

# The Effect of Firm Innovativeness, Government Support, and Market Orientation on Sustainability: The Case of Equi-Parco Construction Company

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**Abstract:** *The construction industry is a significant contributor to economic growth through the development of infrastructures. Unfortunately, it is also a significant contributor to various sustainability issues. The study focuses on determining the effect and the relationship of Firm Innovativeness, Government Support, and Market Orientation on the adoption of Sustainability in the construction industry. The study was conducted on Equi-Parco Construction Company, a distinguished Filipino-owned construction company. A total of 110 questionnaires were distributed to top and middle managers of the company and the owner of the company was personally interviewed. Simple Linear Regression, Multiple Regression, and Pearson Correlation Method were all used to analyze the quantitative data whilst Content Analysis was used to analyze the qualitative data. Pattern Matching was performed to synthesize the data and to observe the similarities and differences between the qualitative and quantitative data. The simple linear regression analysis presented each of the variables to have a highly significant effect on the Sustainability of Equi-Parco Construction Company by manifesting p-values less than 0.001. The multiple regression results manifest the same results, by exhibiting an overall p-value of less than 0.001. However, it was also found that Government Support and Market Orientation are more significant than Firm Innovativeness with the former having a smaller p-value than the latter. The study also observed that all variables have a strong positive relationship with sustainability with R-values greater than 0.7. Through pattern matching, the observed trend from the quantitative data was confirmed as the qualitative data presents firm innovativeness as a lesser priority than both Government Support and Market Orientation. With this, it was proven that Firm Innovativeness, Government Support, and Market Orientation all have a significant effect and a strong positive relationship with the sustainability of Equi-Parco Construction Company.*

**Keywords:** Sustainability, Innovativeness, Market Orientation, Government Support, Construction

## 1. Introduction

Sustainability is to meet the needs of the current generation without compromising the future generation's ability to meet theirs. It is further defined into three dimensions: Economic, Social, and Environmental Sustainability (Elkington, 1994). Abidin (2009), states that sustainability is can only be achieved once all three dimensions are satisfied. Unfortunately, due to rapid urbanization and the desire for economic growth, sustainability has just become an afterthought to a lot of industries as they try to meet society's demands.

The construction industry is one of the most significant contributors to rapid urbanization and economic growth (Giang & Pheng, 2011). This is due to the nature of its operations in which it provides jobs, invites investments, and allows mankind to access their needs more efficiently. Unfortunately, the process of satisfying the ever-growing needs of mankind for greater social development and economic development causes irreversible damage to the environment (Cui, et.al., 2018). With the severity of its impact on the environment, the market has called for more sustainable operating methods. Thus, the creation of Sustainable Construction. However, sustainable construction is found to only address environmental issues (Bamgbade, et.al. 2017). But as mentioned earlier, sustainability is only achieved if all three dimensions are satisfied.

In the Philippines, the construction industry is said to be entering the golden-age of infrastructure. With the administration launching the "Build! Build! Build! Project", the industry is expected to receive a significant amount of

support from the administration as it will be given a budget that accounts to 5% of the country's Gross Domestic Product. With the expected growth and several studies exhibiting the significant contributions of the construction industry to various social issues, economic issues, and environmental issues, it is extremely important for the construction industry to adopt processes and concepts of sustainability in their methods, processes, and products for it to reduce its contribution the previously mentioned issues, and contribute to social justice, environmental protection, and greater economic growth. (Abidin, 2009).

In this study, the researchers investigate the effects of Government Support, Market Orientation, and Firm Innovativeness on the adoption of Sustainability in a construction firm. The three variables were chosen as they create an environment suitable for adopting and practicing sustainability, stimulate behavior that induce high quality performance and innovative activities, and implement change and transform processes of an organization, respectively.

Equi-Parco Construction Company is a rapidly growing company which aims to embark on the expansion of its projects and offered services. The company's vision, mission, and quality policy also aims to achieve sustainability. This study may aid in determining critical factors to direct their company towards the fulfillment of its vision and policies.

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## 2. Literature Review

### 2.1 Sustainability

Sustainability was first defined as seeking to meet the needs of those in the present without compromising the ability of future generations to meet theirs (WCED, 1987). The concept of Sustainability was better understood when John Elkington introduced the term Triple Bottom Line (TBL). The idea of the triple bottom line goes beyond traditional measures of profits and return on investments; the triple bottom line measures a company's economic value, degree of social responsibility, and environmental impact (2004). This simply indicates a shift of organizations from short-term financial goals to long term economic, environmental, and social influence (Arowoshegbe, 2016). A duty was given to the members of society to care and have respect to incoming generations and to the non-renewable resources of the present. It is the responsibility of the present generation to maintain and protect the environment while promoting economic growth and optimizing human and material capital (Abidin, 2005). The World Business Council for Sustainable Development defined Sustainable Development as "the simultaneous pursuit of economic prosperity, environmental quality, and social quality." This implies that an organization aiming for sustainability is obliged to function under all three pillars of sustainability, namely *Environmental Protection, Social Well-being, and Economic Prosperity*.

### 2.2 Government Support

The government plays a major function in the construction industry (Tunji-Olayeni, 2018). Government support may be in the form of financial and/or non-financial initiatives (Bell, 2002), such as tax allowances, grants, loans, information technology, social support, productivity assistance, financial capital, and so forth (Songling, 2018). The government has the possibility to help with firms' survival, growth, and success. Firms that receive strong support from the government can perform better compared to other firms (Bell, 2002).

### 2.4 Market Orientation

Market Orientation, which is a firm's process of generating market intelligence pertaining to current and future customer needs, the dissemination of the intelligence across departments, and the organization wide responsiveness to it (Kohli and Jaworski, 1990).

### 2.5 Firm Innovativeness

Firm Innovativeness is the ability of a firm to constantly introduce new products to the market, or open new markets through integrating both strategic orientation and innovative behavior (Wang and Ahmed, 2004).

### 2.6 Research Gap

It has been noted that Sustainability has three dimensions. Studies have been conducted, with regards to each dimension of sustainability. However, there are limited

studies that discusses sustainability holistically. Firm Innovativeness is also highly studied in literature. But firm innovativeness influencing sustainability are also limited. Through the literature, there is also no set measures for this variable.

Studies with regards to Government Support is also limited. Furthermore, there is a lack of literature with regards to the effect of financial support from the government. Literature mainly discusses the influence of government regulations on sustainability.

With regards to Market Orientation, the researchers have found it to be widely studied in literature. However, studies directly linking its influence on sustainability is limited. Lastly, all of the variables are found to lack literature with regards to the construction industry in the Philippines.

## 3. Framework

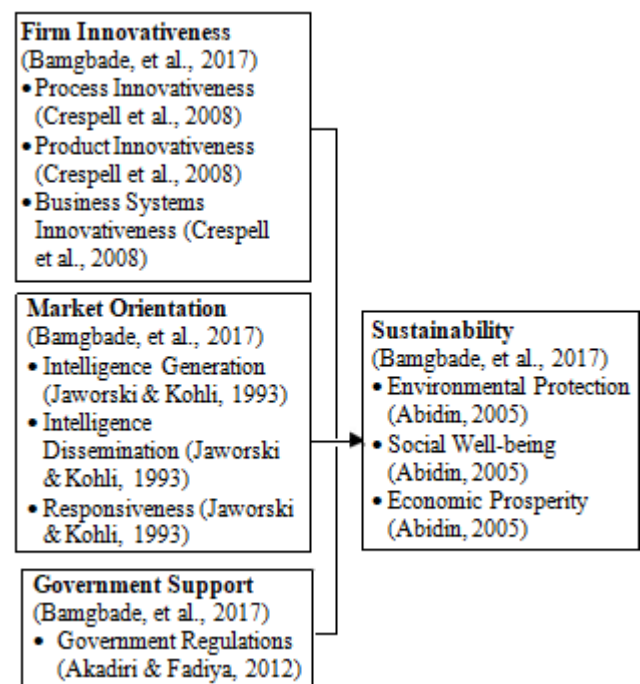


Figure 1: Operational Framework

### 3.1 Linking Firm Innovativeness and Sustainability

Several studies reveal the importance of innovativeness on the adoption of sustainability. The study of Bamgbade, et al, specifically, shows that construction processes that include innovative practices are known to lessen the detrimental effects of construction projects (2016), thus promoting sustainability (Rodriguez and Wiengarten, 2017). Additionally, with the construction industry as a leading industry in most economies, dimensions of innovativeness are known to improve the implementation of sustainability (Wang, 2014). The Resource-Based View (RBV) theory is relevant in this study as it justifies how innovation demands for special resources that are different from other products (Hitt, et al, 2016) and it examines the influence or the effects of innovativeness on the sustainability performance of an organization (Bamgbade, et al, 2017).

**H1:** Firm Innovativeness has a significant relationship with the Sustainability of Equi-Parco Construction Company.

**H4:** Firm Innovativeness has a significant effect on the Sustainability of Equi-Parco Construction Company.

### 3.2 Linking Government Support and Sustainability

Governments at every level and in all regions of the world are beginning to recognize the importance of sustainability. According to Shafii, et al, the involvement of the government plays an important role in the achievement of sustainability (2006). Furthermore, Bell states that while much of the responsibility of advancing sustainability falls on the shoulders of private sectors, there is an anticipating demand of sustainable products, services and systems which is an obligation and opportunity for governments (2002). In this study, government support and sustainability was linked through the Readiness for Change theory, which is a multidimensional construct influenced by the beliefs of the employees within the organization if they are able to implement change within the organization (Holt, et al, 2007). In this study, sustainability will be viewed as a change initiative. The theory then will correspond to the extent of readiness of the organization in implementing sustainability regulations and policies, enforced on them by the government.

**H2:** Government Support has a significant relationship with the Sustainability of Equi-Parco Construction Company.

**H5:** Government Support has a significant effect on the Sustainability of Equi-Parco Construction Company.

### 3.3 Linking Market Orientation and Sustainability

According to Crittenden, et al, sustainability is a major concern for marketers in the 21st Century since marketing strategies and activities are linked to the future of the natural environment and marketers have to be concerned about consumption as related to sustainability since consumption has resided within the domain of marketing (2011). Additionally, Bamgbade, et al, states that market orientation plays a key role in the adoption of sustainability of a firm (2017). Crittenden, et al, links the two variables by using the Resource-Advantage Theory in a market-oriented sustainability framework (2011), stating that by incorporating sustainability into its marketing strategies, a firm is able to gain a differential advantage over its competitors (Ferrell, 2010). The Organizational Culture Theory also plays an important role in linking market orientation to sustainability. Organizational culture is defined as “a gathering of the values that dominate in an organization” (Rajala, et al, 2012). Furthermore, organizational culture is considered as the core and identity of an organization as it heavily influences the behaviors and performance of employees (Kaoa, et al, 2016). The theory is applicable in this study in which if the organizational culture of an organization is towards being market-oriented, organizations will be more motivated in adopting sustainability (Bamgbade, et al, 2015).

**H3:** Market Orientation has a significant relationship with the Sustainability of Equi-Parco Construction Company.

**H6:** Market Orientation has a significant effect on the Sustainability of Equi-Parco Construction Company.

## 4. Methodology

The researchers of the study chose Equi-Parco Construction Company to be the subject of the study, which is located in Butuan City, Philippines. The company focuses on horizontal development, such as constructing roads, bridges, highways and ports. The company is a respected partner of the government, particularly the Department of Public Works and Highways (DPWH), Department of Transportation and Communication (DOTC) and the Philippine Ports Authority (PPA).

The researchers of the study employed a mixed method data collection, which is both quantitative and qualitative analysis. For the quantitative data, survey questionnaires were distributed to the top and middle managers of Equi-Parco Construction Company, a total of 149 respondents. The survey questionnaires that was used for the study is adapted from the studies of Akadiri & Fadiya (2012) and Jaworski & Kohli (1993) as cited by Bamgbade, et.al. (2017), Abidin (2005), and Crespell, et.al. (2008), all answerable by the 5-point likert scale. For the qualitative data, the researchers interviewed the owner of Equi-Parco Construction Company. An expert sampling design was used on both the respondents of the survey questionnaire and in the selection of the interviewee, since managers are known to be more aware and knowledgeable of the company's operations. The presumed knowledge of these managers are essential to answer the both the survey questionnaire and the interview questions.

The study employed a descriptive, correlational, and causal-effect research design. Through these research designs, the researchers were able to describe the relationships between the independent variables and the dependent variable, determine the strength of the relationship of each independent variable with the dependent variable, and to determine the effect of the three independent variables on the dependent variable respectively.

In analyzing the data gathered, the quantitative methods that were used for the study are basic descriptive statistics, the Pearson correlation method, linear regression and multiple regression analysis. The researchers used descriptive statistics in organizing and summarizing the data gathered from the study. The Pearson correlation method was used in determining the strength of the relationship of the chosen variables in this study. The linear regression analysis was used to determine the significance of each independent variable's influence on the dependent variable. Lastly, multiple regression was used to assess the combined effect the independent variables on the dependent variable stated in this study.

Furthermore, content analysis was done to extract the meaning from the interview and the literature related to study. Then the researchers evaluated the consistency of the gathered data gathered using the Validating Quantitative Model. The model explains the design of the Triangulation model, wherein the collection for data were done



quantitatively and qualitatively. Pattern matching was then performed to showcase the similarities and differences between qualitative and quantitative data.

## 5. Discussion of Results and Analysis

The study utilized a 5-point Likert scale to analyze the results of the survey with the score of 5 being “completely true” and 1 being “not at all true”. The survey contained questions designed to allow the researchers to evaluate the overall sustainability of Equi-Parco Construction Company, as well as determine the effect, significance, and relationship of Firm Innovativeness, Government Support, and Market Orientation on the adoption of sustainability in the company.

Area means of 4.52, 4.51, and 4.72 were obtained from Environmental, Social, and Economic Sustainability, respectively. These means present that Equi-Parco construction company values all dimensions of sustainability. In addition, standard deviation values were all observed to be below 1, which suggests that responses have minimal variation thus the population have relatively similar perceptions of the three dimensions of sustainability in their company’s operations. Furthermore, an overall grand mean of 4.57 was obtained which presents that Equi-Parco Construction Company highly values sustainability.

Through the Pearson Correlation method, the researchers were able to obtain R-values of 0.314, 0.562, and 0.559 for Firm Innovativeness, Market Orientation, and Government Support, respectively. Additionally, these results showcase that the three variables manifest moderate and positive, strong and positive, and strong and positive relationships to sustainability, respectively.

With the linear regression analysis, it was found that Firm Innovativeness, Market Orientation, and Government Support all have a significant effect on the Sustainability of Equi-Parco Construction Company by presenting a p-value less than 0.001. The R square value also states that 9.91%, 31.64%, and 31.28% of the changes in the achievement of sustainability is caused by firm innovativeness, market orientation, and government support respectively. As for the results of the beta coefficient, for every unit increase in firm innovativeness, market orientation, and government support, is a 0.1723, 0.3030, 0.3823 unit increase in sustainability respectively.

The multiple regression analysis also proved that the combined effect of all three independent variables are highly significant, with the overall p-value being less than 0.001. The R square value also states that 43.74% of the changes in the achievement of sustainability is caused by the combined effect of the independent variables. As for the results of the beta coefficient, for every unit increase in firm innovativeness, market orientation, and government support, is a 0.0859, 0.1875, 0.2537 unit increase in sustainability respectively.

Through pattern matching, the researchers were able to confirm trends observed from the various analyses of quantitative data. The qualitative data presented that Equi-

Parco Construction Company does value sustainability in its operations and incorporates all three dimensions and all three variables to the best of its ability, in accordance to its needs in certain projects.

With the quantitative results obtained from the survey and the qualitative results from the interview conducted. The pattern matching was able to conclude that the quantitative and qualitative results have a lot of similarities. It manifested similar trends, wherein firm innovativeness is found to be the least prioritized or the least incorporated into the company’s operations compared to the other two independent variables.

## 6. Conclusion

With the data gathered from the Review of Related Literature, and the results from the interview and survey questions accomplished by the top and middle management of Equi-Parco Construction Company, along with quantitative and qualitative analysis, the researchers were able to gather sufficient information to reveal three main conclusions.

First, the study was able to determine that Firm Innovativeness, Market Orientation, and Government Support all have highly significant effects on the sustainability of Equi-Parco Construction Company. Whether, if it is an individual or combined effect of the independent variables on the dependent variable. All their p-values were less than 0.001.

Second, the quantitative and qualitative data analysis manifested similar trends, wherein both multiple and linear regression analysis both displayed that the p-value of firm innovativeness is the least practiced in the company’s operations compared to government support and market orientation. This is further confirmed with the interview, when Engr. Javier stated that they only innovate when necessary and that their ability to innovate is limited because of the government’s prescriptions with regards to their processes, materials, and equipment.

Third, through the correlation analysis the researchers are able to conclude that all of the independent variables have a significant relationship with sustainability. All of the independent variables displayed a positive relationship, along with its individual p-value from the regression analysis it was then concluded that Firm Innovativeness, Market Orientation, and Government Support all have significant relationships with the Sustainability of Equi-Parco Construction Company.

## 7. Recommendations

As part of the conclusion of the study, the researchers formulated recommendations for the beneficiaries involved:

For Equi-Parco Construction Company, it is recommended that the company increase its firm innovativeness through incremental innovation as a way to survive today’s fast-changing market, and to fulfill its efforts of quality policy and mission to be a sustainable company. The researchers

recommend the company to create its own Research and Development Department solely focused on creating and promoting innovation, sustainability, and current market trends within the company. ...Since it has been noted that they are significant partner of DPWH, it is recommended that the company to propose the incorporation of innovation and sustainability in government projects.

For the Philippine Government, since government supports exhibits a highly significant effect on the adoption of sustainability, they should promote and educate the industry the advantages of being innovative and sustainable by providing seminars and trainings to both public and private construction firms. Moreover, the government should also provide financial support as a way of encouraging firms to practice innovation which currently strikes as expensive and risky. The government should also strictly enforce its laws and regulations to ensure that the community abide by these standards to prevent environmental, social, and economic damages.

For Other Construction Firms, they should strengthen sustainability practices by moving beyond standards set by the government as more and more Filipinos are embracing sustainability. It is recommended that they apply market orientation and firm innovativeness strategies into their operations; or continue doing so to gain competitive and organizational advantages.

For the Stakeholders of Other Construction Firms, the researchers recommend that they lobby for more sustainable practices in the operations of construction firms, as this will be very beneficial in the long run, and for all its stakeholders, most especially the environment.

For Other Industries, since it has been found that the three independent variables have a significant effect on the sustainability of the company, it is recommended that they try and implement the concepts of firm innovativeness and market orientation in attaining sustainability within their own organization.

Additionally, the researchers recommend that other industries heavily invest in market research to better come up with strategies in attaining maximum profitability.

For the Academe, the researchers recommend that they design and create an indigenous model or framework of sustainability suitable for the Philippine setting. And that a new model be developed every 5-10 years to accommodate economic, social, and environmental developments and/or changes.

For Future Researchers, we recommend that they use the variables used in this study, firm innovativeness, government support, and market orientation, and apply it to other industries. Future researchers should find other variables like stakeholder engagement, organizational capacity, corporate social responsibility, and shared value creation that might help the adoption of sustainability. Further, future researchers should also conduct with industry and sustainability experts, along with having a wider

population for the study as a whole to have more accurate results.

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