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Innovation in the Spanish Construction Sector: Identification and Analysis of Key Factors

Mikel Zubizarreta[1]; Jesús Cuadrado[2]; Gaizka Insunza[3]; Izaskun Álvarez[4]; and Harkaitz García[5]

[1]Ph.D. Candidate, Dept. of Mechanical Engineering, Univ. of Basque Country (UPV/EHU), Bilbao, Spain, 48013. E-mail: m.zubizarreta@ehu.eus
[2]Lecturer, Dept. of Mechanical Engineering, Univ. of Basque Country (UPV/EHU), Bilbao, Spain, 48013. E-mail: jesus.cuadrado@ehu.eus
[3]Lecturer, Dept. of Management and Industrial Engineering, Univ. of Basque Country (UPV/EHU), Bilbao, Spain, 48013. E-mail: gaizka.insunza@ehu.eus
[4]Lecturer, Dept. of Management and Industrial Engineering, Univ. of Basque Country (UPV/EHU), Bilbao, Spain, 48013. E-mail: izaskun.alvarez@ehu.eus
[5]Lecturer, Dept. of Mechanical Engineering, Univ. of Basque Country (UPV/EHU), Bilbao, Spain, 48013. E-mail: arkaitz.garcia@ehu.eus

ABSTRACT

The construction industry worldwide is not known as an innovative sector, being its level of productivity and efficiency lower than other sectors, such as manufacturing. If we focus on the Spanish construction sector, these negative characteristics are further aggravated due to the inefficient working practices of many companies; this being a common feature of the sector and a consequence of the poor levels of innovation of the companies that compose it. The objective of the presented research is to identify the key drivers and variables that foster innovation in the Spanish construction sector, through statistical analysis of data obtained from a questionnaire to the companies in the sector. Once these variables have been identified, a specific innovation model for Spanish construction companies have been developed, represented in the form of an equation, which may be used for predictive purposes.

INTRODUCTION

The objective of the presented research is to analyze the relationship between Spanish construction companies and innovation, through statistical analysis of data obtained from a questionnaire to companies in the sector. It is, above all, to identify the key aspects and variables that encourage and foster innovation in these companies, and which are sufficient to explain the differences and particular characteristics shared by the companies that do carry out innovative activities, as opposed to those that do not perform them.

On the basis of that information and taking into account the selected variables, the final objective of this research is to develop a specific innovation model for Spanish construction companies, represented in the form of an equation. This equation makes it possible to predict the innovative performance of a company with a certain degree of validity and accuracy.

INNOVATION IN CONSTRUCTION: A LITERATURE REVIEW

A relevant feature of the companies in the construction sector over many decades has been weak innovativeness and an unwillingness to transfer innovative advances from other industries such as manufacturing, being the sector defined as the “Cinderella Industry” (Bessant 2006), due to its fragmented nature, low in skills, poorly coordinated, with little learning from or between projects and because of delays in project delivery (AlSehaimi et al. 2013). These weaknesses have been widely researched and discussed in the scientific literature (Gambatese and Hallowell

Finally, the Chi-squared test was performed to assess the validity of the model. The model was proven to be reliable with a mean value of 85.766 for the Chi Squared statistic and a significance level of 0.00.

CONCLUSION

This research work has achieved its set target: to determine the key variables related to innovative performance, which are sufficient to explain the differences and particular characteristics in Spanish construction sector between the companies that develop innovations and those that do not develop them.

The study revealed that the most innovative companies in the Spanish construction sector have five key characteristics in common: a culture that favours risk-taking and new approaches, a methodical decision-making process relating to innovation, innovation investment through both economic cycles (upturns and downturns), the use of multidisciplinary teams to identify, analyse and facilitate the use of innovations, and the promotion of participation in informal projects and research groups. Based on the research results, it can be concluded that innovation in the Spanish construction companies is a policy that is deliberately chosen. The implementation of the combination of the five key factors identified in this research is postulated as fostering innovation in these companies.

It is noteworthy that the study was conducted on the basis of a relatively small sample of one kind of firm, in a particular geographic area of Spain. More research is needed to determine if the results can be extrapolated to other sectors of the industry.

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