

# Web quality as a determining factor in the online retailing of organic products in Spain<sup>1</sup>

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Jel codes: L11, L81, Q57

## 1. Introduction

Sales of organic products have grown substantially in recent decades owing to increasing public concern about health, environmental problems, sustainable development and caring for the environment (GFK, 2014). This market shows a growth perspective (Everis, 2012). Moreover, Spain is in an exceptional position compared to the rest of the world thanks to its organic food production system and the development of its production factors, with an internal market that reaches 1,000 million euros in turnover in this type of product (MAGRAMA, 2015).

Nevertheless, the limited internal consumption of organic products (25% of the national output of these goods) (Parrá, 2014) remains one of the main weaknesses of this market. Concretely, in Spain, organic food expenditure accounts for 1 percent of total food expenditure, with a consumption of just over 21 euros *per capita* per year, which puts it places far removed from other markets (MAGRAMA, 2015). The reason is that a large part of the population is unaware of the advantages of consuming organic products, of their benefits and of the fact that they are contributing indirectly to preserving and improving the environment (Caldentey and De Haro, 2004).

In general terms, there is consensus on the main factors

## Abstract

*The purpose of this study was to examine the online offering of organic products by the main food retail chains operating in Spain and compare it with that of a prominent virtual organisation which specialises in organic food. The quality of the websites of these organizations was also contrasted. The results confirm that a quality website for the distribution of organic products reduces the factors that inhibit organic product consumption and that the major retail distribution chains operating in Spain do not currently offer a range that would be sufficient to satisfy all the requirements of an organic product consumer.*

**Key Words:** *electronic commerce, organic foods, retail distribution chains, virtual organisation.*

## Résumé

Le but de cette étude était d'examiner l'offre en ligne des produits biologiques par les principales chaînes de distribution alimentaire opérant en Espagne et de la comparer avec celle d'une organisation virtuelle de premier plan qui se spécialise dans la nourriture organique. La qualité des sites Web de ces organisations a également été contrastée. Les résultats confirment qu'un site de qualité pour la distribution de produits biologiques réduit les facteurs qui inhibent la consommation de produits biologiques et que les grandes chaînes de distribution de détail opérant en Espagne ne proposent pas actuellement une gamme qui seraient suffisants pour satisfaire toutes les exigences d'un produit biologique consommateur.

**Mots-Clés:** *commerce électronique, alimentaire biologique, chaînes de distribution, organisation virtuelle.*

that rein in greater demand for organic products in Spain, which are the same as in other countries: the price difference between organic foods and their conventional equivalents, limited availability (scarcity of points of sale and a narrow range) and the consumer's unfamiliarity with this type of food, which can sometimes give rise to mistrust (Schmid *et al.*, 2007).

The various alternatives that allow consumers to purchase organic products online now include the websites of the major food retailing chains, which compete with smaller companies that op-

erate exclusively on the Internet. The Internet has also become a powerful relational marketing tool which acts as an instrument of social interaction, making it possible not only to attract clients but also to secure their loyalty (Rodríguez, 2006). Consequently, a mechanism to boost the home market consumption of organic products can be found in technology.

The general purpose of this study was to examine the website quality and how this factor influences the reduction or elimination of factors which are considered to inhibit the demand for organic products. A further aim was to quantify the quality of the websites of the main Spanish retail distribution chains compared to that of a company which only sells online. It also attempted to study the extent to which Spanish retail distribution companies are making use of the potential of the Internet as a sales channel for organic agricultural products and compare this with one of the online organic product companies that operate on the Internet. Both primary and secondary sources were used. Qualitative and quantitative methods were both employed with the pri-

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mary sources. ATLAS.ti software was used for qualitative analysis of contextual data and specific checklists were designed and applied to the websites of the companies studied. Visits were also made on a discretionary basis to several of the physical stores of the retail distribution chains and a face-to-face interview was held with those responsible for the virtual organisation.

This paper is organised as follows: after this introduction, section 2 is devoted to a theoretical review. Section 3 describes the working methods, detailing the tools and procedures used in the analysis, and presents the results. Section 4 draws the relevant conclusions and is followed by a list of the references employed.

## 2. Theoretical Framework

Lack of information is one of the main obstacles to demand for organic products (Schmid *et al.*, 2007). Baourakis *et al.* (2002) pointed to the Internet as the most appropriate information channel for combating the confusion and disinformation that consumers face. The reasons for this recommendation are the volume of information in this channel, its two-way nature – which facilitates the flow of data between consumers and companies – and its low cost. Evans and Wurster (1997) explained that a larger volume of information is more useful when the product has a strong connotative context, as is the case with organic food. Statements such as these show the importance of the Internet for organisations, and particularly for companies in the organic food sector (Simmons *et al.*, 2007). This assertion was supported by Brunson and Reiter (1996), who indicated that the organic product consumer's profile fits the group of rational, conservative and adventurous consumers, who are more concerned about attributes related to the quality and authenticity of the food product than about its price. Consequently, such consumers tend to make an additional effort to seek out alternatives to mass-produced products, which leads them to look in alternative sales channels to supermarkets (Flórez, 2009).

The major expansion of Internet use has made it an essential component of business communications strategies. As well as being a powerful instrument that can be used for public relations or simply as a form of advertising to promote sales, it has created a space in which many of the communication processes between the company and its stakeholders take place (Fernández *et al.*, 2015). It should be noted that its potential has been strengthened in recent years by the parallel development of a suitable theoretical framework known as *relational marketing*, which provides formulas for collecting and processing user information through websites with the aim of developing and strengthening relationships with stakeholders and thereby gaining their trust.

However, the success of the Internet as a sales channel depends on the corporate website and its ability to influence the consumer positively in order to establish a lasting relationship (Van Der Heijden *et al.*, 2003). From this point of view, the information provided by the website compensates

to some extent for the lack of face-to-face contact in generating trust in the commercial relationship (McKinney *et al.*, 2002). Websites that their users value positively in terms of design and content can be a source of competitive advantage in the company's commercial activities. As a result, an abundance of studies has attempted to identify the most suitable criteria for assessing the effectiveness of a website as a business information system (Heinze and Hu, 2006). Most of these studies have used the theoretical framework proposed by Davis in 1989: the *Technology Acceptance Model* (TAM) (Lee *et al.*, 2003).

This theoretical system postulates that acceptance of the use of a particular information system depends on there being a prior positive attitude towards its use, which, in turn, is closely linked to the user's belief that it is *useful* and *easy to use* (Devaraj *et al.*, 2002). There is a certain consensus that the quantity and variety of information available in virtual environments is positively related to user satisfaction levels. For instance, Heinze and Hu (2006) suggested that a *high level of information*, of *interactivity* and of *services* on the website are the most crucial elements in the *usefulness* and *ease of use* perceived by the users. From a different angle, a number of authors (DeLone and Mclean, 1992; McKinney *et al.*, 2002) have suggested that the two main determinants of an information system's perceived *usefulness* and *ease of use* for its user are the *quality of the information* provided and the *quality of the system*. The *quality of the information* depends on the usefulness of its content and the reach of the information, in other words by its sufficiency for assisting the user in making a decision, which includes variables such as the relevance, length, currency and accuracy of the information provided on both the product and the company (DeLone and Mclean, 1992).

Another obstacle to consuming organic products is that they are often not found near the consumer, who has to make an additional effort to access them (Everis, 2012). The limited availability of organic products at the consumer's habitual points of purchase (Schmid *et al.*, 2007) and the lack of variety of the organic products sold in the main supermarkets are problems that affect their distribution. According to Dupupet *et al.* (2010), the variety of organic products sold by the volume retailers is small, as in other European countries, where most purchases of these products are made in specialised shops and establishments. This situation has been investigated in previous studies, which gave the percentage of organic products sold in Spain through volume retailers (supermarkets and hypermarkets) as only 20% (Briz and García, 2008). In response to the scattered supply issue, the Internet offers economies of reach by improving inter-business cooperation and offering ways to make it easier to secure new customers and even to expand the Internet's penetration among local businesses by increasing the density of cooperation networks that include companies (OECD, 1999). It is important to boost growth (Medina *et al.*, 2014).

The price variable is a big handicap in this market, given the differential between the selling prices of organic products and their conventional equivalents. In Spain the mean price differential is 74%, far higher than in other European Union countries (Everis, 2012). Vega *et al.* (2007) pointed to the current distribution channel as being the main reason for the excessive price, since super/hypermarkets apply high margins because of the low turnover of these products. Bickerton *et al.* (2000) showed the potential of the Internet in helping to bring prices down: it makes it easier for consumers to choose between products, increases the overall competition between companies and reduces supply-side costs. On the latter subject, a large number of studies have repeated that information and communication technologies (ICTs) have the potential to cut business-to-business transaction costs and the inherent risk of each transaction, and that they improve the efficiency of the value chain (Evans and Wurster, 1997). Consequently, the Internet would seem to be an ideal tool for reducing the selling prices of organic products.

Vicente and Ruíz (2003) considered that the major retail chains pay little attention to organic products but noted that their interest is increasing. As García and Rivera (2007) explained: “large supermarkets are not the ideal place to sell organic products, both because of their financial objectives and because of their relationships with suppliers, customers and employees,” which respond to mercantile values dissociated from the sustainability values of the organic product market. As a result, according to these authors, the ideal development for this market will come from focusing on local production, selling direct, and specialist shops. The low demand for organic products means that it is not profitable for the major retailers to sell them. Nevertheless, a number of chains end up including them in their range in order to improve their image and respond to market pressures, even though they do not concern themselves with defining and developing a marketing policy that will facilitate and stimulate the sales of this type of product (Flórez, 2009).

However, technological advances have reduced transaction costs (Liberos *et al.*, 2011) and since this opportunity does not discriminate between companies according to their financial weight, it can be turned to advantage by small specialist companies in order to compete with the major retail distribution chains. Moreover, since consumers are increasingly sophisticated, agri-food sector companies have to become more efficient – stimulating innovation and the development of new products through investment in these new technologies (DGIPYME and FUNDETEC, 2013) – if they want to achieve and retain customer loyalty.

If this channel and the tools it offers are only put to limited use, it is difficult to perceive the benefits (López *et al.*, 2014). Equally, e-commerce is not without its threats and drawbacks. For instance, the increased rivalry and competition between organisations is forcing them to lower prices and sacrifice part of the value generated through the Inter-

net in order to compete (INTECO, 2010). Within the food sector, e-commerce faces additional handicaps such as the perishable nature of the product, which explains its lower penetration in this sector. In this respect, Martínez *et al.* (2008) noted the lack of maturity of e-commerce in food distribution companies, which they described as making token use of the web.

### 3. Methods and Results

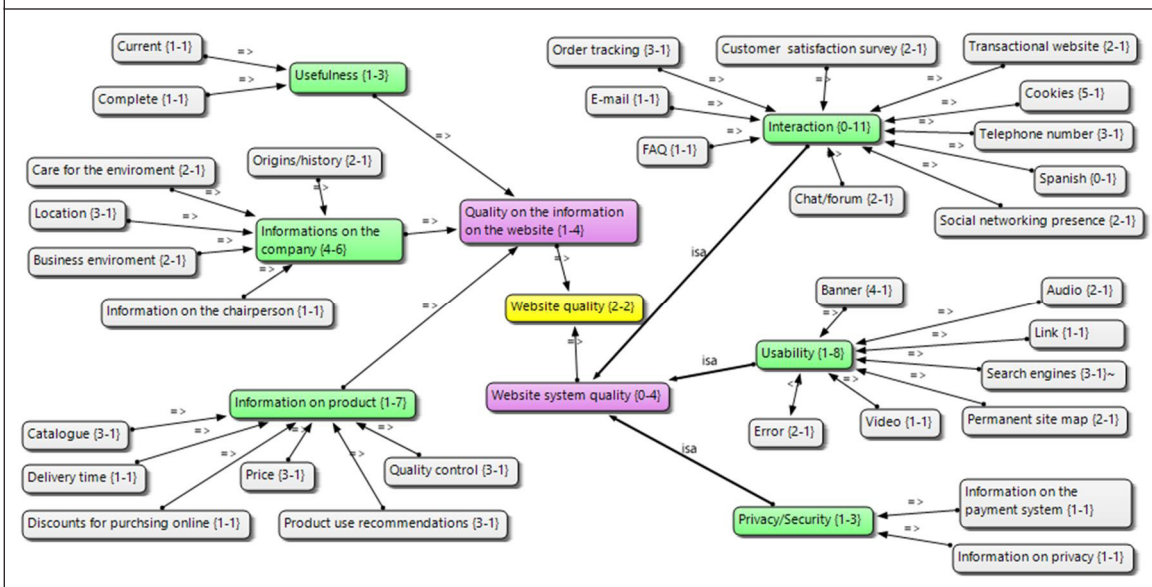
Primary and secondary sources and qualitative and quantitative methods were used in the present study. The first step was to select the seven largest food retailing companies in Spain (Alimarket, 2013): Mercadona, the Carrefour group, the Eroski group, the Auchan-Alcampo group, Día, Lidl and the El Corte Inglés group. Between them, these distribution chains have a nation-wide market share of 47.6% in food products, cleaning products, baby products and pet food (Alimarket, 2013). The company chosen for comparison was Mumumío, owing to its high position in the search engines and its high profile in Internet 2.0 media and platforms. To complete the information obtained from the websites of these eight companies, visits were made to

Table 1. *Website quality checklist.*

QUALITY OF THE INFORMATION ON THE WEBSITE		
<i>Dimensions</i>	<i>Factors</i>	<i>References</i>
Usefulness	Current Complete	Van Riel <i>et al.</i> (2001). McKinney <i>et al.</i> (2002). Yang <i>et al.</i> (2005).
Information on the company	Origins/history Location Information on the chairperson Business environment Care for the environment	
Information on the product	Catalogue Price Quality control Product use recommendations Delivery time Discounts for purchasing online	
WEBSITE SYSTEM QUALITY		
<i>Dimensions</i>	<i>Factors</i>	<i>References</i>
Usability	Link Video Audio Banner Search engines Permanent site map	McKinney <i>et al.</i> (2002). Hoffman and Novak (2005). Yang <i>et al.</i> (2005).
Privacy/Security	Information on the payment system Information on privacy	Devaraj <i>et al.</i> (2002). McKinney <i>et al.</i> (2002). Yang <i>et al.</i> (2005).
Interaction	Spanish Other languages Customer registration Cookies E-mail Telephone number FAQ Order tracking Chat/ forum Social networking presence Customer Satisfaction Survey Transactional website	DeLone and Mclean (1992). McKinney <i>et al.</i> (2002). Yang <i>et al.</i> (2005).

Source: own compilation, from Bernal and Mozas (2008).

Figure 1. Conceptual map of the websites of the main Spanish retail distribution chains.



Source: own compilation.

several of the seven retailers' physical stores in Spain and a face-to-face interview was held with the head of Mumumío. The data were collected during the fourth quarter of 2013.

Contextual data were analysed qualitatively. This research method, which is associated with the social sciences, allows data to be obtained empirically or in an exploratory fashion through observation and description of the information revealed through a communications channel (Krippendorff, 2002). For the present study, the Internet was searched to collect and analyse qualitative information from the websites of the companies studied. It should be mentioned that the flowering of qualitative research has led to the appearance of computer programs which make this type of data easier to analyse. Such tools are known as CAQDAS (Computer Assisted Qualitative Data Analysis Software). ATLAS.ti, one of the most powerful tools in this field, speeds up and improves the analytical operations. Its functions include the option of generating conceptual networks that display and summarise the theory, adding systematicity and analytical resolution (Valles, 2001).

A checklist was designed to analyse the quality of the websites of the virtual organisation and the retail distribution chains studied. The factorial analysis was based on the work of a large number of researchers who have studied the subject in other sectors, countries and types of company and have argued for its usefulness in measuring them. ATLAS.ti was used to handle the information. In this way, the study began by establishing a deductive coding system. This type of coding is made up of attributes which are considered highly relevant, based on a review of previous studies. Table 1 shows the dimensions and factors chosen.

Based on this list (Table 1), the ATLAS.ti software obtained the following conceptual map (Figure 1). It reflects the idea that website quality is associated with two impor-

tant dimensions, the quality of the information on the website and the quality of the website system. At the same time, these dimensions are related to different constructs. The website information quality is related to usefulness, information on the company and information on product. The website system quality is related to interaction, usability and privacy/security. Each of these dimensions is shown as a node

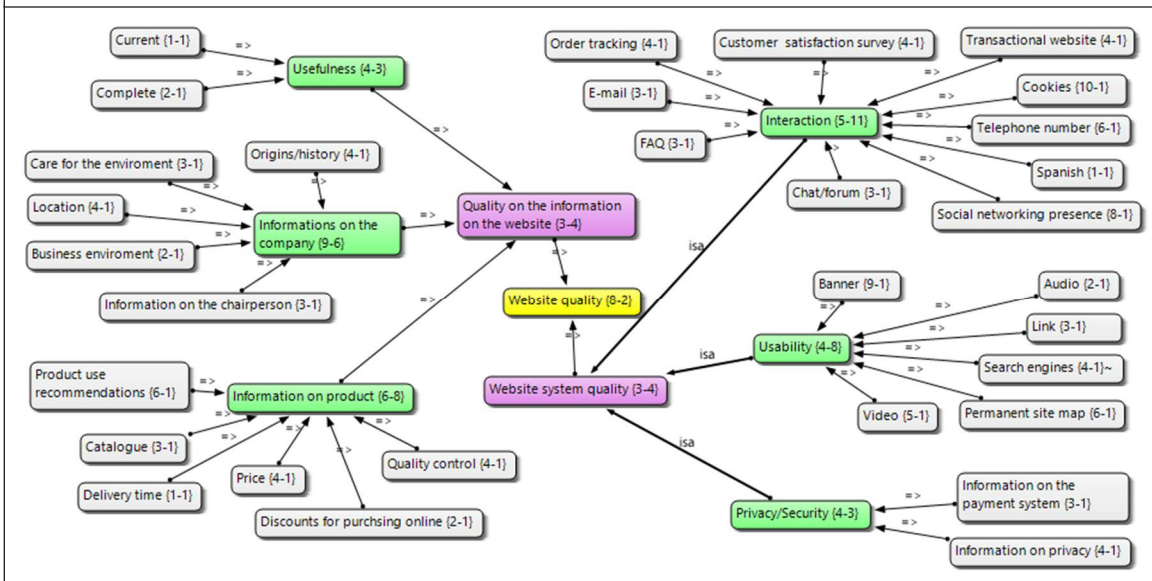
(coloured green) and is linked to the different factors identified in the websites of those of the retailers studied that sold organic products (Carrefour, Eroski, Alcampo and El Corte Inglés). The first figure for each of these factors (codes) shows the number of related references (in the present case, the number of times this attribute was associated with an element on one of the retailers' websites). The second figure shows the number of links (in the present case, the nodes or dimensions with which it is associated).

The figure 1 shows that all the websites of the retailers analysed possessed all the quality attributes in the list (Table 1). Nevertheless, they showed limitations and obstacles such as page design that could be improved, pages with errors and problems, lack of security, unattractive pages, etc., which undoubtedly reduce and limit the security, trustworthiness, user-friendliness and usefulness of their sites.

In short, the major Spanish retailers had lower quality websites than the virtual company subjected to the same analysis (Figure 2). This conceptual map was obtained on analysing the website of the virtual organisation Mumumío. It too shows all the previously established variables associated with quality (Table 1). A considerable flow of information and openness can be seen, making the site useful, trustworthy and secure for internet users. These factors have a bearing on the website quality perceived by users. The noticeable presence of attributes such as information, service or openness are factors which are highly valued by consumers, particularly those who demand organic products.

A second checklist was drawn up to measure the information provided on the organic products offered for sale. It was made up of different items, classified into the main dimensions that consumers appreciate during the purchasing

Figure 2. Conceptual map of the website of the virtual organisation Mumumío.



Source: own compilation.

process, as reported in previous studies, namely variety, information, distribution and after-sales service. The results are shown in Table 2. Some aspects were also compared in greater detail: information on a large number of the products' attributes; products by category; distribution, transport and after-sales service; and price (Tables 3, 4, 5 and 6).

The Mercadona, Día and Lidl supermarket chains did not offer organic products for sale through their websites in 2013. In view of Table 2, it may be concluded that the four major Spanish retail distributors that did offer organic products online had a limited range of these products, provided

one of the leading companies in its sector (online retailing of quality fresh organic products). The space this company had managed to find among the competition satisfied organic product clients and covered all their possible requirements, thanks to careful use of ICTs as a tool to achieve this purpose.






Lack of information is one of the main obstacles to organic product sales (MAGRAMA, 2014). The websites of the retail chains studied gave general information on the product but only Carrefour had a section devoted solely and exclusively to organic products. This structure made it necessary to use the search engines and hindered access to the products, which together with the lack of information constituted a considerable barrier to users' making purchases. This finding shows that the major food retailers lacked a definite information policy for organic product consumers. Other specialised companies had taken advantage of this shortcoming and were managing to increase their market share. For

Table 2. Characteristics of the online availability of organic products from the main Spanish retail distribution companies and from Mumumío

ITEMS	Major Retail Chains				Virtual Company
<b>Number of organic products sold on the website</b>	501	46	249	299	476
• Product variety	Limited	Limited	Large	Limited	Very wide
• Organic product categories not sold	Fruit, vegetables, meat	Meat, bread	None	None	None
<b>Product information on the website</b>	Basic	Basic	Basic	Basic	Extensive
• Other consumers' opinions	No	Yes	Yes	No	Yes
• Advice and recommendations	Yes	No	No	No	Yes
• Photographs	Yes	Yes	Yes, large and detailed	Yes	Yes, many and detailed
<b>Adequate location of organic products</b>	No	No	No	No	Yes
• Dedicated web space	Yes	No	No	No	Yes
• Uniform in all physical stores	No	No	No	Depending on the store	Virtual only
• Grouped together on the same gondola	Depending on the store	No	No	No	Virtual only
<b>Proactive personalised after-sales service</b>	No	No	No	No	Yes
• Online purchase and home delivery option	Yes	Yes	Yes	Yes	Yes
• Throughout the country	No	No	No	Yes, subject to certain conditions	Yes






Source: own compilation.

Table 3 - Information on organic products.

ATTRIBUTES	Major Retail Chains				Virtual Company
					
Brand	Yes	Yes	Yes	Yes	Yes
Price	Yes	Yes	Yes	Yes	Yes
Quantity of product	Yes	Yes	Yes	Yes	Yes
Pictures of product	One	One	Several	One	Several
Size of picture	Small	Small	With zoom	Large	Large
Description	Short	Short	Short	Short	Extensive
Manufacturers mentioned	No	No	No	No	Yes
Attributes	No	No	No	No	Yes
Ingredients	Yes	No	No	No	Yes
Uses	No	No	No	No	Yes
Advice	Yes	No	No	No	Yes
Similar products	No	No	No	No	Yes
Recipes	No	No	No	No	Yes
Show organic certification	No	No	Yes	Yes	Yes
Opinions	No	Yes	No	No	Yes
Social network ratings	No	Yes	No	No	Yes

Source: own compilation.

Table 4. Organic products by category.

PRODUCT CATEGORIES	Retail distribution chains				Virtual Company
					
Fruit	0	4	1	2	23
Vegetables	0	3	6	1	24
Pulses and rice	7	3	12	6	25
Meat	0	0	10	8	14
Dairy products	59	5	19	39	28
Pasta	24	1	8	3	17
Oil	4	1	7	5	38
Bread	9	0	5	11	12
Other	398	29	181	224	495
Total organic products	501	46	249	299	676

Source: own compilation.

Table 5 - Website quality indices.

	Overall Quality Index	Information Quality Index	System Quality Index
Carrefour	7.27	6.92	7.5
Eroski	6.67	4.61	8
Alcampo	6.97	6.92	7
El Corte Inglés	7.57	6.92	8
Mumumío	8.48	9.23	8

Source: own compilation.

its part, Mumumío's website had a blog, a chat room and more detailed information on the organic products and on their sale. It is obvious that Mumumío provided a greater quantity of information on its products, which made it easier for consumers to make decisions.

It is very important both for consumers to be able to find products, and a variety of products, and for this type of product to be distributed as directly as possible, since freshness, delivery conditions and customer care are important factors that consumers also take into account when buying. As mentioned earlier, limited availability (scarcity of points of sale and a limited range available) is another factor that inhibits organic product consumption.

Table 4 shows the number of organic products offered by each company at the time the data were collected. The data have been classified according to the organic product categories in most demand (GFK, 2014). Other organic products are placed together in the 'Other' category. This table reflects that Mumumío offered more organic products in total than any of the major food retailers in the above comparison. Although Mumumío had fewer products in some categories than the large retail chains, this virtual company had a wider and more varied range. For example, Carrefour sold a greater variety of organic dairy products but did not sell organic fruit, vegetables or meat, the three organic product categories in most demand (GFK, 2014). The low demand for organic products in the major retail distribution chains, in comparison to conventional products, suggests that these retailers pay less attention to organic product consumers and are unfamiliar with their profile and demands. This is why they prefer to sell tinned, bottled and packaged organic products, which are less perishable.

Lastly, the quality of the websites of the major retail distribution chains and of the virtual company Mumumío was studied. The variables used to quantify the quality of their websites were the 33 items shown in Table 1. These items were grouped into two dimensions: the information quality index (IQI), comprising

13 items (39.4% of the total), and the system quality index (SQI), comprising 20 items (60.6% of the total). The items were scored as 1 if present and otherwise as 0.

The quality indices of the two dimensions were calculated and multiplied by 10 to obtain a score between 0 and 10, as follows (Formulas 1 and 2):

$$\text{Information Quality Index (IQI)} = \frac{\sum \text{Scores for each indicator}}{13} \times 10$$

$$\text{System Quality Index (SQI)} = \frac{\sum \text{Scores for each indicator}}{20} \times 10$$

For its part, the Overall Quality Index (OQI) of the website was obtained by calculating the weighted average of the quality indices for each of the two dimensions as follows (Formula 3):

$$OQI = IQI \times 39,4 \% + SQI \times 60,6 \%$$

The results of this analysis are shown in Table 5. It will be seen that the quality rating of the virtual company's website is higher than those of the major retail distributors in Spain, as regards both its overall quality and, particularly, the quality of the information it provides. However, its system quality does not stand out above those of the others.

#### 4. Conclusions

From the literature it can be seen that there is a close relationship between the main handicaps in marketing organic products and the advantages and strengths that the Internet brings to companies. Consequently, electronic commerce is considered a strategy for boosting this market (MAGRAMA, 2015). Additionally, this form of trade is showing a solid growth trend, driven by an increasingly technological society. As a result, it can offer a serious business opportunity for any type of organisation, including large companies with a consolidated market such as the major retail distribution chains.

Nevertheless, as with conventional forms of trade, organisations need to develop *ad hoc* commercial strategies for electronic commerce. One key strategy consists in optimising the company website, as it is the main point of contact between the company and the customer when working in this medium. Moreover, any organisation (whether online or conventional) that wants to increase the online sales of its organic products and at the same time secure its customers' loyalty needs to increase and improve the quality of the information it provides on its website. The reason is the widespread ignorance of what this type of product implies and the need to provide customers with additional information so they will buy a product which is generally more expensive.

The main contribution of this study shows that, currently, the main retail distribution chains that operate in Spain are not solidly committed to selling organic products through their websites. This reflects the reality of the situation in traditional sales channels.

Summarising, the following conclusions were reached:

- The website quality of the company that sells online in the present sample is greater than that of the major retail distributors in Spain. The distance is particularly great as regards the quality of the information.
- The websites of the companies studied presented users with a high level of "perceived quality" owing to their design and attributes. However, the virtual organisation's website was of better quality as it had a better customer care service, was simpler to use and gave consumers more information.
- The organic product range presented online by the major retailers was very limited and uniform, preventing organic product consumers from putting together a balanced shopping basket that would meet their needs through a single point of sale.
- The principal food distribution chains did not appear to have a comprehensive plan for informing consumers about the attributes of these products. The information they provided was limited to basic features such as price, brand, quantity and a brief description. This is insufficient for consumers who demand organic products, who require more information as they have to pay a higher price than for a conventional product.
- Accessing the organic foods sold by the major retailers was complicated, as most of their websites did not have a section that brought all these products together. This made it necessary to use search engines, which can hinder the online purchasing process. The same problem was found in the physical stores the authors visited. It makes it difficult to locate the products and tests the customers' patience, as they have to make an additional effort to find what they want. It was also obvious that the main retail chains lacked a proactive after-sales service that takes an interest in how satisfied the customers were after making their purchase. The opposite was found in the case of the online company studied.
- Additionally, the large food retailing chains made limited use of the electronic commerce channel, only offering the online purchase and home delivery option in major towns and provincial capitals, unlike the virtual organisation, which operated throughout the country.

In short, electronic commerce is a suitable channel for increasing the consumption of organic products. The quality of the website is a factor in overcoming the issues which inhibit the demand for organic products, and small companies that specialise in supplying organic products, such as Mumio, have managed to adapt to this medium and satisfy all the requirements of an organic product consumer.

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