AN INVESTIGATION OF EFFECTIVE FACTORS ON EFFORT ESTIMATION OF SOFTWARE PROJECTS INSIDE THE ORGANIZATION

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"Dedicated to my beloved husband and daughter"

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ABSTRACT

Management of software projects has become a challenging issue during the last decade. The latest published statistics related to the status of software projects shows a substantial rate of fail, which has raised a critical challenge for project managers. In prior studies, inaccurate effort estimation has been mentioned as the most important reason behind the fail of software projects. The latest published papers in this area reported that the accuracy of existing estimation models are not convincing and the flexibility of models is not enough to be utilized for different types of project. Considering an estimation process (estimation model, materials, techniques and so on) to be used in a wide range of organizations regardless of the capabilities and specifications of organization is the main problem leads the current estimation models towards inaccurate and unreliable estimates. As a solution, each organization must know its strengths, weaknesses, opportunities, threats, capabilities and all aspects related to effort estimation. In other words, the real status of organization in terms of effort estimation must be clarified so that the reasonable decisions can be made to reach an efficient process of effort estimation. This research conducts a survey in which the important aspects of effort estimation including estimation process, limitations, management issues and project attributes are evaluated. Unlike prior survey-based studies conducted in the past, this research focuses on importance of project attributes and management issues. In addition, this research tries to integrate the concepts considered by prior studies separately. Moreover the relationships between the key concepts related to effort estimation are evaluated and discussed. Finally, a form is designed in which the results are efficiently summarized, which clearly depicts the real status of organization if field of effort estimation. This survey is conducted on a sample of 135 developers working in a large software company.

ABSTRAK

Pengurusan projek perisian semakin menjadi isu yang mancabar semasa dekad yang lepas. Statik terkini yang disiarkan berkaitan dengan status projek perisian menunjukkan kadar kegagalan yang besar, di mana ia telah meningkatkan cabaran kritikal kepada pengurus projek. Berdasarkan kajian yang lepas, kadar usaha yang tidak tepat menunjukkan sebab utama di sebalik projek perisian gagal. Menurut kajian terkini, ketepatan dalam model anggaran yang sedia ada tidak meyakinkan dan fleksibiliti model tidak cukup untuk digunakan bagi jenis projek yang berbeza. Dalam mempertimbangkan proses anggaran (model anggaran, bahan, teknik dan sebagainya) untuk digunakan dalam pelbagai organisasi tanpa mengira keupayaan dan spesifikasi organisasi adalah masalah utama menjurus kepada model anggaran kini yang tidak tepat dan anggaran yang tidak boleh percaya. Sebagai penyelesaian, setiap organisasi perlu mengetahui kekuatan, kelemahan, peluang, ancaman, keupayaan organisasi dan semua aspek berkaitan anggaran usaha. Dengan kata lain, status sebenar organisasi dari segi anggaran usaha perlu dijelaskan, oleh itu keputusan yang munasabah dapat diperolehi untuk mencapai proses yang efisien dalam anggaran usaha. Penyelidikan ini menjalankan kaji selidik tentang aspek penting dalam anggaran usaha termasuk proses anggaran, had, isu pengurusan dan ciri projek disiasat. Tidak seperti beberapa kaji selidik yang dijalankan sebelum ini, penyelidikan ini memfokuskan kepada kepentingan ciri projek dan isu pengurusan. Di samping itu, penyelidikan ini cuba untuk mengintegrasikan konsep yang berbeza yang dipertimbangkan dalam kajian yang lepas. Tambahan lagi, hubungan antara konsep utama berkaitan anggaran usaha telah dinilai dan dibincangkan. Akhir sekali, borang direka di mana keputusan disimpulkan secara efisien, yang jelas menunjukkan status sebenar organisasi dalam bidang anggaran usaha. Kaji selidik ini dijalankan pada sampel 135 pembangun yang bekerja di syarikat perisian yang besar.