

# The Role of Internet in the Promotion of Agri-food Enterprises: E-Marketing, Management and Organizational Functions

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**Abstract:** *Nowadays, the Internet apart from a channel to collect information of all kind has become an effective means for promoting and enhancing purchasing via the promotion of products and it is also a focal parameter in management functions and organizational structures in any enterprise. Internet offers a variety of advantages and benefits and contributes to strategic management through e-marketing activities, Total Quality Management and Corporate Social Responsibility. In Greece, many enterprises in the agri-food sector already have an Internet presence. This paper studies the management functions, organizational and marketing activities of thirty Greek big agri-food enterprises, as they are displayed on their corporate websites. Taking into account these e-marketing and organizational activities and management functions, to be used as criteria, the enterprises were analyzed and categorized accordingly. Furthermore, using factor analysis we have expressed all 5 of the original 6 criteria that describe the management and marketing functions in an agri-food enterprise, as linear combinations of the fewer, derived 3 factors in order to define the relations among them. The findings of this study reveal the progress, the development and perspectives of the enterprises in the current competitive era and the Internet adoption rate in the sector.*

**Keywords:** *Internet, agri-food enterprises, e-marketing, corporate social responsibility, factor analysis*

## 1. INTRODUCTION

The Internet has become an extremely dynamic environment which continually evolves (Andreopoulou et al., 2009). It offers enterprises the opportunity to market goods and services to more customers than ever before (Griffin, 2000). Internet acts as a channel to collect information for products of all kind, as well (Tsekouropoulos et al., 2011). Enterprises use the internet not only for retrieving information and marketing but also for the enhancement of their communication with business-partners and customers (Tsekouropoulos et al., 2005). The enterprises aim at their participation in the internet society since the benefits are high and the electronic systems are ready to serve customers all over the world 24 hours per day 7 days a week (Andreopoulou, 2008), when the cost keeps decreasing. E-commerce initially consists of the distribution, purchase, sale, marketing and servicing of products or services over electronic systems such as the internet and other computer networks. The Information Technology (IT) suppliers see it as an electronic business application that is aimed at commercial transactions (Andreopoulou et al., 2009) and provide a large number of integrated solutions, in this market segment (Kanellopoulos and Moore, 2011).

Internet offers a variety of advantages and benefits and contributes to strategic management through internet marketing (e-marketing) activities, Total Quality Management (TQM) and Corporate Social Responsibility (CSR). Reaching customers and developing their loyalty by delivering quality, convenience, price competitiveness, and the right products and services, begins with a solid e-marketing plan (Griffin, 2000). E-marketing can be defined as the use of internet and related digital technologies to achieve marketing objectives and support the modern marketing concept (Eszes, 2010). It includes both direct response marketing and indirect marketing elements and uses a range of technologies to help connect businesses to their customers. By such a definition, e-marketing encompasses all the activities a business conducts via the worldwide web with the aim of attracting new business, retaining current business and developing its brand identity (Quirk eMarketing, 2006). E-marketing is a subset of e-business that utilizes electronic medium to perform marketing activities and achieve desired marketing objectives for an organization. E-Marketing, Interactive Marketing and Mobile Marketing, are all a form of E-marketing (Petrovic, 2010).

The Corporate Social Responsibility is a broad concept whereby enterprises are not just profit entities, but at the same time have the moral obligation towards the community where they operate. More specifically it constitutes an evaluation of businesses and their practices through a multilateral assessment of economic, environmental and social activities and performance (Werther and Chandler, 2006). The specific activities and performance form the 'Triple Bottom Line' of an enterprise which is defined as 'business solutions and decisions that are socially responsible, environmentally sound and economically viable' (McIntosh et al., 1998). CSR is defined as the continuous commitment on the part of the enterprise to act ethically and to contribute to economic growth (Holme and Watts, 2000), as well as the ingenious and objective concern for the welfare of the community that restricts the destructive activities of the individual corporate behavior, no matter how profitable, and leads to positive contributions for human improvement (Lantos, 2001).

Along with CSR, in recent years quality is established as a key criterion for customer and business behavior. Customers are becoming aware of the importance of quality and consider it as the most important criterion in their selection. Enterprises realize this change in customer behavior and recognize that quality is the key to creating competitive products. Therefore, in order for enterprises to attract and retain customers they adopt innovative management practices like TQM (Tsiotras, 2002). In TQM the enterprise actively aims to identify the needs and expectations of customers by incorporating quality in production processes and by using to the maximum the knowledge and experience of the staff, while seeking continuous improvement regarding all the operations of the enterprises (Evans and Lindsay, 2008). A number of studies and surveys have shown that the emphasis on Total Quality Control (TQC) strengthens team work, improves the quality of products and services and leads to high productivity, increases customer satisfaction and definitely leads to increased profitability. It is typical that similar surveys suggest strengthening of the total financial performance of the enterprise (Evans and Lindsay, 2008).

In Greece, many enterprises in the agri-food sector already have an internet presence. This paper studies the management functions, organizational and marketing activities of thirty Greek big agri-food enterprises, as they are displayed on their corporate websites and the existing relations among them.

## 2. MATERIALS AND METHODS

The websites of the big agri-food enterprises that were selected for the research were collected from the Greek internet with the use of proper search engines in 2011. Initially, an analysis is performed in order to examine the type of management criteria and marketing criteria, found in these enterprises websites. Various management and marketing criteria were introduced in the retrieved corporate websites and different criteria were identified and introduced in each website. Each management and marketing function constitutes a criterion and it is finally attributed in a variable  $Z_i$  (Table 1). Additionally, a 2-dimensional table was developed and was used in order to examine the existence of the criteria and evaluate the policies in the websites. For that purpose the values were attributed to variables  $Z_1$  to  $Z_5$ , respectively.

**Table 1: Criteria that were studied**

Variable	Function	Description of web service
Z1	Management	Management operations planning (Programming)
Z2		Organogram - Organizational structure
Z3		Systems of guarantying quality
Z4	Marketing	On line advertisement
Z5		CSR activities
Z6		Programs of public relationships and generally speaking communication policy

The criteria that were used are the following:

- Variable Z1: Programming is a primary function of management and deals with the determination of the goals for the enterprise. It contains all the activities that are anticipated and defined. What actually programming does is to determinate how effective the enterprise will be and also it defines enterprise's strategy (Bourantas, 2002).
- Variable Z2: The organizational structure of an enterprise concerns the way that its organization is formed, also the division of the several tasks they exist and the posts of work. Organogrammes (charts) are diagrammes that show the form of the responsibilities in an organization and can be done for the entire enterprise or just a part of it. The length depends on the enterprise size.
- Variable Z3: Systems of guarantying quality include all the programmed and systematic actions that are necessary in order to provide warranty that a product or service will meet all the required needs of quality. Such systems are of two types, and they are met in the sampled enterprise. ISO series 9000 is a qualitative system aiming mostly at tracing cases of no conforming during the process of production and supplying. This is a worldwide accepted exemplar program which observes the effectiveness of quality policy, the standardized procedure of products and it tries to trace and diminish the faulty products and services. It also incorporates procedures of improvement and precaution of the

above mentioned things (Wiele, Williams and Dale, 2000). The second system is HACCP which is a control safety system of food. The product is traceable during the whole procedure, from the production line to the consumption. (Petersen and Hopkins, 1999).

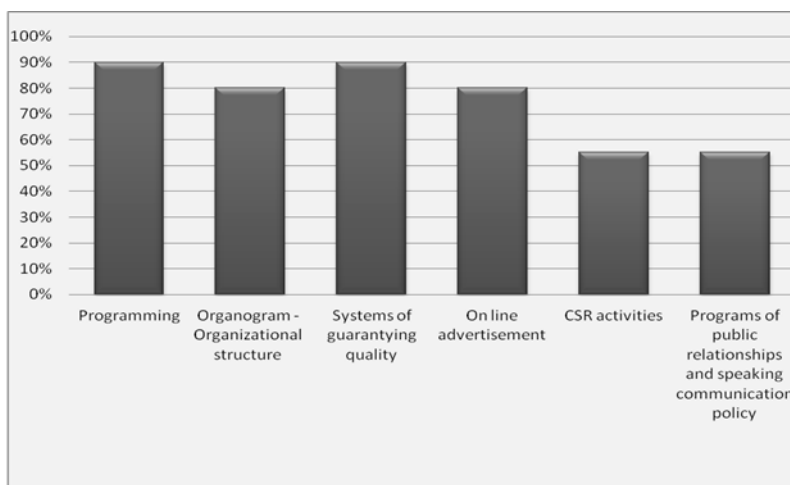
- Variable Z4: On line advertisement is the kind of advertisement that exclusively uses the internet as a means of communication and promotion. With the help of the global web of information and the other services of the net such as the e-mail and the groups of news, the responsible people of advertising are able to keep records of traditional communication and advertising, such as massive provision of information to the people and also to promote innovations by giving many alternatives to sophisticated decisions concerning public's choice (Vlachopoulou, 2003). Generally in the frame of on line ads, all the activities of promoting a product as well the commercial signals of the enterprise are included, via audiovisual messages and several other tools offered by the internet space, e.g. banners. Banners ads are small or big text frames that appear on the pc screen and contain a message for the consumer, by promoting either a service or goods. They do not usually consist simply of a picture but they are a short abstract of moving images so as to attract the user's attention. Moreover, they function as links to the website of the enterprise or the advertised product (Katsoulakos, 2001). Nowadays the websites of the enterprises have evolved, and are satisfactory advertising tools of promotion, aiming at creating a positive image for the enterprises and their products or services. In several cases though, in many small or medium enterprises, the websites are the basic advertising line of the enterprise focusing not only on the promotion of the products, but also on the enterprise itself (Cho, 1999; McMillan and White, 2001). Such websites taking into account marketing policies function as means of promotion, advertising, providing information and creating a positive image for the products, the enterprise itself and also act as communicative duals with a common target (Azzone et al., 2000).
- Variable Z5: Enterprises increasingly use CSR activities to position their corporate brand in the eyes of customers and other stakeholders, such as through their annual reports (Sweeney and Coughlan, 2008) and websites (Maignan and Ralston, 2002; Wanderley et al., 2008). At the same time, literature debates whether enterprises should communicate about their CSR initiatives and, if enterprises choose to communicate, whether traditional marketing tools are appropriate (Van de Ven 2008; Lindgreen and Swaen, 2010).
- Variable Z6: Programs of public relationships and generally speaking communication policy of enterprises, concern all these activities and actions through which an enterprise approaches and communicates its buyers, partners and personnel. In our research, public relationships and communicative policies of enterprises are a useful field of internet, since through their websites, enterprise reach, communicate and promote their good image to the customers.
- Whenever a criterion was achieved for a corporate website the value 1 was attributed to the respective variable while the value 0 in case a criterion was not achieved, aiming at justifying the relative function within the evaluation of the website. The findings were further analysed aiming to identify the achievement of each function/criterion in the sample websites.

The total amount of e-marketing criteria achieved in each corporate website was also studied. For each enterprise website, the total number of achieved criteria is attributed to a new variable, named t. Variable t presents the sum of criteria achieved, therefore takes a value between 1 and 6.

Furthermore, a factor analysis using SPSS is presented in order to determine the relationships among the criteria we have already set. Initially in factor analysis, inter-correlations among variables are checked. At this early stage, we look to eliminate any variables do not correlate to any other variables or that correlate very highly with other variables ( $R < 0.9$ ). Also, multicollinearity can be detected by looking at the determinant of the R-matrix. Using the correlation matrix, the pattern of relationships was checked.

### 3. RESULTS

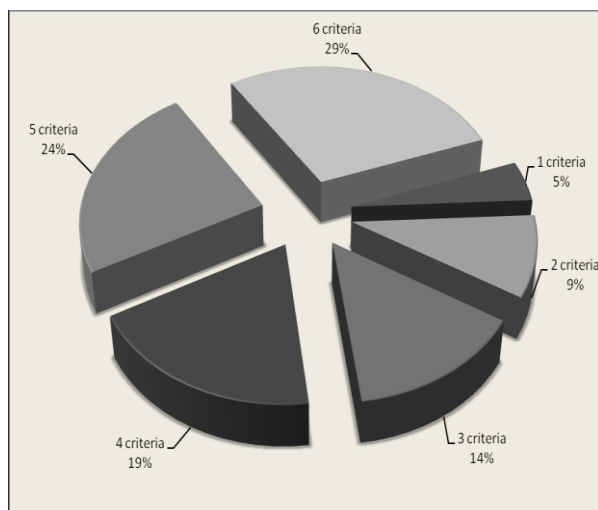
Research on the internet resulted in the retrieve of 30 websites concerning big agri-food enterprises that have an internet presence. The achievement of each one of the 6 criteria, expressed in variables  $Z_1$  to  $Z_6$  is presented in Figure 1.



**Figure 1: Achievement of management and marketing criteria in agri-food sector**

The presence of the function of programming and this one of implementing systems of guarantying quality in the big agri-food enterprises are very high (90%). Moreover, the most enterprises have a remarkable organizational structure (80%). Regarding the advertising way of the enterprises, the 80% of the sample uses the internet as a means of advertising while almost the half of the sample (55%) make adequate use of CSR activities. The programs of public relationships and generally speaking communication policy are adopted by almost the half of the sample, too (55%).

Regarding variable  $t$ , which represents the sum of criteria accomplished by the agri-food enterprises websites, the results are shown in Figure 2. 29% of the enterprises accomplish all six criteria ( $t=6$ ) while 24% of the enterprises accomplish five criteria ( $t=5$ ). Only 19% of the agri-food enterprises accomplish four criteria ( $t=4$ ) and 14% of the sample three criteria ( $t=3$ ). Finally 14% of the agri-food enterprises accomplish two or one criteria ( $t=2$ ,  $t=1$ ).



**Figure 2: Sum of the criteria accomplished by agri-food enterprises**

### 3.1. Results of factor analysis

In variables  $Z_1$ ,  $Z_2$ ,  $Z_3$ ,  $Z_4$ ,  $Z_5$ ,  $Z_6$ , which represent functions of the enterprises (Table 1), the majority of significance values in the correlation matrix, are greater than 0.05, hence a problem can arise due to singularity of data. Further, the KMO Kaiser-Meyer-Olkin test that measures sample adequacy is 0,535 being between 0 and 1. A value close to 1 indicates that patterns of correlations are relatively compact so factor analysis should yield distinct and reliable factors. Kaiser recommends that values between 0.5 and 0.8 are good while values close to 1 are superb. In Table 2, the total variance explained by factors (components) is presented, thus we can decide on the final factor to be extracted, based on eigenvalues greater than 1, as recommended by Kaiser's rule.

**Table 2: Total Variance Explained**

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,245	37,410	37,410	1,886	31,435	31,435
2	1,234	20,559	57,969	1,526	25,437	56,872
3	1,104	18,397	76,366	1,170	19,494	76,366

Table 2 lists the eigenvalues associated with each linear factor before extraction, after extraction and after rotation. Factors with eigenvalues greater than 1 are extracted, which results in 3 factors. Rotation optimizes the factor structure and the relative importance of the 3 factors is equalized. Finally, eigenvalues after rotation associated with each factor represent the variance explained by that particular linear component, having excluded other factors. Factor 1 explains 37,410% of total variance explained, the 2 factors explain together 57,969% and the 3 factors explain together 76,366%. Communalities in the extraction column reflect the common variance in the data structure. The amount of variance in each variable that can be explained by the retained factors is represented by the communalities after extraction. According to Kaiser criterion the average of the communalities should be more than 0.7 after extraction. Table 3 presents the rotated component matrix, a matrix of the factor loadings for each variable onto each factor, and rotation method was Varimax with Kaiser normalization. The variables are listed in the order of size of their factor loadings.

**Table 3: Rotated Component Matrix**

	Component		
	1	2	3
Management Operations Planning	<b>,909</b>	,092	,013
Advertisement and Promotion	<b>,881</b>	,069	-,064
Corporate Social Responsibility Programs	-,100	<b>,909</b>	,104
Systems of Quality Guarantee	,416	<b>,622</b>	,015
Public Relations and Communication Programs	,074	,181	<b>,903</b>
Organogram - Organic Structure	,308	<b>,516</b>	-,582

In Table 4 are presented the criteria that load highly in factors 1, 2 and 3. These three constructs are sub-components of management and marketing functions in the agri-food enterprises.

**Table 4: Functions loaded in the 3 extracted factors**

<b>Factor 1.</b>
Z1: Management Operations Planning – Programming
Z4: On line advertisement and Promotion
<b>Factor 2.</b>
Z3: Systems of Quality Guarantee
Z5: Corporate Social Responsibility Programs
<b>Factor 3.</b>
Z6: Public Relations and Communication Programs

As a result, the factors could be named as:

- ✓ F1: Programming of on line advertisement
- ✓ F2: Implementation of systems of CSR and guarantying quality
- ✓ F3: Indicator of public relations

Also, component scores coefficient matrix is presented in Table 5.

**Table 5: Component Score Coefficient Matrix**

	Component		
	1	2	3
Management Operations Planning - Programming	,515	-,101	,079
Organogram - Organic Structure	,042	,314	-,482
Systems of Quality Guarantee	,130	,368	,042
Advertisement and Promotion	,497	-,112	,010
Corporate Social Responsibility Programs	-,217	,666	,080
Public Relations and Communication Programs	,078	,113	,786

Taking into account the scores of the table above, the mathematical equations of the three factors are the following:

- $F1 = 0.515 * Z_1 + 0.042 * Z_2 + 0.13 * Z_3 + 0.497 * Z_4 - 0.217 * Z_5 + 0.078 * Z_6$
- $F2 = -0.101 * Z_1 + 0.314 * Z_2 + 0.368 * Z_3 - 0.112 * Z_4 + 0.666 * Z_5 + 0.113 * Z_6$
- $F3 = 0.079 * Z_1 - 0.482 * Z_2 + 0.042 * Z_3 + 0.01 * Z_4 + 0.08 * Z_5 + 0.786 * Z_6$

#### 4. CONCLUSIONS AND DISCUSSION

Internet has become a most effective means for promoting and enhancing purchasing via the promotion of products and the provision of any possible information existing, before selling. Also it contributes in facilitating the customers when buying and ordering, it helps financial transactions, secures delivering of products and preserves the prestige of the enterprise while keeping clients satisfied after sales service (Andreopoulou et al., 2009). Internet research has retrieved 30 websites that represent big Greek enterprises in agri-food and drink sector. With the aim of studying the adoption of management and marketing functions through the internet, the websites were qualitative studied using 6 different criteria. The findings show that the majority of the enterprises achieve 6 criteria while 53% of the websites achieve 5-6 functions. Management Operations Planning – Programming and Systems of Quality Guarantee are used in 90% of enterprises. Organogram - Organic Structure is found in 80% of the agri-food enterprises.

Using factor analysis we have expressed all 5 of the original 6 variables that describe the management and marketing functions in an agri-food enterprise, as linear combinations of the fewer, derived 3 factors. It is important to be mentioned that the F1 (Programming of online advertisement) is highly associated positively with programming and on line advertisement while it is negatively associated with the CSR systems. That means that an increase of F1 implies an increase of programming and advertisement but a decrease of CSR systems. Regarding F2 (Implementation of systems of CSR and guarantying quality) is associated highly in a positive way with CSR systems and in a negative way with programming and on line advertisement and promotion. That means that an increase of F2 implies an increase of CSR systems but a decrease of programming and on line advertisement. Finally, F3 (Indicator of public relations) is associated highly with public relations and communication programs while negatively with the organograms and the organic structure. So, an increase of F3 means an increase of public relations but a decrease of organograms. Decisions regarding the adoption of new information technologies in supply chain management in the Greek agri-food and drink sector are not affected by most of the factors investigated by many researchers in the past. Nevertheless, the following can be summarized.

Enterprises sense the risk of development and its speed. In their effort to move forward to the latest technologies, they make choices and decide to adopt those technologies that would make the enterprise more profitable, or, will help, at least, in this uncertain period, to maintain the existing profit (Zioupou et al., 2011).

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