

THE IMPACT OF COMPETENCES ASSESSMENT SYSTEMS TO FIRM PERFORMANCE

Study on Project Management e-Assessment

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Abstract: Current paper studies the relationship between the use of e-assessment in the field of project management and firms' performance. For this purpose, a case study was especially designed to explore whether the extensive use of an e-assessment application influences the financial and non-financial indicators of firms' performance. The participants in the study were the users of the e-assessment application, employees working in Romanian firms, from IT, education and consulting business sector. The main findings of the study were the positive correlation between the considered performance indicators and companies' growth. The study is presented in the framework of learning at work and highlights the importance of using information systems in enterprise environments, to develop professional competences and, thus, to achieve business excellence.

1 INTRODUCTION

Firm performance can be defined as the difference between the value that managers expect to obtain from the productive activities and the value that a firm truly creates (Chen et al., 2008). There are various explanations for firm performance in the literature. The resource-based approach explains the firm performance as coming from inside the firm, not given by market power (Harris and Ogbonna, 2001). The strategy-based approach highlights the role of learning and rapidly changing as an advantage over competitors and, thus, a factor for obtaining performance. Both theories stress the importance of human competences in achieving business performance. A recent study reveals that many "firms have embraced the notion of human capital as a good competitive advantage that will enhance higher performance" (Marimuthu et al., 2009, p. 1).

The relationship between information systems and the development of competences and, implicitly, the development of human capital, was explored by many researchers so far (Zhang and Lado, 2001), (Delcea and Dascalu, 2009). In a previous study,

some tools for reaching competitive advantage by implementing knowledge strategies were identified (Delcea and Dascalu, 2009). Among them, a special place was taken by e-learning and e-assessment tools.

Current paper analyzes a sample of small and medium Romanian firms which extensively used an e-assessment tool for project management competences. How the e-assessment tool affected the performance of the considered firms is the research question of our case study. Correlations between the features of the e-assessment application and their effects on business performance are also underlined.

2 REASONS FOR LEARNING IN FIRMS

As a consequence of quick changes, firms ask for employees to be more involved in learning activities: "employees need to take greater personal responsibility to ensure their skills are current and marketable" (Garofano and Salas, 2005, p. 282). In business contexts, learning is meant to multiply the

activities of economic value. For learning to conduct to professional competences, it's better to be integrated in an organizational environment or in a community of practice (Lundin, 2005). Advices from co-workers, as well selection for suitable activities for competences development has a tremendous impact on firm performance (Kröll, 2007).

Firm performance can be quantified by:

- Financial Indicators: productivity, market share or profitability;
- Non-financial Indicators: customer satisfaction, innovation degree or skills development maturity (Marimuthu et al., 2009);

Learning activities influences more than one indicator. For example, profitability, which is a financial metric, is determined by the strategic capabilities of a firm. The accumulation of capabilities is correlated with the rate of learning (Leiponen, 2006). On the other hand, one of the measures for learning quality is its degree of transformation: the increase of competences as a result of the learning process. This aspect impacts on the maturity of skills development in firms, which is a non-financial indicator of performance.

3 ROLE OF ASSESSMENT SYSTEMS IN LEARNING ACTIVITIES HELD BY FIRMS

In enterprise environments, assessment has cubic valence (see Figure 1): it is used both in decision processes – recruiting, periodic evaluation and in learning activities, which are more and more diversified (Trausan-Matu Marimuthu et al., 2009). Because e-learning platforms are expensive or training activities consume a lot of time, many enterprises prefer to use e-assessment services for both purposes: checking employees' knowledge and making them realize what they don't know and what they should learn by themselves (e-assessment used as a knowledge gap detector). E-assessment, as a form of competence development, can be used to increase firm performance (Leiponen, 2006), but also as a tool to fill the symptomatic matrix in diagnosing firms' diseases (Delcea and Scarlet, 2009), as a strategic instrument.

Taking into account the cubic valence of e-assessment for a firm, we studied whether these general assumptions are valid also for project

management, a domain with a higher degree of applicative parts.

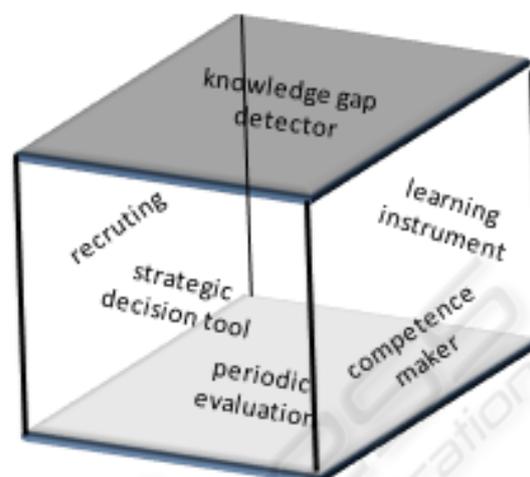


Figure 1: e-Assessment Valences in Firms.

4 A CASE STUDY REGARDING PROJECT MANAGEMENT E-ASSESSMENT AND ITS IMPACT TO FIRM PERFORMANCE INDICATORS

As project management is the main form of economic organization in knowledge society, there is a high connection between firms' performance and projects' success. Extensive research has been done on this topic, but project management is a highly dynamic field. This aspect is proved by numerous standardized guides and codes of practices, such as PMBOK (Project Management Institute, 2004), developed by Project Management Institute (PMI) or IPMA Competence Baseline (ICB) (International Project Management Association, 2006), developed by the International Project Management Association (IPMA). These codes of practices are continuously being improved.

The current study relies on the ICB approach, which states that one can perform high project management related activities if one holds technical, behavioral and contextual competences. It is difficult to choose the proper tools for assessing these kinds of competences. The certification process organized by IPMA relies on:

- *Written Exam*: several types of questions (multiple choice questions, direct text questions, open essays, intellectual tasks) with

reference to the IPMA Competence Baseline (International Project Management Association, 2006), to be answered by the individual in a limited period of time;

- *Report*: covering the subjects that describe the management of a real project, programme or portfolio (depending on the IPMA Level), with reference to the ICB, on an appropriate number of pages;
- *Workshop*: problem solving as part of a small team on an example project, observed by one or several assessors, revealing the actions of the individuals in different roles, especially the role of the (sub-) project manager;
- *Interview*: answers to specific, representative questions prepared on the basis of the candidate's report (can be extended to the self-assessment, written exam questions, workshop results, replies from referees) with reference to the ICB;

Due to the spreading of information systems, written exams have been replaced with computer based tests by many national bodies (members of IPMA). The Romanian Association of Project Management offers an e-assessment application as a preparation tool for the real certification exams: "CertExam" (<http://pm.org.ro/certexam>). Romanian Association of Project Management is successfully affiliated to IPMA, so the e-assessment tool respects the ICB content.

The aim of our study was to check whether "CertExam" is considered efficient in business environments: we explored whether the knowledge checked by the e-assessment tool used by the Romanian Association of Project Management influences the firms' performance.

4.1 Research Methodology

The case study design was based on Yin's book (Yin, 2003). The research question, as previously mentioned in the paper, was: "How e-assessment in project management influences the performance of Romanian firms?". The objects of the study were a few Romanian firms' performance indicators and

"CertExam" e-assessment application (see Figure 2). The participants were the users of "CertExam", the ones who took the tests. As instruments of research, we mainly used the questionnaire and, sometimes, interviews and informal e-mails.

The propositions of our study were strongly related to the following performance indicators:

- Wage Increases;
- Customer Loyalty Rate;
- Number of employees who obtained professional certifications;

The performance indicators chosen by us are also reflected in other theoretical models (Marimuthu et al., 2009): wage increases is a reflection of profitability, number of returning clients is a form of calculating customers' satisfaction and number of certified employees is an expression of skill development maturity.

The propositions of our study are stated below:

- There is a connection between the use of "CertExam" and the wage increases for the users of the e-assessment application, the number of clients who returned to the firms and the increase in the number of certified personnel.
- The impact of the e-assessment application on firm's performance depends on the business sector of the firm.

4.2 Participants' Profiles

In order to establish the relationship between the use of "CertExam" (the dependent variable) and Romanian firms' performance (the independent variable), we questioned the users of the application. The users can be classified according to the level of their abilities in project management activities: from level A-D (International Project Management Association, 2006).

Questionnaires were sent to 153 users of the application. The response rate was 54.25%, meaning that 83 users responded back.

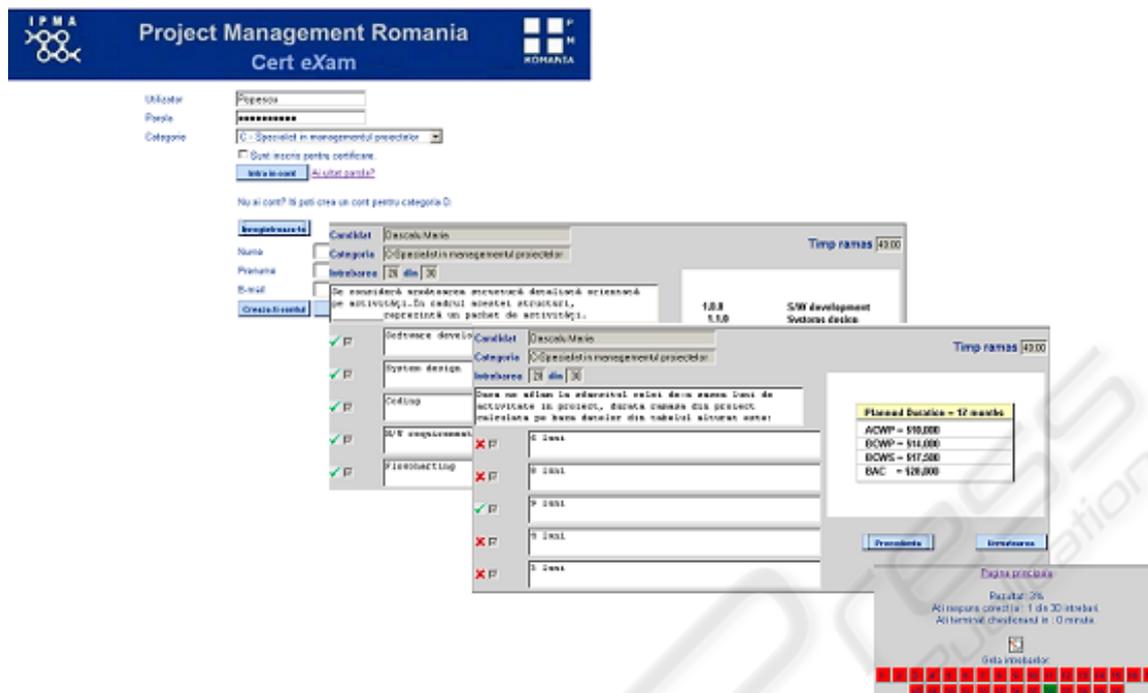


Figure 2: An e-Assessment Application for Project Management Competences.

When establishing the respondents’ profiles, we took two aspects into consideration:

- The level of e-tests accessed by the users;
- The affiliation of the users to the same firm or the same business sector;

Details about the respondents’ profiles can be consulted in Table 1. The main method of analysis was the pattern matching between the current statements in the literature (Marimuthu et al., 2009) and our findings from the empirical study. We obtained some data triangulation from the participants who stated that they worked in the same firm.

Table 1: Profiles of "CertExam" Users.

E-Tests Level		
IPMA Level	No. Users	No. Respondents
A	0	0
B	11	2
C	35	12
D	106	69
Affiliation to Business Sector		
Business sector	No. Firms	No. Participants
IT	7	32
Consulting	9	29
Education	3	12
Other sectors	2	10

4.3 Main Results

Our study revealed that 41% of our respondents got an IPMA certification as a result of their use of “CertExam”, most of them from the IT sector. The reason for starting using “CertExam” was their desire of getting certifications. This desire drifted from the need of getting professional recognition, a higher level of well being and improving the firms’ portfolios. The fact that most individuals who finalized their work with the e-assessment tool were from the IT sector proves the striving force which pushes the Romanian IT firms to achieve greater performance.

Just 9% of our participants got a wage raise after using the e-assessment tool. This low result can be caused by the recession. 50% from those who got the raise named the competence development through the e-assessment tool as one important factor for it. The ones who made this affirmation were from different business sectors.

Most of our participants said that the customer loyalty rate in a six-month period was of 61%, which is a very high percent. Most respondents who stated this fact were from the consulting sector. When we asked our participants if they thought that their improved skills, as a result of the “CertExam”, had any impact on clients’ loyalty rate, 62% of them said a definite “yes” and the other 38% agreed on a

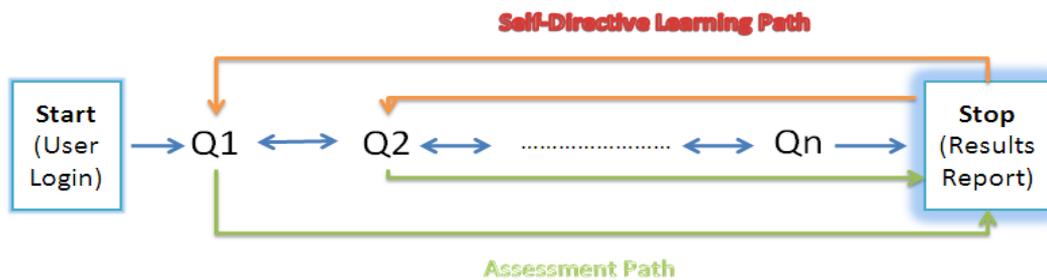


Figure 3: Knowledge Creation Function in e-Assessment.

certain level of impact. The users from education sector (training organizations) named the certification gaining as the main stimulus for their clients to call again their services.

4.4 Critical Analysis

The results of our case study proved that might be a link between the use of “CertExam” and the growth of performance indicators at firms. We claim that this relationship is not pure speculation, by specifying that other researchers underlined the importance of continuous competences development to firm growth (Hitt et al., 2000), (Kröll, 2007), (Zhang and Lado, 2001).

It is difficult to make a comparison between the analyzed e-assessment tool and other tools, as “the degree to which the advantages and disadvantages of e-assessment are manifest is dependent upon how e-assessment is deployed and embedded organizationally” (Kröll, 2009, p. 549). Nevertheless, e-assessment was identified, by our respondents, as less efficient than e-learning, from the learning perspective, but more useful in enterprise environments, from the strategic perspective.

5 FUTURE WORKS

Except the answer at our research question, we also drew some other remarks which could be useful in developing efficient competences assessment systems. The participants of the study stated that they found quite useful the feed-back mechanism of the e-assessment application. This was designed to create knowledge. As one could see in Figure 2, a wrong answer is displayed in red and points out to what should have been the right answers.

The e-assessment tool is not just an evaluation tool, but a learning instrument, a knowledge creator, as seen in Figure 3.

To increase the knowledge creator dimension, the following features will be added to the e-assessment tool:

- Adaptive behaviour;
- Increase in competences orientation;

An adaptive behaviour would provide not only a better profile of the examinee, but also a better assessment-taking experience and a much more chance to fill the knowledge gaps which were revealed by the e-assessment (Bodea and Dascalu, 2009). For matching the competences of the employees to the ones considered as units in electronic assessment, hierarchical structures, such as semantic nets, will be used.

6 CONCLUSIONS

The paper provides an empirical study on the relationship between the use of an e-assessment application and the firms’ performance. Although the study addresses only three indicators of business performance, the positive correlation between the assessment system and companies’ growth is obvious. The fact that project management domain, a key factor in economic development, is the umbrella for the current research strengthens its relevance. Further investigations on correlating e-assessment use with other performance indicators are the normal follow-up for the study. The current work highlights the importance of using information systems in enterprise environments (Raymond et al., 2009) and also stresses the importance of developing professional competences to achieve business excellence.

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