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Health Information Management for Part-time Engineer Induction

Activating the Rightsized-Oriented Projects in Healthcare Enterprise

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ABSTRACT

This paper illustrates health information management for part-time engineers within a renowned and great, but aged national healthcare enterprise in Taiwan. The major activities in an information center are experiments to synchronize all-inclusive information-oriented projects, and even lead them. In order to cover most of the related activities, we disclose one of the key success factors, emerging part-time engineers, correlated with management views about information, knowledge, personnel, project, risk, and strategy. We also conceive that such management evidence could supply information management thoughts for further endorsement.

INTRODUCTION

As an idiom mentioned in the Brook's paradigm book [1], "Good cooking takes time. If you are made to wait, it is to serve you better, and to please you." However, most

of the stakeholders have lack of patience. Therefore, most information projects have to meet the due dates which are frozen by the stakeholders before they kick off these projects. Hence, such a conflict possibly set by the stakeholders, the information project team should try to do their best and submit an acceptable outcome within a tight schedule.

One of the solutions to decipher such a problem is trying to embrace some full-time or part-time engineers inside a limited budget for this emergent management. Nevertheless, the duration is limited and tight, it is rather a challenge for team leaders to perform a right decision to employ a full-time employee for a specific project practice. Meanwhile, the project budget is also inflexible and most of the leaders might try to include some of the part-time engineers to temporarily solve the task burden. Consequently, the part-time people management problem occurs and cannot be avoided by the project leaders and managers. Unfortunately, very little is discussed in the papers about this extended problem. Anyhow, the part-time engineer will have higher probability to disturb or postpone the project schedule for full- time engineers.

These part-time engineers might be too inexperienced to achieve some difficult tasks, even if they had learnt or owned some professional skills. As DeMacro and Lister said that “The major problems of our work are not so much technological as sociological in nature [4]”. Such an opinion reflects the people management for the part-time engineers might overwhelm other management views. This article tries to organize our management experiences and propose a feasible methodology as mentioned in the following section.

METHODOLOGY

Overall, we stand on the shoulder of giants [5, 6, 9, 10, 11, 12, 13, 14, 15, 16] to absorb their experiences, revise their methodologies, propose our own approaches, then adopt them in our environment, and analyze their outcomes for refinements in the other runs.

2.1 Revising Appropriate Methodology. The initial stage of our proposed methodology is to review some professional experiences and then amend them.

Fortunately, the software engineering field supplies sufficient amounts of documents and experiences to lessen our planning stage. For example, some of the software engineering related books describes the execution methodologies for managing people [4, 5].

We absorb these experiences and revise their methodologies to our own approach, the induction of part-time engineer methodology (IPEM). Especially, the IPEM customizes the processing steps for merging part-time employees into your project team. Figure 1 illustrates the IPEM execution block diagram. Note that our proposed IPEM is dissimilar to neither the waterfall methodology nor the spiral methodology [12, 14]. It looks like a permanent iterative method.

FIG. 1. Radial cycle diagram for part-time engineer induction methodology

2.2 Evaluating Cost/Performance. Typically the project budget is limited. Notwithstanding there is no such allocated budget for temporary personnel hiring. Accordingly, the chief-information-officer (CIO) might attempt to persuade the stakeholders to designate extra, short-term, and minuscule budget amount for involving these part-time engineers. Of course, the expenses and predictable performance of the part-time engineers should be analyzed in the proposal. Their consequences will be assessed after they participate and achieve any assignment within the project. On the contrary, there is no silver bullet for evaluating the cost/performance of part-time engineers [9, 10].

In order to invite intelligent and professional graduate students to accompany our part-time assignments, the salary level is higher than the other student's part- time charge in our campus. For example, the college student, graduate student, and Ph.D. student have NT$150, 200, and 300 per hour, respectively. Likewise, the gas station

part-time occupation merely pays NT$90 per hour and the working conditions are uncomfortable. In any manner, such a hiring strategy really appeals to many students to sit in our project team. Indirectly, it also stabilizes the status of student allocation.

2.3 Staff Selection. Implicitly, most of the healthcare enterprises are competing with one another in the non-fictional world. In order to diminish the risk for engineer loyalty, our hospital guidelines essentially pick the staff from our college campus. In particular, we prefer the mentor of such students teach in our college. If the student's college major is computer related, then his information technology capability might be acceptable to us. There is another evidence from Google and cited by D. M. Russell in 2009 [2], "Without question, university research has played a critical role in the exploration of ideas in indexing, crawling, and user interface design," which enhanced such an intern inclusion activity.

That is, we emerge the reuse concept from the object-oriented methodology to process the staff selection [11]. We store the enough and appropriate part-time engineers for further usages. For example, we will consult with his advisor after he applies for employment. In spite of the limited time given to him to achieve a particular task, our project leader will include him as a team member and prepare for further employment. All team members must sign on official intelligent property forms and agreements before he turns out to be a team member.

In addition, it is essential for project leader to hire an administrator assistant to serve all part-time engineers and allocate them in an independent area implicitly, but apart from the area of full-time engineers for frequent coordination in the project period. Table 1 lists the required information which any part-time engineer should supply us to comprehend his capability and available working time.

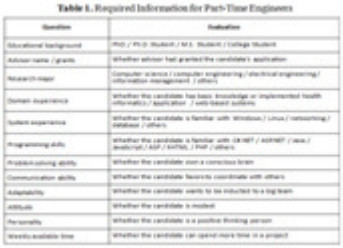

TABLE 1. Required Information for Part-Time Engineers.

2.4 Managing Groups. After congregating all the personnel and capability information for part-time engineers, the project leader and associated managers will confer a specific part-time engineer and decide which group of project he should be apportioned. Subsequently, we will endeavor to assign an experiment and a task to him based on this information technology capability and set up a reasonable due date for further reviewing. Such a method likes rapid prototyping [13]. As Akins enhanced that "You'll know you are on the way to be fit when people are familiar with the business and testing and are eager to participate [3]".

Every part-time engineer will have a specific professional full-time engineer as his mentor, so called as a master. All of their performance assessments will be evaluated by his group manager. The masters should prepare related teaching materials for instructing their pupils. That is, we derive the scrum methodology to process the task of each group [15]. For example, one of the part-time engineers, Y. F. Chung, is a Ph.D. student in our college and major in the computer security field. Her college major is English Literature, and she favors to write some documents. Therefore, we assign her to the education group and let her handle related system training documents for most of our new web-based information systems. She as well as leads the other two part-time engineers to work collaboratively.

2.5 Reviewing and Analyzing Outcomes. It is compulsory for project leader to review the performance for all part-time engineers with extreme programming methodology [16]. That is, the codes from part-time engineer will be reviewed by the specific mentor. Because our team offers them a higher salary than other enterprises, we implore them to utilize the clock registration system to record their appearance and leave time. If the student cannot prove his professional capability after two trial tasks, we will change his task to simpler one and continuously observe his performance at next run.

By the way, students occasionally might disappear before the project review meeting without any notice. It is still bothering project leaders and managers to allocate an appropriate meeting time to review all the part-time engineers with related full-time engineers.

3. RESULTS

The CIO, Professor F. Lai, entreated the information center to partner such a part-time engineer emerging process for about four years from 2004 to 2008 and this procedure is still active. The part-time engineers used the information center as a major assistant resource to achieve most of the information-oriented projects, including blood bank management information systems, outpatient information systems, inpatient information systems, and related research-oriented projects.

Indirectly, we had trained two college instructors from our IPEM processing. Both graduated from our graduate school and earn Ph.D. degrees in 2007 and 2008, individually. Other students also graduated annually and earned their own industry experiences by themselves. By any means whatsoever, our IPEM handling supplies a training and assistant platform to train students and assist our projects simultaneously. It appears a win-win answer for our project leaders.

On the other hand, fundamentally, the chief-executive-officer (CEO) will seldom face the failure of organization- oriented projects and disregard them; especially they will agitate the organization- al foundation. That is, they will try to use organizational authority to turn the bad projects back to the direction from where the original decision was initiated. Originally, some of the information-oriented projects in our healthcare enterprise might be thought as incorrect direction by some senior engineers; nevertheless, some of the CEOs will sacrifice the suggestions from the engineers of the information center and powerfully execute their dream idea. It is very straightforward for project leader to use our IPEM processing to disentangle their dilemma situation.

4. DISCUSSIONS

No matter how successful the information-oriented projects, they enclose some problems implicitly. Overall, most of the leaders will tend to neglect these problems and try to relate to the good side about their projects in front of the stakeholders. The following subsections discloses and discusses one of the success factors, emerging part-time engineers, associated with some management views about information, knowledge, personnel, project, risk, and strategy, correspondingly.

4.1 Information Management. First of all, the project leader should face the information management view for hiring part-time engineers. Particularly, the security control is a really a considerable problem for us to cope with. As we mentioned, we referred the governmental intelligence property laws and documents and then recommended draft documents for adaption to our part-time engineers. The related documents are also approved and granted during our official organizational meeting.

4.2 Knowledge Management. The knowledge already exists inside an organization, such as a project team. It is a must to collect and retain all the knowledge inside a project team. We had proposed our knowledge management in the other article [7] by utilizing some open source software, and it proved that such a knowledge management is feasible and acceptable to full-time engineers, part-time engineers, managers, and users. We supply a large-scale privilege to all of the part-time engineers after they signed the official intelligence property documents.

Such an offering will encourage part-time engineers to attend the project team and dig more knowledge by themselves via our knowledge platform. Besides, it decreases the instructing loads of their specific master.

4.3 Personnel Management. Derived on the Maslaw theorem [8], it is compulsory for us to conceive over and try to plan the careers of such part-time engineers. Because the linkage between part-time engineers and project team is slack than the other ones, the managers should consider their basic needs, even attempt to conform to their higher needs such as social needs and esteem. For instance, several managers assign their office time to communicate with some of the part-time engineers who are studying in the graduate school and try to comprehend their genuine needs.

Especially, we could endeavor to assist them to achieve their college degree by themselves. If possible, we will embrace them inside our project team as a full-time engineer and work together again. For example, two of our three outstanding part-time engineers, T. S Yang, R. G. San, and L. F. Ko, were formally hired by our information centers and act as group managers and vice director in July 2005, April 2007, and July 2007, respectively. In the meantime, one of our full-time engineers, G. T. Wen, was promoted as a group manager in March 2006. We conceive that these four promotions stimulate both full-time and part-time engineers.

Because our healthcare enterprise is a national teaching medical center, we also accept other college junior students for summer practices in our information center. Anyway, they also can assist us to accomplish some minuscule tasks. Of course, their tasks should be prepared before they enter our department for practice and serving. Furthermore, Table 2 discloses the yearly highest college degree distribution for part-time engineers. Remark that the data are collected in the month of August every year.

Table 2. Yearly Highest Degree Distribution for Part-Time Engineers

Year	Highest Degree				
	Ph.D.	Ph.D. student	M.S. student	College student	Total
2004	0	0	10	3	13
2005	0	5	17	5	27
2006	1	4	20	6	30
2007	1	5	33	9	48
2008	0	4	30	6	40

TABLE 2. Yearly Highest Degree Distribution for Part-Time Engineers.

4.4 Project Management. The project duration is regularly limited and review meetings from the stakeholders are scheduled frequently. Actually, the induction of part-time engineers will postpone our original schedule in the initial time period; however, the original schedules will catch-up after most of the engineers are working together. In consequence, the project leader should reserve some time slot for including the part-time engineers and warm them up.

4.5 Risk Management. It is a normal condition that people enter and leave a project. Undoubtedly, processing the resignation for a key engineer is a rather challenge task for the project leader. In order to preserve the project schedule on time, project leader should take precautions before it is too late. Fundamentally, some of the part-time engineers own professional capability and could back up some full-time engineer's tasks. After four years part-time engineer processing, the leaving rate for full-time engineers is under an acceptable range from one per season to one per half year. Table 3 reveals the yearly increasing status of all engineers' population of the information center in our healthcare enterprise. Note that the data are collected in the month of August every year.

Table 3. Annual population status of all employees

Year	Amount of Employees		
	Full-time	Part-time	Total
2004	48 (66%)	13 (33%)	61
2005	66 (71%)	27 (29%)	93
2006	64 (68%)	30 (32%)	94
2007	64 (57%)	48 (43%)	112
2008	72 (64%)	40 (36%)	112

TABLE 3. Annual population status of all employees.

4.6 Strategy Management. The part-time engineers energize the full-time engineers to work harder than before. Since some of the senior and professional full-time engineers are master for some of the part-time engineers, these former will consecutively present their best way to lead their specific team members. In the end, the entire team members like to live in a substantial family, share knowledge, happiness and working loads with one another. It demonstrated that the part-time engineer induction strategy is prosperous.

Truthfully, some of the masters do not like to supervise and educate part-time engineers. Nonetheless, some of them like to do so. We find that the positive thinking engineers favor to instruct others and such a strategic process also helps the manager to observe the future possible acting managers.

5. CONCLUSION

Since some CIOs had consulted us with the engineering induction methodology for healthcare enterprise, our proposed methodology obviously illustrates most consideration factors. In the real world, few of the project leaders, even the CIO, had learnt that all their management lessons before they manage their projects. It is an interesting research subject for us to discover some useful disciplines to assist most of them to face their problems with skillful tools on hand. Finally, we wish you may learn something good from our experiences.

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FOOTNOTES

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