

## Article

# Excellence in Sustainable Management in a Changing Environment

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**Abstract:** In the current changing environment, organizations need to evolve from a profitable perspective to a more sustainable focus. To deal with this change, the implementation of specific quality models and principles might help. Thus, the present article aims to study whether sustainable management can be achieved in specific organizations (enterprises, associations, and government institutions) by identifying the EFQM principles. Moreover, it analyses which of these quality principles positively and directly impacts the performances studied (environmental, social, and economic). To achieve these objectives, Ordinal Logistic Regression (ORL) was performed using data corresponding to the sample compiled by the Càtedra Universitària de Responsabilitat Social (RSU) from University of Girona. The research results indicate that implementing specific quality principles all the dimensions improved; thus, the organization becomes more sustainable. The value of this research lies in its contribution to the sustainable management literature; adds knowledge to the ongoing debate about the possible influence of TQM principles on the specific dimensions of sustainable management and highlight the importance of having a clear strategy to obtain the highest sustainable performance.



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**Keywords:** sustainable management; quality principles; sustainable development; EFQM; sustainability

## 1. Introduction

In the previous decade, organizations tended to argue that the principles of sustainability add nothing rather costs to their entities [1]; nowadays the situation is different, due to the globalization and environmental and social challenges, organizations understand sustainability as a cornerstone of their business [2]. They acknowledge that the sustainability response will affect their competitiveness in the market but also their future (Lubin and Esty, 2010) [3]. To address this issue, organizations need to move towards sustainable management and change their focus, from a financial and economic perspective to more environmental and social strategies [4].

The concept of sustainable management (SM) is understood as “the formulation, implementation, and evaluation of both environmental and socioeconomic sustainability-related decisions and actions at organizational, and societal levels” [5]. To enable organizations to be more efficient and effective in sustainable management, it is necessary to integrate specific tools and models. Despite the several quality models existing, the most extended and discussed tool of organizational excellence is called the EFQM (the European Foundation for Quality Management) model [6].

The EFQM model understands that “excellent organizations are those that achieve and sustain outstanding levels of performance that meet or exceed the expectations of all their stakeholders” [7]. This quality model is composed of eight core principles which are the fundamental concepts of excellence.

Thus, organizations, regardless of their nature, are looking for the implementation of new practices based on these quality models and tools to ensure a better cope with changing environment and, in turn, to better SM [8]. However, even though most of the

principles are familiar to the organizations, not all of them might have the same effects on sustainable performance.

In line with this, most of the existing literature, like Calvo-Mora et al. [9], focuses its research on analyzing the suitability of quality models such as EFQM on boosting specific outcomes like sustainability and environmental or social performance of the organization. However, few studies analyze the impact of specific quality principles on sustainable management, not only in SM as a concept but understood as a comprised of the three dimensions (economical, environmental, and social dimension) proposed by Aryanasl et al. [10]. In this sense, the implementation of quality principles may ensure a sustainable approach to management and enable organizations to better cope with a changing environment. Therefore, a deep analysis is needed to study the proper implementation of these principles to contribute to the efficiency and standardization of good practices in SM. Furthermore, it is striking to note that very few previous studies have analyzed whether the quality principles abovementioned present different outcomes depending on the type of organization in which they are implemented [11].

Thus, more research is still needed to understand the above-mentioned issues, and for this reason, the present paper focuses on (1) analyzing whether sustainable management might be achieved by identifying the quality principles, (2) studying which of these quality principles positively and directly impact each of the dimensions studied (economical, environmental and social dimensions), (3) determining if all the quality principles are equally important to enhance SM, and (4) analyzing whether the quality principles have a different impact depending on the type of organization (enterprises, associations, or government institutions) in which they are adopted.

To achieve these objectives, an empirical study has been performed and data have been analyzed using Ordinal Logistic Regression (OLR). The final results indicate that implementing specific quality principles all the dimensions (economical, environmental, and social) improved, increasing their sustainable management outcomes and, in turn, becoming more sustainable). Besides, the type of organization becomes important when implementing quality principles.

The present research has both theoretical and practical contributions. First, this research contributes to the extant literature about Sustainable Management showing the impact that specific quality principles have on the sustainable performance of the organization, and second, it provides the first survey which aims to study SM through quality principles.

From a practical point of view, this research also provides several contributions. The first is based on the suggestion that not all quality practices have the same impact on sustainable management. Thus, the organization should have a clear strategy to obtain the highest sustainable performance. The second contribution of the present paper is based on the acknowledgment. As it is stated at the beginning of the introduction there is still a lack of consciousness about the importance of SM; thus, this study provides positive results showing that SM might become a cornerstone for competitive advantage.

The remainder of the paper is organized as follows: In the second section, the literature on SM, SM and changing environment, quality principles, and models is presented together with the conceptual background and the constructs to develop the research hypotheses. The third section provides an analysis of the data collection and the research methods which includes the definition of the sample, the survey, the operationalization of the variables, and the statistical model analysis. In the fourth section, the aggregate analysis of the results to validate the hypotheses is provided. The fifth section contains the discussion in which the authors linked the studied results with the existing theories and literature, while the last section contains the conclusions of the study, recommendations for future research, and the limitations of this paper.

## 2. Literature Review

### 2.1. Sustainable Management

Organizations have been recognized as key players in ensuring that the generation of goods and services are more sustainably oriented. Being sustainable means managing processes and resources effectively (Rocha-Lona et al. [12] cited by Medne et al. [13]). The development of a method for analyzing and improving the sustainability of society has been claimed to assist the original issue of Sustainable development (SD) which was to find the balance between business excellence and ecological sustainability [10,14]. The recognition of these aspects comes from the application of the most often used definition of SD: “Sustainable development is a development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission [15]). The definition is characterized by its holistic principle, and at the organizational level is often measured by using the Triple Bottom Line (TBL). The TBL consisting of reporting in the economic, environmental, and social dimensions based on the premise that enabling environmental and social concerns requires good economic performance [16]. This premise means that all economic activities must provide sufficient value to ensure a decent life for everyone without damaging the environment and without compromising the survival of future generations.

As has been recognized, the good economic performance premise pointing out the possibility of producing goods and services continuingly, to maintain acceptable levels of profits, while the environmentally sustainable system maintains a stable resource base, avoiding over-exploitation [17]. On the other hand, the social aspect must allow equality, including health and education, gender equity, political accountability, and participation [18].

According to Harris [18], the goal of sustainable development generally implies four different, but equally important principles:

1. To preserve a natural resource.
2. To maintain the option value of a productive capital base.
3. To improve the quality of life.
4. To secure an equitable distribution of life quality.

To achieve the goal of SD, organizations need to change some of their paradigms. Thus, Elkington [19] outlined seven drivers (sustainability revolutions) about the sustainable transition or about how to change from the focus on the limits of economic activities to a focus on finding the equilibrium between economic prosperity, environmental protection, and social equity [16]. The seven drivers or revolutions are framed within the TBL [19] as a way for supporting companies in including social and environmental performance in their strategies and behaviors. Table 1 summarizes these seven aspects.

**Table 1.** The seven revolutions of Sustainable development. Adapted from [19].

Drivers	Old Paradigm	New Paradigm	Comments	References
Markets	Compliance	Competition	Businesses are operating in widely open markets to competition challenged by stakeholders and the financial markets about their TBL commitments and performance	[19–22]
Value	Hard	Soft	Businesses are influenced by the values-based crises intrinsic to a shift in human and societal values. Organizations have to be prepared for changes. From hard commercial values to the value of the TBL [16].	[17,18]

Table 1. Cont.

Drivers	Old Paradigm	New Paradigm	Comments	References
Transparency	Closed	Open	More transparent, real-time communication has become the norm. Businesses priorities, commitments, and activities are under intense scrutiny.	[23,24]
Life-cycle technology	Product	Function	Managing the life cycles of technologies and products based on TLB requirements, as well as the supply chain.	[8,25,26]
Partnerships	Subversion	Symbiosis	New forms of partnership either between companies or other types of organizations as non-governmental ones.	[5–10,27]
Time	Wider	Longer	More events occur in a shorter period that require thinking ahead and strategizing accordingly.	[2,20,21]
Corporate governance	Exclusive	Inclusive	Is driven by each of the other revolutions. Raises new demands to the company to include all stakeholders and shareholders.	[28,29]

The TBL incorporates the dimensions of social, environmental, and financial performance, capturing the essence of sustainability [30]. The economic dimension deals with profits and return on investment. Thus, several studies have been conducted to improve for instance the product life cycle management for sustainability [25], the design of sustainable logistics system [31], methodologies to product design and manufacturing resource planning [32], or the incorporation of sustainable criteria into the supplier selection [33,34].

The environmental dimension encompasses the use of natural resources and their impact. Therefore, the interest of researchers includes, for instance, the environmental production practices and competitiveness [2], waste reduction [35], recycling, pollution prevention, and compliance to laws and regulations [34]. Finally, the social dimension allows measuring the impact of the companies in the society they operated including for instance measurements of education, equality levels, well-being, or quality of life. In consequence, authors have focused on studying the creation of the effects of education for SD on social sustainability [36] or the significant effect of lean manufacturing on environmental management and business outcomes [37].

Table 2 shows a summary of the dimensions in the SD conception and its related values. Authors [23,38] indicated that of these dimensions, economic growth is still the primary objective of governments, and in the meantime, this self-interested approach has failed to encourage stakeholders to add other dimensions at the level of organizational development planning in an efficient way [38]. However, it has started a process of reassessment of economic growth through sustainable development that could be promising for the future [27].

**Table 2.** Dimensions and values of SD.

Dimension	Objectives	Benefits	Related Values
Economic	To improve productivity	Balanced productivity and environment.	Justice Equality of rights (either rights and duties are claimed from different religiously grounded or by interest pursuit, reason, self-legislation, and morality) [39]. Responsibility Altruism Honesty, sincerity (transparency) Respect for life, humans, and nature Tolerance, and solidarity Social justice
	To ensure business security and improve economic performance	A higher level of prosperity of the nearest social environment.	
	Consumer safety	Higher levels of profit.	
Environmental	Reduction of emissions	Avoiding fines and environmental sanctions Increase the value of the company	Responsibility Altruism Honesty, sincerity (transparency) Respect for life, humans, and nature Tolerance, and solidarity Social justice
	The application of eco-friendly production processes, technology, etc.	Enhance the good reputation and image of the company	
Social	To improve customer satisfaction, as well as other stakeholders' satisfaction	Increase the level of engagement with the market and therefore the demand	Responsibility Altruism Honesty, sincerity (transparency) Respect for life, humans, and nature Tolerance, and solidarity Social justice
	To strengthen the brand	Security and guarantee of supply of the finished product	
Ethical	Ethical issues in the human-nature relationship, in terms of sustainable resource use [39].	Balance in the implementation of new technology (e.g., biotechnology, genetic engineering, nanotechnology, robotics)	Responsibility Altruism Honesty, sincerity (transparency) Respect for life, humans, and nature Tolerance, and solidarity Social justice
	Just distribution or equal opportunities [40].	The well-being of the Triple Bottom Line—People, planet, profit.	
	Environmental ethics		

Source: Adapted from Grabara et al. [41].

In addition to the three dimensions explained above, the ethical dimension was added in Table 2. This was because the foundation of sustainable management needs to be accompanied by ethical behaviors for SD concerning its social and environmental impacts, a careful evaluation of economic policies, and promoting corporate social responsibility [42]. Therefore, besides the economic, social, and environmental aspects, a four-dimension (an ethical dimension) in the SD conception is necessary [38]. The ethical dimension according to Busoi [38] and Salamat [23] emerges from the idea that the cost–benefit economic analysis cannot be generalized, as certain values, such as life quality and human health, cannot be morally evaluated in financial terms.

The analysis of SD from the three dimensions established by the TBL and the ethical dimension aside from the own above definition of SD allows reinforcing Isaksson's point of view [16] arguing the key role of future generations. This author defends that a stakeholder focus gives rise to consider future generations as one but the most important stakeholders in business environments because they alter the environment and the underlying rules of society through their operations. Business does impact on future unborn generations, and it seems accurate that future generations may impact on business. Thus, stakeholder focus and sustainability focus are regarded as key SD-values.

On the other hand, the literature review indicates some important workplace issues which could be affected by the application of the SD concept, as highlighted by [43]:

1. Positive improvements in corporate performance, specifically financial performance, productivity, product safety, and positive stakeholder reaction [39,40,44,45].
2. Improvements in competitive advantage through efficiency, innovation, transformative strategies, and so on [20,21].
3. Enhanced customer loyalty, namely increasing the hedonic/utilitarian value of customer experiences about environmental concerns, green management practices, co-creation of value in sustainably-oriented customer services [22–46].
4. An enhanced company image specifically as a result of eco-friendly production [47,48].
5. Improvements in legitimacy through encouraging engagement with the market, green production, green marketing, and so on [49,50].
6. Improvements in employee recruitment and retention [51,52].

The interest in sustainability and SD has progressively involved the professional and academic environment, and after the model of the TBL, other models came to light: the Triple-helix model proposed by Etzkowitz and Zhou [53] of relations between university, industry, and government (considering sustainable government, sustainable entrepreneurial university, and sustainable industry within the civil society); the Quadruple and Quintuple Helix [54] by adding as a fourth helix the media-based and culture-based public and civil society [54], and the Helix of sustainability [28]. As Caputo et al. [29] highlighted, all those models underline sustainability as a multi-dimensional domain depending on the collaboration among multiple actors and perspectives considering economic, environmental, and social results.

## 2.2. Sustainable Management and the Changing Environment

Sustainable management absorbs the concepts and conceptualizations of sustainability and synthesizes them with management concepts and practices. From the dimensions of sustainable development, its implementation and organizational change are the key issues on which the sustainability agenda is demanding action according to [51]. As these authors suggest, this requires a change of thinking and attitude that usually needs to start with leadership.

The alignment in both the hard and soft factors within the company strategy is essential to focus on creating a sustainable and realistic business, as explained by Oon and Amhad [55]. The organizations in which the change can be managed to achieve the best effect for business excellence are those which have recognized and valued the importance of the soft dimensions. These soft dimensions involve the skills, staff, style, and shared values along with the structure and strategy of the hard dimensions. Otherwise, hard dimensions encompass the stable, formal structure that takes resources from the environment and turns them into outputs [55,56].

Managing focus on sustainability requires addressing both decision-making and governance and incorporating them into business planning and management. To become more responsive to the issues arising from sustainable development, governance is increasingly important because of the decision-making process at all levels and the need for cooperation across the organization and with the stakeholders. As mentioned by Doppelt [57] "For an organization to make the kind of transformation to become truly sustainable, power and authority must be skillfully distributed amongst employees and stakeholders through effective information sharing, decision making, and resource allocation mechanisms." Having considered all these elements, some authors like Aryanasl et al. [10] concluded that the principles of excellence are aligned with sustainable business models, although the models which applied them would need an update.

Sustainable development concerning the three essential dimensions (economic, social, and environmental) introduces different types of change to the organizations [58]. According to the book *Business Strategy for Sustainable Development: Leadership and Accountability for the 90s* [59], seven steps are required for managing an enterprise according to sustainable development principles. Changes could be planned or unplanned, incremental or marginal, transitional, and transformational [58,59] and may consist of the following actions:

1. Perform a stakeholder analysis aimed at analyzing the enterprise's activities impact because the enterprise is directly linked to the environment and the community in which it is headquartered.
2. Set sustainable development policies, missions, and objectives to establish stakeholders' expectations as a comprehensive policy.
3. Design and execute an implementation plan.
4. Because organizations need to turn policies into operational terms, adjust employee attitudes, assigning resources and responsibilities, and establish operational practices that would transform the culture.
5. Develop a supportive corporate culture.

6. Develop measures and standards of performance aimed to ensuring the level of accomplishment of the established goals.
7. Report the results and enhance internal monitoring processes.

As many authors observe, the success of sustainability-related activities and finally the achievement of sustainable management largely depends on the decision-making process, higher management support, the ability to understand the need for change [13,60], and willingness to commit to SD objectives. However, some activities and different organizational pathologies [61] are limited negatively or make sustainable management an elusive goal to achieve. One of these phenomena is ethnocentric behavior. According to Fernández-Ferrín and Bande-Vilela [62] (p. 299) the general concept of ethnocentrism is a purely psychological construct distinguishing between two types of groups: in-groups (with which an individual identifies) and out-groups (considered as the opposite of in-groups).

In consequence, for the public sector, for instance, even when it can be found in several sectors like food markets or applied to marketing issues as consumer behavior, "the ethnocentric behavior exists when one's group is the center of everything, and all others are scaled and rated with reference to it [63] (p. 4). In a study developed by Dobrowolski and Szejner [64], the authors explain that public organizations are significant buyers of goods and services produced in the private sector. Thus, public organizations' influence on the private sector is realized in various ways including through public procurement originating typical ethnocentric behaviors, for instance, when public decision-makers decide not to purchase products or services which are delivered by strangers. [65] findings support the existence of a willingness scale to use an ethnocentric attitude in the decision-making process at public organizations. Several authors have been recognizing that this kind of phenomenon negatively impacts sustainable management, innovation [62], and the socio-economic development of a society.

Considerations on sustainable management are also related to other phenomena like transparency. Customer's perception of a company's transparency is related to customer's environmental or social awareness, for example, Vaccaro and Echeverri [24]. Another key phenomenon is the disclosure of non-financial information often correlated with normative arguments [64] or the anti-money laundering attitudes studied by Dobrowolski and Sułkowski [61]. Even so, the idea that sustainable management tries to synthesize the principles of SD with management concepts and implement certain practices is accepted as a working issue. This is because the very definition of SD is still an imprecise concept.

### 2.3. *Quality Principles and Sustainable Management*

As the literature review continued, it seemed clearer that the authors confirmed that quality management models, methods, tools, and practices based on an appropriate set of principles may be used to identify, measure, and manage sustainable development [66,67]. In a very extensive literature review, Siva [67] synthesized the research on quality management and its support for approaches to sustainable development by the integration of sustainability considerations in enterprise's daily operations, stakeholder management, and customer focus coming from the application of quality management principles. The authors pointed out firstly that integrated management systems (quality, environmental, etc.) allow organizations to reduce redundancies, manage resources efficiently, and identify aspects to support sustainability in general. However, the authors also argue that the implementation of these systems does not in itself guarantee the application of quality management principles, practices, or tools that support sustainability initiatives in organizations. This will depend on the changes that the organization must anticipate strategically. The research also argues that QM principles, practices, and tools could be used to support the management of environmental considerations and customer-focus within QM and elaborates on how that can help support necessary stakeholder management in sustainable development [67]. The idea of QM for sustainable development relies on the intrinsic perspective which is supported by the Equation defended by Kuei and Lu "SM = accelerating the adoption of best management principles, models, and practices

throughout the operation system, and enabling the environment to achieve SD" [68] (p. 63). To establish and improve QM systems, it is necessary to follow five essential QM principles: (1) facilitating increased awareness of quality and market signals, (2) enabling conditions for quality, (3) adopting a systems approach, (4) achieving greater communication and alignment between cross-organizational units; and (5) examining for congruence with quality objectives.

#### 2.4. Quality Principles and Quality Models

Quality principles are consistent and developed in the philosophy of quality models and the core values of Total-Quality-Management (TQM). The current conception responds to the contribution of different theories that emerged throughout the twentieth century by bringing together the best practices in the field of organizational management. These practices are also known as principles of total quality or fundamental concepts of excellence in management. The principles are also a reflection of the evolution of the quality approach from the product to the clients and more recently to all stakeholders (clients, shareholders, staff, suppliers, and society in general). The literature recognizes eight essential principles of excellence: customer focus, result orientation, leadership and coherence in objectives, process approach, development and involvement of people, continuous learning, innovation and improvement, partnership development, and social responsibility.

Synergies between TQM and SD lay precisely on values, core values, and principles because TQM is described as a value-based system where process focus and process management are the key paths for realizing these synergies [16].

In a study of the synergies between TQM and SD, Isaksson [16] makes it clear that the definition of SD in the three dimensions of the TBL indicates the importance of giving more value at a lower cost, which is consistent with the objectives of economic sustainability. TQM can be considered a management system based on values, methodologies, and tools, which also facilitates the integration of SD. The author concludes by stating that the process view and process models create the basis for a set of TBL indicators for different types of indicators such as input, enablers, drivers, output, and outcome [16] (p. 643). Besides, the principle of "customer focus" is seen in combination with the "focus on stakeholders" because the first one has been enlarged.

Jankalová and Jankal [69] recently made a comparative analysis with the secondary data of business excellence models to determine and evidence their core values in an attempt to understand the relationship between excellence practices and sustainability. The authors argued some of the core values are the focus on customers and the market. To respond to customer expectations and target management to not only meet but exceed them, it is necessary to identify and analyze the competition, as well as to respond flexibly and in the shortest possible time. Increasing competitiveness depends largely on customer satisfaction, which must be seen as a strategic issue. A second key core value is visionary leadership.

A second core value is a leadership. Organizations with excellent performance have leaders who anticipate the future and can identify changing trends in the environment and make them a reality through management. To do this, their attitude is usually a model to follow because of the values and ethics they share. At the same time, leaders do not only act internally, inspiring commitment to their vision, but also transfer their radius of action to society [69].

The study continues by analyzing other core values. However, the authors of this study would like to remark on sustainable development and wellbeing, and inclusion. Organizations that have become excellent because of their management have a positive impact on society through the improvement of their performance and the three dimensions of SD. Their performance goes beyond compliance with legal requirements imposed by current regulations and is transformed into specific actions demonstrating a commitment to the environment, transparency, and business ethics. As Jankalová and Jankal [69] explained, quality is built by people, so organizations that implement quality management and its



values know and appreciate the value of all stakeholders in the organization, especially the employees. Positive experiences at work generate a higher level of satisfaction and self-realization, positive responses from which the organization benefits. For this, it is also essential to have an educated and prepared human factor, capable of facing the change in the current business environment. The organization ensures that the needs of its staff are met.

Excellence as a management strategy of the organization aims to meet the needs and expectations of all its stakeholders. Therefore, the most widely spread models of excellence at the international level (EFQM, Deming, Malcom Baldrige, and the Ibero-American model) identify the principles of excellence in the form of criteria or good practices in a framework applicable to most organizations, regardless of their type or size. The models of excellence based on the eight principles of total quality apply as a self-assessment tool, and research has proved that it is possible to achieve positive sustainable development by implementing the EFQM excellence model for example [10,12,70].

The EFQM excellence model is a set of guidelines for self-evaluation and continuous improvement and is supported by three fundamental pillars: (1) customer orientation, (2) stakeholder orientation, and (3) understanding of the cause-and-effect relationships between the company's activities or practices and the results that can be considered excellent. Until its last version in 2020, which for this article will not be taken into account, the nine elements that formed the model until its last redefinition are organized into enablers and results. According to the model leadership, policy and strategy, partnerships, resources, people, and processes are enabling agents to provide certain results. Enablers answer the question "how," in other words, how excellent results are achieved while the results relate to overall performance, concerning their customers, personnel, and society.

The aim of this model is the satisfaction of customers and employees, as well as society through standards of excellence that are implemented based on the principles of leadership, the formulation of policies and strategies for the achievement of quality, and the adequate direction of resources and personnel to the client. These criteria of excellence will allow organizations to maintain a competitive advantage over time and identify the areas of strengths and those requiring improvement, focusing on the relationship between personnel, processes, and results.

The EFQM model is flexible and can be applied to all companies [7], regardless of the sector in which they operate or their size because the model implements a philosophy consisting of principles, practices, and tools [71] that include principles or values such as customer focus, continuous improvement, and fact-based decisions [67]. In this sense, SD considerations can be seen as an essential requirement for QM principles implementation and QM principles implementation could be assessed by the EFQM excellence model. As Jankalová and Jankal [69] pointed out, the connection between the core values of excellence and TQM principles is marked and comprises three main elements of TQM—people, processes, and results. Given these facts, there are some attempts in the literature to adapt the EFQM excellence model for instance to sustainable business models and clean production. With this aim, Aryanasl [10] validated that the four results criteria of the EFQM excellence model can be reshaped to meet the needs for sustainability. As in a sustainable business model environment and community are considered as key stakeholders, EFQM results consider people, customer, and society. Thus, the authors modified the results criteria by proposing three dimensions: social results (including human resource, community, and customers), economic results, and environmental results consistent with the TBL.

The European approach to achieving excellence through the TQM excellence model has been adapted in different aspects of public life, even implementing a sustainable model for anti-money laundering [61]. As the principles of SD have become assimilated in society, both organizations and institutions need to be legitimized as a way of demonstrating that their actions conform to what stakeholders expect of them. Therefore, we find studies in the literature that validate the positive effect of excellence in management, through the EFQM model, on legitimacy. In other words, higher levels of excellence imply greater

legitimacy [72]. On the other hand, the excellence model also could positively impact the reinforcement of information capability and organization's transparency [73]. Last but not least, literature also recognized how public administration or local authorities adapted the EFQM excellence model and hence the principles of TQM as a means of improving services and demonstrating continuous improvement [74] because they have become more similar to a business.

Since the EFQM model is one of the most widespread models, its application presupposes that all quality principles have been equally applied, but not all of these principles may impact equally on the three dimensions of SD. Therefore, it is necessary to analyze which principles and to what extent they impact the environmental, economic, and social dimensions of the SD of organizations. Consequently, the following hypotheses are highlighted:

**Hypothesis 1 (H1).** *The implementation of quality principles positively impacts on the environmental dimension of the organizations.*

**Hypothesis 2 (H2).** *The implementation of quality principles positively impacts on the economic dimension of the organizations.*

**Hypothesis 3 (H3).** *The implementation of quality principles positively impacts on the social dimension of the organizations.*

### 3. Data Collection and Research Methods

#### 3.1. The Survey

The database used in this article was compiled by the *Càtedra Universitària de Responsabilitat Social (RSU)* located in Girona (Spain) which, since its foundation in 2013, has concentrated its efforts on promoting social responsibility in all university areas closely linked to the business world.

The survey was developed based on the principles of excellence in management and sent to a sample of 120 companies from different sectors: governmental and non-governmental institutions located in Girona (Spain) with employees and/or volunteers. The selection of these organizations was based on their commitment to the SD of the territory and creativity and innovation in the creation of value for the common good. The data collection process for the empirical analysis consisted of a self-administered online survey designed and applied with Survey Monkey Tool. The survey targeted managers with higher expertise who also played a key role in decision-making processes. Links to the survey developed in Survey Monkey were sent by email. A database of email addresses was built from the *USR Chair* and provided by Advisory Council members which have members from Girona's business landscape, nonprofit institutions, governmental institutions, and local entrepreneurs. Although the comparison between profit and not-for-profit organizations may be misleading, today both types of organizations are focused on addressing social issues that did not include economic benefits Berger et al. [75] cited by Harris [76].

The survey consists of three different parts: the first is made up of 14 questions differentiated into two sections for enablers and results criteria. A second part refers to detecting the social function of the organization and the number of employees and/or volunteers. Finally, questions related to additional comments and contact information are included in the last section.

#### 3.2. Constructs and Operationalization

The literature review states that those quality systems models that are based on an appropriate business excellence model, such as the European Model for Total Quality Management, can be useful to identify, measure, and manage the sustainability indicators of an organization [66]. Research has proved that those organizations that implement the

European Foundation for Quality Management (EFQM) excellence model may achieve positive sustainability development [10,12,70].

The EFQM excellence model classifies its criteria into Enablers and Results. The first covers what the organization does focusing on four specific areas: leadership, people, processes, and alliances. The latter covers what the organization achieves based on the analysis of environmental, economic, and social factors [7]. With this aim in mind, the TQM principles of excellence have been adapted and their impact analyzed in three specific dimensions: economic, environmental, and social. To fulfill the objective of this study, the quality principles have been adapted and analyzed point-by-point to facilitate discussion on which ones have an impact on each of the three dimensions studied [77]. The survey was sent to different types of organizations and institutions, which conditioned the number of questions and their structure. This meant that the questions had to be sufficiently general to adapt to the reality of the target population. The design of the survey took into account that the number of questions should be as small as possible, to avoid attitudes of rejection among the respondents. To structure the survey, the literature was initially reviewed to identify the main study variables, with the results of the two empirical studies developed by Calvo-Mora et al. [9,66] and Aryanasl et al. [10] being particularly relevant. The items were developed by the authors of this article based on the factors (criteria) initially collected. These variables were reduced in number, retaining the most significant and those that best corresponded to the conceptualizations of sustainable management and excellence in management. A panel of three SD experts evaluated the appropriateness of some of the items in each interaction to adapt them to the context.

As enablers, the present study has analyzed (3) leadership and coherence in the objectives, (4) processes, (5) people, and (7) alliances; while analyzing as dependent variables: (1) environmental approach, (2) economic impact, and (8) social responsibility. The strategy and leadership factors were evaluated in a single dimension because, according to the philosophy of the EFQM model, the achievement of excellent management results for the organization's performance is achieved through leadership that can drive and promote the strategy and corporate policy. All indicators were measured using a Likert-type scale from 1–5 (1—Totally disagree; 5—Totally agree).

Table 3 explains the dimensions representing the quality principles adapted for this research as well as the variables for the measurement.

**Table 3.** Constructs and operationalization.

Factor from EFQM	Dimension	Indicator
ENABLES (Independent Variables)	Leadership and Strategy	LS1: The organization has an expert/team responsible for performing Social Responsible activities. LS2: The organization makes important decisions with RS criteria under consideration
	People	PE1: The organization encourages its employees to undertake additional training. PE2: The organization makes it easier for employees to conciliate professional and personal life.
	Processes	PR1: The organization takes into consideration equality criteria for new recruitment. PR2: The organization has specific procedures for dealing quickly with complaints and allegations.
	Alliances	AL1. The organization has purchasing criteria that take into account guarantee of origin, ensuring an environmentally correct and socially fair production. AL2. The organization accomplishes the activities in a legal, honest, and fair way.

Table 3. Cont.

Factor from EFQM	Dimension	Indicator
Results (Dependent Variables)	Environmental impact	RM1: The organization implements the resources in a sustainable way. RM2: The organization implements specific programs to reduce its environmental impact.
	Economic impact	RP1: The organization protects the health and safety of customers beyond legal requirements. RP2: The organization provides its customers/users with complete and precise information on products/services
	Social impact	RS1: The organization encourages employees to participate in volunteer activities RS2: The organization contributes to campaigns and projects that promote social welfare.

### 3.3. Statistical Model

For this paper, 120 companies were contacted, of which almost half were willing to respond. Of the 55 surveys sent, the final dataset consisted of 52 valid responses representing a response rate of 43.33%. The authors believe that the response rate is acceptable due the fact that is the first time that EFQM is adapted to study sustainable management dimensions.

This paper proposes a model tested by estimating the ordinal logistic regression model (ORL). ORL is the appropriate regression analysis to perform when the nature of the dependent variables is categorical [78]. This model is implemented as an alternative to a discriminant analysis when the normal model is not applicable. According to Bozpolat [79], the main objective of logistic regression analysis is to establish an acceptable model with a good fit that can identify the relationship between the predicting and predicted variables by using a minimum number of variables.

Ordinal logistic regression produces a single set of regression coefficients to estimate relationships between independent and dependent variables. This method is a better option than the Multinomial Logistic Regression (MLR) for example for ordered categorical dependent variables as long as it fulfills the proportional odds assumption. This assumption states that the relationship between the dependent and the independent variable is constant, independently of the comparison group [78]. Therefore, considering that the variables in the study measured using Likert-type scales, the solution that fits best, according to the data, is to apply an ORL model. According to the general features of the ORL model described by Osborne [78] the model in the case of our study could be described as follows:

$$\text{logit}(p_{\text{impact}}) = \left( \frac{p_{\text{impact}}}{1 - p_{\text{impact}}} \right) = \beta_0 + \beta_1 X_1 + \beta_j X_j \quad (1)$$

where

$p_{\text{the impact}}$  is the probability that a company/institution achieves a particular result (i.e., social result).

$\beta_0$  is the intercept.

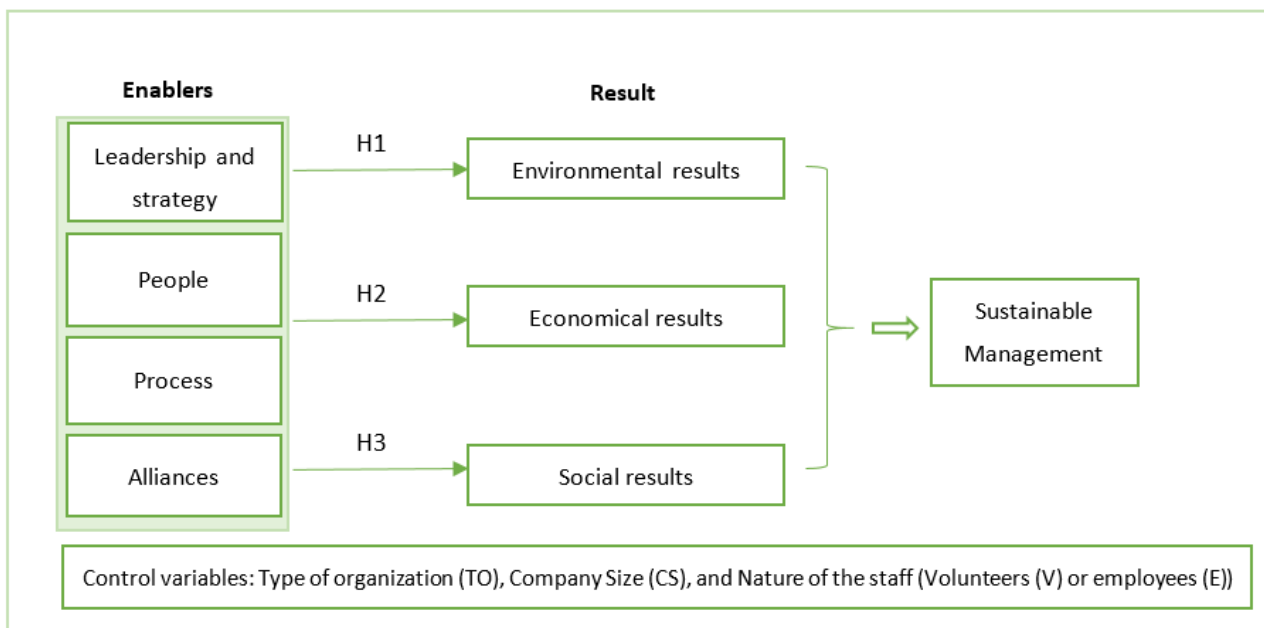
$\beta_1, \beta_2 \dots \beta_j \dots$  are the coefficients (effects) of enabler factors.

$X_1, X_2 \dots X_j$  are the variables of the enabler factors.

The link function was the logit link function because, in ordinal categorical dependent variable models, the responses have a natural ordering, and response probabilities depend on the individual predictors. This function aims to take a linear combination of the covariate values (which may take any value between  $\pm\infty$ ) and convert those values to the scale of a probability, i.e., between 0 and 1 [80]. On the other hand, the ordered categories are based on the Likert-type scales defined in the study, which means that the intercept of

Y: depends on these categories. As mentioned by MacKenzie et al. [80], with an ordinal response (Y), there are set probabilities that the response is one of r different response levels given by the data. Given this fact, each curve in the series of parallel logistic curves has the same design parameters but a different intercept. The methodology employed enabled the authors to assess the impact of the different results (i.e., environmental results) as dependent variables.

Figure 1 shows the proposed research model based on Aryanasl, et al. [10] which describes how Enablers factors (independent variables) affect each of the results studied (dependent variables) to achieve sustainable management.



**Figure 1.** Conceptual framework for the Ordinal Logistic Regression model.

## 4. Results

### 4.1. Descriptive Statistics of the Sample

The following section analyzes the descriptive statistics of the variables. The variables included in the sample are studied through frequency analyses, a measure of central tendency (mean), measures of dispersion (standard deviation and variance), and measures of the asymmetry (skewness and kurtosis).

In the conducted research, we collected data concerning 52 organizations. The respondents of the sample were enterprises, associations, and government institutions located in Girona. The whole population consists of 42.3% of the organizations that were enterprises; 32.7% were associations, and 25% were administrations of the government (Table 4).

**Table 4.** Type of organization.

	Frequency	%	Cumulative %
Enterprise	22	42.3	42.3
Association	17	32.7	75.0
Government Administration	13	25.0	100.0
Total	52	100.0	

Tables 5 and 6 show the frequency distribution of the demographic variables. Table 4 describes the frequency distribution of the volunteers variable. Among all the organizations studied, 22 out of the 52 companies did not have any volunteers working with them. These 22 companies were distributed as follows: 12 were enterprises; three were associations,

and seven were government administrations. Additionally, 25 companies had between 1 and 50 volunteers. Of these, nine were enterprises; 11 were associations, and five were government administrations. Finally, there was only one entity among those surveyed, a government administration, that had more than 250 volunteers on its staff. In summary, more than half of the enterprises surveyed had no volunteers in their company; 41% of them had between 1 and 50 volunteers, and none of the organizations had more than 250 volunteers. Regarding the associations, the majority (64.7%) had between 1 and 50 volunteers; almost two-tenths of the associations (17.6%) had no volunteers and 17.6% had between 51 and 250 volunteers. None of the associations surveyed had more than 250 volunteers. Finally, among the 13 government administrations studied, half of them (53.8%) had no volunteers as part of their staff; almost four-tenths (38.5%) of the sample had between 1 and 50 volunteers, and only one had more than 250 volunteers.

**Table 5.** Frequency distribution of the volunteers.

No. of Volunteers	Enterprise	%	Association	%	Government Administration	%
0	12	54.5%	3	17.6%	7	53.8%
1–50	9	40.9%	11	64.7%	5	38.5%
51–250	1	4.5%	3	17.6%	–	0.0%
>250	–	0.0%	–	0.0%	1	7.7%
Total	22	100.0%	17	100.0%	13	100.0%

**Table 6.** Frequency distribution of the employees.

No. of Employees	Enterprise	%	Association	%	Government Administration	%
0	1	4.5%	6	35.3%	–	0.0%
1–50	19	86.4%	10	58.8%	11	84.6%
51–250	2	9.1%	1	5.9%	2	15.4%
>250	–	0.0%	–	0.0%	–	0.0%
Total	22	100.0%	17	100.0%	13	100.0%

Focusing on the number of employees working at the organizations (Table 5), 7 of them responded that they did not have any workers at their organization. Most of the entities replied that they had a small organization of between 1 and 50 employees. Ultimately, only five out of the 52 entities were large and had between 51 and 250 employees. None of the organizations had more than 250 workers. In other words, focusing on the enterprises' responses, only one of the companies responded that they did not have any employees; the vast majority (86.4%) were small companies with less than 50 workers and only two of the firms were large. About associations, only six out 17 had no employees as part of their staff; almost six-tenths of the associations had between 1 and 50 workers, and only one of them had more than 50 but less than 250 employees. Finally, all the government administrations had some employees; around 85% of them had between 1 and 50 employees, and only two of them had 250 workers.

Lastly, the descriptive statistics of the variables are given in Table 7. Focusing on skewness and kurtosis results, the data studied differ from a normal distribution.

**Table 7.** Descriptive statistics of dependent, independent, and control variables ( $n = 52$ ).

Variable	Mean	Std. Deviation	Variance	Skewness	Kurtosis
LS1	3.98	1.038	1.078	−1.273	1.400
LS2	4.12	1.022	1.045	−1.499	2.185
PR1	3.96	0.949	0.900	−1.210	1.434
PR2	3.71	0.997	0.994	−0.616	−0.083
PE1	3.92	1.064	1.131	−1.062	0.757
PE2	4.18	1.004	1.008	−1.586	2.615
A1	4.04	0.989	0.979	−0.717	−0.538
A2	3.77	1.113	1.239	−0.755	−0.118
RM1	3.63	0.927	0.859	−0.845	0.387
RM2	4.33	0.901	0.813	−2.212	6.160
RP1	4.12	1.096	1.202	−1.361	1.252
RP2	3.85	1.036	1.074	−0.889	0.608
RS1	4.12	1.060	1.124	−1.265	1.279
RS2	3.61	1.156	1.337	−0.596	−0.344

#### 4.2. Correlation Coefficients of the Variables

The next result analyzed includes the correlation coefficients of the variables. Regarding the independent variables, all of them are positive and most of them significant indicating that although they are separate indicators, they provide broad coverage of the topic. Table 8 summarizes the correlation coefficients of the independent variables.

**Table 8.** Correlation analyses of the independent variables.

	LS1	LS2	PE1	PE2	A1	A2	PR1	PR2
LS1	1.00							
LS2	0.55 **	1.00						
PE1	0.26	0.36 **	1.00					
PE2	0.29 *	0.49 **	0.65 **	1.00				
A1	0.28 *	0.50 **	0.52 **	0.81 **	1.00			
A2	0.16	0.32 *	0.39 **	0.44 **	0.53 **	1.00		
PR1	0.32 *	0.24	0.51 **	0.47 **	0.45 **	0.36 **	1.00	
PR2	0.27	0.49 **	0.47 **	0.56 **	0.53 **	0.48 **	0.00 **	1.00

\*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed). The correlations are all Spearman's coefficients.

Similarly, Table 9 reveals the correlation between the dependent variables. As can be seen, all the variables are positive and the vast majority significant indicating a relation among them and wide coverage of the topic studied.

**Table 9.** Correlation analyses of the dependent variables.

	RM1	RM2	RP1	S (RP2)	RS1	RS2
RM1	1					
RM2	0.61 **	1				
RP1	0.50 **	0.44 **	1			
RP2	0.47 **	0.64 **	0.76 **	1		
RS1	0.50 **	0.39 **	0.47 **	0.39 **	1	
RS2	0.45 **	0.25	0.27	0.24	0.47 **	1

\*\* Correlation is significant at the 0.01 level (2-tailed). The correlations are all Spearman's coefficients.

Finally, Table 10 shows the correlation coefficients between all the variables studied in this paper. These are similar to the previous correlation tables; when analyzing all the variables together, the results also indicate a relationship among them. Thus, the results presented in Tables 8–10 indicate some correlation to the assumption that the variables are somehow overlapping but not high enough to be treated as a unique outcome.

Table 10. Correlation analyses of the model.

	RM1	RM2	RP1	RP2	RS1	RS2	LS1	LS2	PE1	PE2	A1	A2	PR1	PR2
RM1	1													
RM2	0.61 **	1												
RP1	0.50 **	0.44 **	1											
RP2	0.47 **	0.64 **	0.76 **	1										
RS1	0.50 **	0.39 **	0.47 **	0.38 **	1									
RS2	0.50 **	0.25	0.27	0.24	0.47 **	1								
LS1	0.37 **	0.25	0.17	0.22	0.31 *	0.43 **	1							
LS2	0.44 **	0.28 *	0.31 *	0.31 *	0.60 **	0.36 **	0.55 **	1						
PE1	0.39 **	0.48 **	0.54 **	0.57 **	0.54 **	0.34 *	0.26	0.36 **	1					
PE2	0.43 **	0.44 **	0.58 **	0.54 **	0.30 *	0.32 *	0.29 *	0.49 **	0.65 **	1				
A1	0.40 **	0.40 **	0.37 **	0.43 **	0.29 *	0.43 **	0.28 *	0.50 **	0.52 **	0.81 **	1			
A2	0.27	0.29 *	0.43 **	0.52 **	0.26	0.39 **	0.16	0.32 *	0.39 **	0.44 **	0.53 **	1		
PR1	0.31 *	0.53 **	0.55 **	0.66 **	0.18	0.02	0.32 *	0.24	0.51 **	0.47 **	0.45 **	0.37 **	1	
PR2	0.32 *	0.35 *	0.47 **	0.46 **	0.53 **	0.40 **	0.027	0.49 **	0.47 **	0.56 **	0.53 **	0.47 **	0.40 **	1

\*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed). The correlations are all Spearman's coefficients.

#### 4.3. Ordinal Logistic Regression

Ordinal logistic regression was performed to test the hypotheses formulated. The results are presented in three different tables (Tables 10–12) to test each hypothesis individually.

Table 11. Ordinal logistic regression results for environmental performance.

	Regression Model	Goodness-of-Fit	Likelihood Ratio; Chi-Square Test	Pseudo R-Square	Parallel Line Test	
Environmental results	LS1, LS RM1	LS2(B = 1112; $p = 0.000$ ) E (B = 1087; $p = 0.002$ ) V (B = 1065; $p = 0.004$ ) CS (B = 0.095; $p = 0.000$ )	(x2 (57) = 40,391, $p = 0.953$ ); (x2 (57) = 31,692, $p = 0.997$ )	50,643 (x2 (3) = 22,898 ***)	Cox and Snell = 0.383 Nagelkerke = 0.426 McFadden = 0.211	H0 = 50,643 General 38,313 x2 (9) = 12,330; $p = 0.195$
	PR1, PR2→RM1	PR1(B = 0.814; $p = 0.026$ )	(x2 (54) = 38,999, $p = 0.938$ ); (x2 (54) = 34,068, $p = 0.984$ )	58,706 (x2 (2) = 12,217 ***)	Cox and Snell = 0.209 Nagelkerke = 0.433 McFadden = 0.103	H0 = 58,706 General 49,745 x2 (6) = 18,961; $p = 0.176$
	PE1, PE2→RM1	PE2 (B = 1167; $p = 0.00$ )	(x2 (19) = 30,340, $p = 0.048$ ); (x2 (19) = 16,355, $p = 0.633$ )	35,459 (x2 (1) = 13,131 ***)	Cox and Snell = 0.223 Nagelkerke = 0.548 McFadden = 0.110	H0 = 35,459 General 33,919 x2 (3) = 1540; $p = 0.673$
	AL1, AL2→RM1	AL2 (B = 1115; $p = 0.001$ )	(x2 (11) = 10,578, $p = 0.479$ ); (x2 (11) = 10,854, $p = 0.456$ )	26,518; (x2 (1) = 10,615 ***)	Cox and Snell = 0.185 Nagelkerke = 0.405 McFadden = 0.089	H0 = 26,518 General 24,488 x2 (3) = 2030; $p = 0.566$
	LS1, LS2→RM2	LS2 (B = 0.850; $p = 0.002$ ) E (B = 1043; $p = 0.000$ ) V (B = 0.820; $p = 0.003$ ) CS (B = 0.797; $p = 0.005$ ) PR1 (B = 0.823; $p = 0.004$ )	(x2 (22) = 19,722, $p = 0.600$ ); (x2 (22) = 21,307, $p = 0.502$ )	44,454; (x2 (2) = 8807 **)	Cox and Snell = 0.156 Nagelkerke = 0.387 McFadden = 0.063	H0 = 46,851 General 40,394 x2 (9) = 6457 $p = 0.693$
	PR1, PR2→RM2	E (B = 0.874; $p = 0.003$ ) V (B = 0.820; $p = 0.003$ ) CS (B = 5147; $p = 0.000$ )	(x2 (26) = 18,088, $p = 0.873$ ); (x2 (26) = 20,405, $p = 0.772$ )	45,666; (x2 (3) = 10,128 **)	Cox and Snell = 0.153 Nagelkerke = 0.664 McFadden = 0.062	H0 = 47,905 General 38,211 x2 (6) = 9693; $p = 0.741$
	PE1, PE2→RM2	PE1 (B = 1286; $p = 0.000$ ) E (B = 1201; $p = 0.002$ ) V (B = 1320; $p = 0.000$ )	(x2 (26) = 19,061, $p = 0.834$ ); (x2 (26) = 20,411, $p = 0.772$ )	43,640; (x2 (2) = 17,805 ***)	Cox and Snell = 0.290 Nagelkerke = 0.711 McFadden = 0.127	H0 = 43,640 General 37,558 x2 (6) = 6082; $p = 0.932$
	AL1, AL2→RM2	AL1 (B = 1127; $p = 0.001$ ) AL2 (B = 0.820; $p = 0.025$ ) E (B = 2407; $p = 0.000$ )	(x2 (57) = 34,792, $p = 0.991$ ); (x2 (57) = 36,393, $p = 0.985$ )	58,659; (x2 (3) = 22,940 ***)	Cox and Snell = 0.357 Nagelkerke = 0.393 McFadden = 0.164	H0 = 58,659 General 50,645 x2 (9) = 8014; $p = 0.533$

In the table \*  $p < 0.05$ ; \*\*  $p < 0.01$  \*\*\*  $p < 0.000$ ; Goodness-of-fit = Pearson Chi-square test; Devian Chi-square test; Parallel line test = Null hypothesis; General; Likelihood ratio Chi-square test; Control Variables: Employees (E); Volunteers (V); Company Size (CS).



Table 12. Ordinal logistic regression results for economic performance.

	Regression Model	Goodness-of-Fit	Likelihood Ratio; Chi-Square Test	Pseudo R-Square	Parallel Line Test	
Economic Results	PR1, PR2→ RP1	PR2(B = 1056; p = 0.000) E (B = 1046; p = 0.000) V (B = 1003; p = 0.000) TO (B = 1115; p = 0.000)	(x2 (24) = 30,227, p = 0.177) (x2 (24) = 29,122, p = 0.216)	58,139 (x2 (2) = 13,821 ***)	Cox and Snell = 0.233 Nagelkerke = 0.551 McFadden = 0.100	H0 = 58,139 General 39,196 x2 (8) = 18,943; p = 0.961
	PE1, PE2→RP1	PE1 (B = 0.740; p = 0.005)	(x2 (63) = 51,277, p = 0.855) (x2 (52) = 36,678, p = 0.997)	35,459 (x2 (1) = 13,131 ***)	Cox and Snell = 0.404 Nagelkerke = 0.435 McFadden = 0.196	H0 = 59,149 General 67,270 x2 (8) = 9872; p = 0.741
	AL1, AL2→RP1	AL1 (B = 1429; p = 0.000) AL2 (B = 1195; p = 0.003) TO (B = 1173; p = 0.000)	(x2 (48) = 64,638, p = 0.155) (x2 (48) = 34,158, p = 0.934)	56,067; (x2 (2) = 32,015 ***)	Cox and Snell = 0.460 Nagelkerke = 0.495 McFadden = 0.234	H0 = 56,067 General 59,466 x2 (8) = 3862; p = 0.987
	PE1, PE2→RP2	PE2 (B = 1521; p = 0.000) E (B = 1523; p = 0.000) V (B = 1553; p = 0.000) TO (B = 1478; p = 0.000)	(x2 (19) = 16,011, p = 0.657) (x2 (19) = 16,390, p = 0.631)	34,004; (x2 (1) = 24,559 ***)	Cox and Snell = 0.376 Nagelkerke = 0.404 McFadden = 0.176	H0 = 41,394 General 32,493 x2 (9) = 8,901; p = 0.446
	AL1, AL2→RP2	AL1 (B = 1690; p = 0.000) AL2(B = 1263; p = 0.003) E (B = 1254; p = 0.003) V (B = 1509; p = 0.001) TO (B = 1251; p = 0.004)	(x2 (38) = 18,670, p = 0.996); (x2 (38) = 20,940, p = 0.989)	40,429; (x2 (2) = 40,251 ***)	Cox and Snell = 0.539 Nagelkerke = 0.578 McFadden = 0.288	H0 = 51,832 General 47,977 x2 (9) = 3855; p = 0.921

In the table \*  $p < 0.05$ ; \*\*  $p < 0.01$  \*\*\*  $p < 0.000$ ; Goodness-of-fit = Pearson Chi-square test; Devian Chi-square test; Parallel line test = Null hypothesis; General; Likelihood ratio Chi-square test; Control Variables: Employees (E); Volunteers (V); Type of Organization Size (TO). LS1, LS2 > RS1; AL1, AL2 > RS1 and AL1, AL2 > RS2 were not significant; thus they are not represented in the table above.

#### 4.3.1. Environmental Dimension

Regarding the first hypothesis, “The implementation of quality principles positively impacts on the environmental dimension of the organizations”, the results (Table 11) show that the four practices studied have a significant and direct effect on the environmental dimension. Thus, the practices that have a greater impact on environmental results are those related to the organization’s leadership, the establishment of alliances with stakeholders, internal processes, and human resource management.

However, when the aim of the company is sustainably implementing results, the size of the organization, the number of volunteers, and the type of organization only have an impact on environmental results depending on the strategy that the organization is following. These results show that the greater the number of people involved in the organization (employees or volunteers), the greater the awareness of the impact on the environment and therefore the greater the involvement with the strategy implemented by the entity. Moreover, the type of organization is another important aspect affecting environmental performance because depending on the type of organization (enterprise, association, or government administration) the strategy will be different.

On the other hand, when the environmental impact occurs by implementing specific programs, all the practices need to take into consideration the control variables studied. This can be explained because depending on the type of organization, the size of the company (number of employees), or the number of volunteers involved in the entity, the type of program implemented to reduce the environmental impact would be one or another.

In this sense, the organization needs to consider this information and elaborate its strategy, procedures, alliances, and training in line with the program or activity implemented.

Focusing on the other results presented, the model fitting information stated that there is a significant difference between the model established with and without the independent variables. This indicates an existing relationship between the dependent variables and the independent variables. Moreover, the goodness-of-fit results of the model were studied. Based on Pearson's chi-square and deviation statistics, the model–data fit is evaluated by the use of the difference between the observed and the expected values. The results indicate that as both significances are greater than  $p > 0.05$ , the  $H_0$  is supported, and the model fits the data. The goodness-of-fit of the model was also analyzed via pseudo  $R^2$  values in the study. The pseudo  $R^2$  values were calculated to be Cox and Snell (0.136), Nagelkerke (0.158), and McFadden (0.074). The Nagelkerke  $R^2$  value shows what percentage of the dependent variable is explained by the independent variables [29]. Accordingly, all the presented independent variables explain, at least 50% of the dependent variables. Finally, the assumption of parallelism is tested. The assumption of parallelism indicates all the models tested were fulfilled because chi-square is tested, and all the significances are higher than 0.05 ( $p > 0.05$ ). In other words, this result indicates that the  $H_0$  of each model is supported.

Overall, the first hypothesis can be accepted as all independent variables present a positive and significant impact on environmental performance. Additionally, the type of sustainable implementation and how it is implemented should take into consideration the type of organization and the size. It is also important to contemplate whether the staff is composed of organizational workers or volunteers. In other words, the organizations that implemented those practices will have better environmental results; thus, they will be more sustainable.

#### 4.3.2. Economic Dimension

Hypothesis 2 posits “The implementation of quality principles positively impacts on the economic dimension of the organizations”.

Table 12 shows the logistics regression estimates for the dependent variables of economic impact. The results indicate that when the organization aims to protect its customers/users, three out of the four principles are positively significant. To make sure that the organization takes care of its clients, the processes that it implements must be very clear for all its staff. These procedures should take into consideration a rapid response to complaints and allegations to satisfy its customers/users. Here, the size of the company (taking into account the number of employees and/or volunteers) and the type of organization present a positive and significant impact on economic results. The procedures will be one or the other depending on these two variables. Additionally, the human factor becomes an important variable. The organization's workforce should have the appropriate training to satisfy their customers. Finally, the alliances that the organization creates will also play an important role because depending on their stakeholder relations, the entity will or will not be able to offer good quality products/services and competitive prices which guarantee products developed in a social, legal, honest, and fairway. In this case, it is important to take into consideration the type of company because depending on whether it is an enterprise, an organization, or a government administration, it will have different stakeholders and relationships with them.

Concerning the other results, the model fitting information yields a significant difference between the model established with the independent variables and the initial model established without the independent variables indicating an existing relationship between the dependent and independent variables. Goodness-of-fit test results indicate that both significances (Pearson's chi-square value and deviation chi-square value) are higher than 0.05 indicating that  $H_0$  is supported. Concerning the pseudo  $R^2$  value, taking into consideration Nagelkerke's  $R^2$  value, the independent variables explain at least 40% of

the dependent variables. Lastly, the parallel line test indicates that the  $H_0$  is supported as all the significances are better than 0.05.

Thus, taking all of the above into consideration, Hypothesis 2 can be accepted. Economic performance is affected by three out of the four principles studied. Thus, the organization should learn how to protect their clients regarding legal requirements while obtaining profitability, while at the same time, benefiting the customer/user with high-quality products or services and offering competitive prices.

#### 4.3.3. Social Dimension

Last, the third hypothesis “The implementation of quality principles positively impacts on the social dimension of the organizations” is analyzed. Table 13 summarizes the most important results.

**Table 13.** Ordinal logistic regression results for social performance.

	Regression Model	Goodness-of-Fit	Likelihood Ratio; Chi-Square Test	Pseudo R-Square	Parallel Line Test
Social Results	PR1, PR2 → RS1 PR1 (B = 0.763; p = 0.006) E (B = 0.941; p = 0.007)	(x2 (15) = 15,254, p = 0.433); (x2 (15) = 16,718 p = 0.336)	39,889 (x2 (1) = 7053 ***)	Cox and Snell = 0.147 Nagelkerke = 0.381 McFadden = 0.084	H0 = 46,547 General 42,637 x2 (6) = 3911; p = 0.689
	PE1, PE2 → RS1 PE1 (B = 1252; p = 0.000) E (B = 1284; p = 0.000) V (B = 1240; p = 0.000)	(x2 (15) = 13,624, p = 0.554); (x2 (15) = 15,757, p = 0.398)	36,343 (x2 (1) = 18,882 ***)	Cox and Snell = 0.304 Nagelkerke = 0.531 McFadden = 0.114	H0 = 36,343 General 31,578 x2 (3) = 4765; p = 0.190
	LS1, LS2 → RS2 LS1 (B = 0.910; p = 0.001) E (B = 0.882; p = 0.001) V (B = 0.831; p = 0.002)	(x2(37) = 28,120, p = 0.853); (x2 (37) = 26,658, p = 0.896)	54,550; (x2 (3) = 16,717 ***)	Cox and Snell = 0.275 Nagelkerke = 0.388 McFadden = 0.104	H0 = 54,550 General 36,427 x2 (12) = 18,123; p = 0.112
	PR1, PR2 → RS2 PR1 (B = 1077; p = 0.000)	(x2(19) = 51,220, p = 0.865); (x2 (19) = 19,448; p = 0.428)	46,584; (x2 (1) = 14,280 ***)	Cox and Snell = 0.240 Nagelkerke = 0.452 McFadden = 0.089	H0 = 46,284 General 44,367 x2 (4) = 1647; p = 0.800
	PE1, PE2 → RS2 PE1 (B = 0.711; p = 0.005)	(x2 (19) = 16,990, p = 0.591); (x2 (19) = 19,397; p = 0.432)	48,379; (x2 (1) = 80880 **)	Cox and Snell = 0.144 Nagelkerke = 0.351 McFadden = 0.090	H0 = 48,379 General 44,087 x2 (4) = 4292; p = 0.368

In the table \*  $p < 0.05$ ; \*\*  $p < 0.01$  \*\*\*  $p < 0.000$ ; Goodness-of-fit = Pearson Chi-square test; Devian Chi-square test; Parallel line test = Null hypothesis; General; Likelihood ratio Chi-square test; Control Variables: Employees (E); Volunteers (V); Type of Organization Size (TO). LS1, LS2 > RS1; AL1, AL2 > RS1 and AL1, AL2 > RS2 were not significant, thus they are not represented in the table above.

The results (Table 13) indicate that leadership and strategy, process and people are the variables that have a positive and significant impact on the social dimension. These results indicate the importance of leadership and a clear strategy to take important decisions and perform socially responsible activities to contribute to a better society. Besides, the strategy should focus not only on external factors but also on the internal ones. The organization needs to encourage their employees through continuous training and offer them opportunities to balance their professional and personal lives, as well as implementing equality criteria for new recruitment.

Regarding the other statistical results shown in Table 12, the details about the model fitness indicate a significant difference between the models with and without the independent variables indicating an existing relationship between the dependent and the independent variables. To analyze the Goodness-of-fit, the Pearson and Deviance chi-square were tested. The results show non-significant results indicating a good model fit. The Nagelkerke R2 value shows what percentage of the dependent variable is explained by the independent variables; in the models presented, all the variables explain around 40% of the data. Finally, the parallel line test shows non-significant results implying that the assumption is satisfied, thus  $H_0$  is accepted.

To sum up, H3 can be also accepted as the results studied indicate that those organizations that implement the quality principles will have a better social impact.

## 5. Discussion and Conclusions

Sustainability is no longer a fad but a reality. We live in a world of constant change, and organizations cannot escape it. Organizations have to adapt their way of acting, their corporate strategies, and values by changing their financial perspective with a clear focus on economic benefits and a more sustainable management approach. Thus, this study set out to determine advanced theories on sustainability management by analyzing the quality principles and studying their impact on the specific sustainable results proposed by Aryanasl et al. [10] (economic, environmental, and social).

The investigation of Aryanasl et al. [10] proposed a new theoretical model in which the EFQM Excellence Model is adapted to the new business models like sustainable management. In that modified framework, the results criteria move from people, customer, society, and key business results (provided by the original EFQM model) to economic, environmental, and social results to lead to Sustainable Management. In this sense, following their theoretical suggestion for further research, the present paper adapted and tested empirically their proposed model.

Focusing on the first hypotheses which focus on the analyses of the impact of the quality principles on the environmental dimension, the literature provided highlights the importance of the implementation of the quality principles to support and enhance the environmental impact. In this sense, as it is stated by [67], the customer focus and stakeholders orientation are a cornerstone to enhance this dimension. In this line, our findings are aligned with [67] as the results indicate that organizations with better specific procedures for dealing quickly with customer complaints and allegations and with a trustworthy attitude in establishing partnerships are more likely to have specific programs to reduce environmental impact [10]. Organizations could use these variables to identify particularly key indicators of sustainable management. Thus, the positive and direct relations between specific quality principles and the environmental dimension (H1) is confirmed.

Concerning the second hypothesis, "The implementation of quality principles positively impacts on the economic dimension of the organizations", existing literature indicates that, until recently, the main objective of most companies was to obtain profits by limiting the social and environmental impact [19]. Nowadays, this way of acting has changed, and organizations must commit with the future generations and compromise to avoid damage to the environment in their way of gaining profits. Hence, research indicates that to improve their economic results, organizations must take into account the point of view of their customers and meet their expectations. Thusly, results show that the predictors which present an effect on economic results are those related to procedures, alliances, and people.

In this regard, when processes impact on improving economic results, it is because organizations can respond to customer complaints and allegations. In this way, when an organization is able to give a rapid and satisfactory response to the customer, it indicates that the organization is well organized and therefore well structured, which enhances customer satisfaction and, therefore, the profits improve. This finding is consistent with the study of [16], which found that TQM and SD are linked by value-based and shared principles. Those synergies between TQM and SD lay on process focus which is the key path for realizing these synergies.

Additionally, alliances can be considered indicators of a paradigm shift in organizational management from the point of view of the value and life-cycle technology revolutions of the SD. The companies surveyed seem to be highly influenced by the values-based TBL instead of the commercial values. Thus, the life cycles of products are based on environmental and social requirements, as well as the supply chain considering ethical behaviors in business. The results indicate that organizations should take into account the purchasing criteria. As it is stated in the bottom-line model, how the organizations obtain their raw material, for instance, becomes important. Customers aim to guarantee the origin of their

products ensuring an environmentally correct and socially fair production. Besides, it is also important that those purchases are done in a legal, honest, and fairway.

Finally, employees play a key role when increasing economic performance. Results indicate that when organizations invest time and money to train their employees, they feel more comfortable and, in turn, committed to their job position. Another important issue worth mentioning is the importance of letting the workers balance their personal and professional life. Having satisfied employees is a guarantee to increase the economic results of the organization.

Thus, the above-mentioned results verified the positive and significant impact of specific quality principles on the economic dimension. Hence, the H2 is accepted.

Lastly, the third hypothesis in this research was to study the impact that specific quality principles have on the social dimension. In this regard, the findings of the current study are consistent with those of Calvo-Mora et al. [19], among others [81,82] who concluded that procedures present a positive impact on social results (H3). Besides, both researches also agreed about the need for other variables to improve social impact. For instance, the strategic consideration of quality and social responsibility [82] and management leadership are also critical variables for increasing social results [19]. Hence, these results provide support for the hypothesis that stated the relation between quality principles and social impact.

Taken together, these results suggest that by implementing specific quality practices, all the dimensions improved; thus, the organization became more sustainable. These findings have important implications for developing sustainability within the organizations and provided some guidelines to enhance the impact of the dimensions studied.

The present study makes several noteworthy theoretical and practical contributions. From the theoretical contribution: first, this research extends the knowledge of sustainable management literature by showing the impact that specific quality practices have on the sustainable performance of the organization. Second, this work contributes to the existing debate about the possible influence of TQM principles on the specific dimensions of sustainable management. Third, the current findings suggest that not all TQM practices have the same impact on sustainable management. Thus, the organization should have a clear strategy to obtain the highest sustainable performance. Forth, it provides a survey that matches, for the first time, sustainable management based on the three dimensions proposed by Aryanasl, et al. [10] with enterprises, associations, and governance administrations.

These theoretical contributions lead to important practical implications for managers, local institutions, and associations. Firstly, the evidence from this study suggests that not all quality practices have the same impact on sustainable management. Thus, the organization should have a clear strategy to obtain the highest sustainable performance. Besides, other practical implications rely on the acknowledgement. As it is stated at the beginning of the introduction, there is still a lack of consciousness about the importance of SM; thus, this study provides positive results showing that SM might become a cornerstone for competitive advantage. Finally, the findings of this study support the idea that sustainable values should be promoted between employees and organizations to create higher commitment with sustainable management results.

Finally, the findings in this report are subjected to some limitations that can be understood as new opportunities or recommendations for further research. First, the small number of responses restricts the reliability of the findings indicating fair levels of representativeness. Further research should focus on collecting data from other regions to carry out a comparative study with the same variables. Second, the current study has only examined the participation of the organizations in social welfare projects; however, the survey does not consider the number of projects in which the organization is participating on neither the nature of them. It would be interesting if further research studied whether these new variables might or might not have an impact on the social dimension to study and if, for instance, the higher the number of projects, the better the social impact.

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