in the whole process of software project management. In order to identify the main change, change control, ensure more properly implemented and other relevant personnel to report the change, occupies an important position in the whole software development activities. Software project managers should design a configuration management process can be merged in the existing software development process for software configuration management activities.

Risk management

Software project risk management needs with limited cost, to achieve the project within a limited time scale, and the project risk will affect this point. The purpose of risk management is to minimize the negative impact of the risk on the project's objectives, seize the opportunity to bring risks, increase stakeholder income. As a software project manager must risk assessment project, risk coping strategies, there are plans to allocate resources to ensure the smooth progress of the project. The main activities of the risk management including: risks that may exist in the risk plan formulation, and steps of determination of software project risk management; risk identification, to determine the software project; risk analysis, the risk occurrence probability and the potential impact of schedule risk priority, to prepare for the subsequent analysis, and quantitative risk analysis of software project goals influence; developing strategies to deal with risks, reduce the influence of the risk of software project goals; risk tracking and monitoring,

tracking and monitoring to identify risk, execution risk coping strategies and evaluate its effect in the whole project life cycle

3.Software Project Management Process

From the point of view of software engineering, software project management process is divided into seven stages: feasibility analysis stage, demand investigation stage, design stage, the coding phase, the testing stage, stage of acceptance and maintenance phases.

3.1 feasibility analysis stage feasibility analysis phase of the objective is to minimize the cost and time to determine the software project to develop and whether it is worthwhile to develop, and its essence is to carry out a simplified, abstract requirements analysis and design process, mainly from the technical feasibility, economic feasibility and social will feasibility analysis to determine whether it is feasible to software project.

3. 2 demand investigation stage demand research work is an important part of the work of software development projects, after many jobs are dependent on demand research results, research needs is progressive, in the feasibility analysis stage, the main concern is the function of the software project scale, scope and focus. After entering the formal development process, the need for more comprehensive and accurate understanding of the system requirements. Don't pay attention to the needs of the project team will suffer the consequences, defects in requirements engineering will bring great risks to the success of the project.

3 .3design stage in the design stage, due to the task has been more detailed decomposition, the general solution scheme and technical framework has been established, the design is for a particular module or object, according to the demand and technical framework for the requirement and module interface, a description of the our method for achieving the function. When the design is completed, arrangements must be made to ensure the quality of design and design review, design review by the encoding can start work.

3. 4 the encoding phase in the encoding phase, at the end of the coding, code review, should the technology by the project team responsible for the completion, audit objective and is not to test code is correct but need of coding in accordance with the standard of review.

3. 5 the testing phase of software testing for unit testing, integration testing, system testing, validation testing, with user testing, functional testing, performance testing a variety of tests, each test has its corresponding and personnel responsible for. The test is the most important means to ensure software quality of the project must be carried out in accordance with the scientific and reasonable process. In tests performed before should be prepared for the perfect test plan, test cases, in the test work in the process of defect tracking, regression testing to improve test efficiency, test after completion according to the test by standard judgment test whether and to ensure that truly achieve the goal of testing, software system error rate reduced to a minimum.

3. 6 acceptance stage of software project acceptance is generally speaking there are two stages. The first stage is the acceptance test, after the successful completion of the acceptance testing, usually have a stage of trial operation, and then into a real project acceptance work. Only when the 2 stages of acceptance after the end of all, the whole project is truly over, then into the operation and maintenance of software.

3.7 the maintenance phase of software project put into use after entering the maintenance phase, including the improvement of software maintenance

maintenance, corrective maintenance, adaptability and preventive maintenance of four categories. Perfect maintenance is according to the continuous development of the actual needs, the system software function can be enhanced and extended; corrective maintenance is the errors appearing in the process of software system to be analysis, correction, ensure that the error does not occur; adaptive maintenance is in the software system of the software and hardware environment changes, to ensure that it can continue to maintain the normal operation of; preventive maintenance is in the process of software system to carry on the analysis, to determine possible need to maintain the content in advance for maintenance work.

4.Analysis of the existing problems in software project management

4.1The research work needs sufficient demand research work is an important work to determine the scope of the project content, software development. But in many software projects, the demand for research work is not sufficient, researchers did not really understand user demand, such demand cannot be as the system development foundation, the content of hair are often unable to get user acceptance, only at a later stage were revised again and again, caused the development of repeated, efficiency and reduce costs increase. Therefore, we must pay attention to the normative research work needs and fully and accurately understand user needs.

4.2 The test is not perfect testing is an important means to ensure the quality of software system. But in many software projects, testing system, work is not perfect, the test case coverage is not enough, the test work is not complete, resulting in a lot of problems in the software system in the testing work is not. In the software process, found no problem may be exposed to serious Affect the normal use of the system. It must ensure that in the testing work standardized and efficient, to really find the software system, improve the quality of software system.

4.3 people is not enough time in the software project development process, timely communication of team members is an important means to ensure the orderly and efficient development of the. But in many software projects, the lack of effective communication between project team members, boring project group interior atmosphere and their respective bulkhead to do their work, communication deficiency may lead to the efficiency of reduced duplication of work and even. At the same time, each part of the system developers only pay attention to their own work will increase the difficulty of the work after the integrated system, or even difficult to carry out system integration. In addition some of the details of the changes can not promptly notify the other developers will also cause the development of the disorder and chaos.

4. 4 progress control is not ideal for each software project in start generally have more detailed development plan, but in the process of development, are often unable to carry on according to the plan, which have many reasons, and every software project the actual situation is different, when analyzing the difference, but the most software projects cannot according to the plan were, it is an indisputable fact. In order to avoid this phenomenon, software project managers should consider the actual project in formulating the plan, risk analysis, comprehensive factors make feasible development plan. At the same time in the software project started after the implementation of time planning, risk analysis at any time, a slight deviation will take

immediate measures, to the maximum extent to ensure the project according to plan.

4.5 the project document is not standard do not pay attention to documentation is a common problem with many developers, as long as can be programmed. The document is an important achievement of software project, each stage of the document is very important for the subsequent stage, the important information of the whole software project document and software maintenance and upgrade. The software project can not be completed after a lo encoding Yong Yi, time testing and maintenance work of the software project specification in more than encoding. Therefore, the document is written specification software project of high quality, high efficiency and an important guarantee for the smooth progress of the.

5.Conclusion

language software project management is an important work in the process of software development, level of management level, management is standard will on software development quality, efficiency, cost a decisive role. At present, China's software project management level is uneven, some units of software development, software project management management level limited, resulting in development of software product quality and low cost, as soon as possible to improve software project management level, specification of software project management has become the priority of some units and the development of the management. We should continue to learn advanced methods of software project management, improve the software project management level, develop truly meet the market needs of users and software products.

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