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Whether we are still immature to assess the environmental KPIs!

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Abstract

This paper explores the relationship between company maturity level and environmental key performance indicator (KPI) assessment. A cross-sectional approach was taken to examine differences among low and high maturity organizations, measuring the level of environmental KPIs importance assessed by 51 project portfolio managers. The assessment has been prepared according to Regulation (EC) No 1221/2009 of the European Parliament and the Council 2009, and IPMA Delta model for maturity assessment (individual, project and organizational level assessment). Differences between environmental KPIs and individual, project and organizational maturity were observed. Data analysis was prepared using SPSS 20.0 software and Rapid Miner Studio 6.0. The initial step was related to the determination of the relationship between environmental KPIs areas (Material Efficiency, Energy Efficiency, Water Management, Waste Management, Biodiversity, Emissions into the air). K-means algorithm was performed in order to identify group characteristics. Man Whitney test was used for group comparison to determine environmental KPIs differences that are related to organizational, project and individual maturity level. The research findings are described by mean and standard deviation. Analyzing individual, organizational and project factors, influential maturity components were identified using linear regression analysis method. Project portfolio managers' demographics have taken into account in this analysis. The study showed a significant difference between high mature and low mature organizations in environmental KPIs assessment according to project and individual level, but there is no difference according to the organizational level. Theoretical and practical implications are discussed.

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Keywords: maturity, assessment, project portfolio managers, IPMA Delta model, environmental KPIs

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1. Introduction

Nowadays, majority of organizations are seeking to achieve sustainable development respecting the “green approach”, emphasizing eco-efficiency aspects and striving to achieve business maturity in order to improve processes. There are different models for project and organizational maturity assessment. Most of them have been inspired by the Capability Maturity Model development. Previous studies have shown that organizations with a higher level of maturity show a higher level of efficiency and effectiveness. Maturity Models provide a framework for project initiation, implementation and improvement. According to Backlund et al. (2014) the benefits of project management maturity assessment lie in setting direction, prioritizing action plans, and beginning cultural and organizational change rather than primarily identifying the current level at which an organization is performing. The maturity models show a structured set of elements that represent characteristics of effective processes. Currently on the market there are more than 30 models created by different organizations dealing with project management but also by the organization where the models are created as a result of process improvements. Some of maturity models which have been implemented and developed are: PRINCE 2 maturity model, P3M3, OPM3, IPMA Delta, CMMI, Mince 2, P2M, CMM, etc. Primarily, maturity models were first implemented in the software industry, and later wider application in other areas. Maturity itself is measured along three dimensions and includes knowledge (capability to carry out different tasks), attitudes (willingness to carry them out), and actions (actually doing them), and defines a set of levels or phases describing the hierarchically structured development of the observed object.

Performance measurement systems and indicators allow project managers to quantify the efficiency of resource usage and the effectiveness of the services provided (Vilanova et al., 2015). This process involves different kind of stakeholders and requires project manager technical competences in order to create sustainable proposal. Pinto et al. (2014) emphasize that human well-being strongly relies on the services provided by well-functioning ecosystems. System changes in the ecological functioning of any system can have influence on human welfare. On the other hand, energy efficiency is a main goal for energy policy and a key milestone for sustainable development (Pérez-Lombard et al., 2012). EU strategies and projects for eco management have long recognized the key role of recycling, concerning sustainable consumption and production. This resulted in a range of regulatory measures, among which the Waste Electrical and Electronic Equipment (WEEE) directive, which sets weight-based targets for recovery, preparation for reuse and recycling (Nelen et al., 2014). Based on the World Business Council for Sustainable Development definition of eco-efficiency, the eco-efficiency indicators include one economic indicator, and three generally applicable streamlined environmental indicators (raw material consumption, energy consumption, and CO₂ emission).

Three perspectives have been developed by International Project Management Association (IPMA) to assess organizational maturity: 1. Individual perspective (“ICB - IPMA Competence Baseline, Version 3.0” 2006), 2. Project perspective (using the European Foundation of Quality Management Excellence Model - EFQM model), 3. Organizational perspective (using “IPMA OCB - IPMA Organisational Competence Baseline - The standard for moving organizations forward” (2013) and verification through interviews with top management, middle management, and project managers). IPMA Delta model has competency based approach, rather than process and functional based approach. Therefore Aubry et al. (2007) emphasize that main project goal is to create value for the business, rather than to deliver projects on time, on budget and with quality specifications. According to this project success is measured by the business objectives, while the project management success is evaluated with traditional criteria.

It is a new research topic in project management, and there isn't any analysis of maturity that combines maturity levels and eco indicators. Therefore, the aim of this study is to investigate eco indicators analysis in organizations that have shown a higher degree of maturity comparing with those that have shown a lower level of maturity, analyzing individual, project and organizational characteristics according to IPMA Delta model. The initial hypothesis was based on the fact that companies with a higher maturity level (organizational, project and individual level) have positive influence on environmental KPIs analysis.

2. Theoretical background

2.1. Material efficiency

”Material efficiency is a description or metric which expresses the degree in which usage of raw materials,

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