

# THE INNOVATION ICT STRATEGY IN AGRIFOOD SECTOR

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Case study

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**Abstract:** The achievement of Information Communication Technology (ICT) as a new ground for economic competition is deeply affecting the trade organization in many merchant sectors. For Italian agri-food products it is of absolute importance for Internet marketing to be undertaken and to foresee the consequent scenarios. The aim of this research is to exactly assess the opportunities and problems of the distribution circuit based on the virtual scenario, with a methodological and empirical approach, working on the analysis of experiences already begun by agri-food companies established in Italy and engaged in “business to consumer” and “business to business”. The ICT is configured as a phenomenon in a continuous and rapid evolution, which makes it necessary for companies to continually adapt to it and to the habits of web-consumers. This means that it is necessary to effectively enter the network of agri-food firms, and to strategically revise marketing methods focusing on the market place.

**Keywords:** web marketing, e-business, agri-food , web site.

## INTRODUCTION

Development of digital technology and spreading of computer networks have transformed production processes, access to, transfer and use of information. Communication technologies allow the easiest access to knowledge and the easiest way to create it due to the simple sharing of information from e-mails to forums to social networks with the consequent reduction of space-time barriers.

Characteristics of the Knowledge Age reflect everywhere on today's society. ICT, Internet protocols, spreading of new electronic services have been affecting every sector of our life, deeply changing settled habits and systems. In the latest years, much has been invested in terms of energy and funds to develop and promote new technologies in order to embrace op-

portunities and teach society how to follow changes. According to Netcomm and Assinform researches [12], the average percentage of GDP destined to invest in ICTs in Europe amounted to 23.0 %; Germany, France and United Kingdom with 28.0% and Italy with 19.0%.

At the end of the 20<sup>th</sup> century, two huge phenomena revolutionized economy and everyday life: globalization which brought more and more interdependence among world's economies and, technological revolution with Internet and ICT, Information and Communications Technology.

Then, a shift has occurred from the society of communication and information to the society of knowledge, that is, from a build-up of information to the elaboration and comprehension of information.

ICT opened new lands to economic competition which is deeply affecting trade in different sectors and in some cases also altering the very competition rules themselves.

Cultural aspects, safety and health of products represent obstacles to the diffusion of ICT and web tools within the agri-food sectors, as well as the lack of quality of web sites and the scarce attention paid to the “interactivity” with web-consumers, which is fundamental instead of web-marketing. Besides, there is a poor level of standardization for these sector products and several difficulties for managing the quality by e-commerce (among works of literature we mention, in order of the year of publication, a few concerning farms and agri-food SMEs in Italy and abroad: [3], [4], [5], [11], [18], [19]).

The aim of this paper is to shortly trace the role of ICT within the Italian economic system, in particular in the agri-food one, and then to present the results of our research, still in progress, which has allowed us to reveal how agri-food companies have exploited the new technologies and how they have adapted to it (or will) after more than a decade since the beginning of the digital revolution. In particular, we focused on the way e-commerce has spread into the market and the web-marketing strategies, by means of specific surveys carried out by field operators and the analysis of sample web sites of agri-food companies and producers of local products, supported by the special model of 7Cs [19].

## **ICT APPLICATION: NEW STRATEGY IN AGRIFOOD COMPANIES**

ICT applied to medicine, education, politics, and economy is deeply changing the settled habits and by doing so starting the so-called digital revolution, which has caused democratization of decisional processes, immateriality of culture, open mindedness and freedom. Those aspects can then be framed in a perspective of worldwide social development and improvement of man’s welfare. It is clear that such a phenomenon has not had the same effects everywhere. In fact, the mass media talk of digital divide refers to the gap between those who can access and use the tools of the Knowledge Age and those who are

cut out for different reasons: age, location, economical status, internet access. At a global level, developing countries experience a bigger gap, followed by emerging ones, while E.U. countries experience delay, such as Italy, Spain, Portugal and Eastern Countries. The digital divide may, to a greater extent, affect the deep social inequalities of each country. According to the “Connectivity scorecard”, which monitors the web impact on the national economy (London Business School), among 25 industrialized countries, Italy was 22nd. Sweden, United States, Norway and Denmark, are at the top of the list, while Hungary, Poland and Greece are behind Italy. In particular, the Connectivity Scorecard estimates the use of wire technologies - optic fiber, telephones and PCs - made by governments, companies and consumers, in order to boost the economy and improve social life, the so-called “useful connectivity”. Italy has got a low score in all categories here analyzed - the use of the web made by citizens, governments and companies in the country - so it is behind all other G7 countries. The lowest score is that for the use of e-Banking service and e-commerce; while companies have unsafe servers and PCs. This means they do not rely on e-commerce and people do not buy or sell on line [21].

It is important to highlight the e-commerce gap. As far as web-consumers are concerned, in fact, in Italy, in 2011, only 12.0% of citizens bought on line once, while in the United Kingdom the percentage was 66.0%, in Germany 56.0% and in France 54.0%.

Within the new virtual scenario, e-commerce is one of the most important and dynamic aspects of the bigger process called e-business [18].

Internet, although maintaining the basic rules of economy, enlarged the information revolution [16], which is still in progress, not only at the company level, by forcing companies to transform their business processes, but also at the sector level, influencing structures and dynamics of competition [13], [20].

Companies are internalizing the new market and technology’s culture by modifying their business models in different steps: from e-trade, to e-commerce, to e-business. In detail, the “e-trade” is intended as the electronic channel complementary to the traditional

ones; the “e-commerce” is one of the ways that allows interacting with the market in order to understand the demands and meet its requirements; the “e-business” includes the technologic lever within the internal and external process of a company to obtain a long-lasting competitive advantage [17].

In the last few years Internet started its third-phase of life, as the result of a new relational paradigm between merchants and customers where the engagement of the latter is part of the trading process, but also of the product. The first phase was characterized by the presence of the very players, who created new business models that ate away physical market shares, Amazon for example, with young, well-educated and technologically-advanced customers. The second phase, more recently, experienced the arrival of web technicians, in which, Italian companies of Made-in-Italy and large-scale retail trade are investing in order to recover the competitive gap. Multichannel customers are much more transversal than those of the first phase, more aware, informed, and watchful for prices and services [14].

IT systems are engaging tools and space for more interaction to meet the new needs of companies and consumers. For example, Web 2.0 tools, which, first of all, include social networks, are a global phenomenon which is changing e-business. Social networks, in fact, are deemed as a real support for the company strategy, because they offer a media mix approach that works in synergy with different channels and tools (CRM - stands for Customer Relationship Management; - CMS - Content Management System, a software installed on a server that makes management of web site- content easier, e-mail, intranet), besides being always and everywhere present, with one main goal: listening to customers and their needs.

Today, there are 1.5 billion people connected worldwide, potential customers who, on the web, look for information and then to buy. In Italy there are 18 million web-surfers that look for information and compare products and services offered, the so-called info-commerce. Only 6 millions, then, really buy on line.

This is the real shopping potential of the web, still unexpressed. 6.5 billion euros, in fact, represent

1.0% of the whole sale turnover to final consumers, with a big difference compared to the rest of the Europe where B2C value is on average equal to 4.0%. According to Eurostat sources, against the European average share of the total retail turnover of 4.0% of e-commerce, Ireland got 10.0%, followed by the United Kingdom with 6.0%, Spain and Germany with 5.0%. [7]. It is important to specify that in Europe, e-commerce includes grocery, home goods, furniture, do-it-yourself, while in Italy does not, as well as it does not include modern retail trade (e-commerce Observatory B2C, 2012). Among the reasons for this gap there are the structural limits of our country (Internet access and broadband, costs of distribution logistics), Italians' habits (fear to use credit card on line, not liking distance buying), and the difficulty to sell on line certain typologies of products, including agri-food ones. Furthermore, we should not forget the system of offer that barely renovates. International companies still dominate the web market, together with the Italian service companies, but Made-in-Italy and agri-food companies do not. ICT can represent interesting development opportunities, especially for the Made-in-Italy and, in particular, for companies of the agri-food sector. We refer to e-commerce B2C, which may activate exportation of the Italian agri-food products, wellknown worldwide for their tipicity and exclusivity; e-commerce is a valid integration of traditional trade channels in order to improve customer service and renovates the offer, but also web-marketing and Web 2.0 tools for the promotion.

Italian companies should embrace the opportunities offered by social networks considering that 2/3 of the Italian internet users (more than 12 millions) belong to a social network. According to the Facebook Observatory [15], after 7 years of existing, Facebook counts 600 million members. Italy is ninth at the global level with 18 million Italian users (about 32.0% of the residing population), while 12 millions are those who use it daily. Other sources report different figures, but Facebook is for sure a huge social phenomenon that started social advertising.

It may be a privileged tool for a privileged relation with customers; in particular, considering the characteristics of the most familiar social networks, it is possible to match each one with a specific market-

ing function: Facebook is the most suitable tool for developing customer relations; Twitter allows a direct contact with sensitive customers (one-to-one-to-a lot of marketing); YouTube is for emotional marketing.

## **SURVEY METHOD**

In order to highlight the delay for agri-food sector to adopt ICT at the national level and the consequent company adjustment [2], after ten years of web revolution, a survey was carried out in two phases.

The first phase drew a short picture of the relationship between the agri-food sector and ICT, presenting the results of surveys of big Italian companies of the sector and modern retail trade.

The second one consisted of the empiric analysis of the web sites of a sample of a small group of agri-food SMEs in order to analyze the use of Internet for marketing and communication, to understand, on one side, which are the strategic goals of online companies, and on the other, to verify the efficacy of a web site for marketing [9].

Survey was carried out by visiting the web sites, analyzing the aspects that may drive consumers' choice and improve web-marketing [8] by adopting the 7C model [19], [4]. The identification of the main parameters that characterize a web site was carried out by means of an ad-hoc layout, which allowed obtaining information on the different aspects that help characterizing its image. In particular: Content - site size, updating frequency, graphic quality; Context - type and site function, market typology; Choice - products offered, product range, characterization of the offer; Comfort - access, surf-worthiness, languages, way of purchase and payment methods, shipment and costs, delivery time; Convenience - shipment costs; Customer service and support - product information, services offered, shipment traceability, customer satisfaction, payment security; Community - links, customer relation. For each category we considered micro-variables for each point. Quality variables were evaluated with a parametric scale from 0 (absence) to 5 (excellent). In particular, 1 very bad, 2 scarce, 3 medium, 4 good, 5 excellent. This survey was carried out in 2012 and

included 500 representative web sites of companies that were selected through the main national search engines as well as through other web information sources like specific and institutional links. A guided sampling and not a probable one was chosen due to the lack of a defined sample framework as well as the impossibility of knowing the choice probability of each company. Companies analyzed were specialized in different typology of agri-food products: cereals, meat, fruits and vegetables, oil, wines, beverages, including all sub-products. However, only companies' private web sites were analyzed and not virtual malls, due to the specificity of the survey.

The survey included a final questionnaire in order to point out the company's internet plans and targets.

## **MARKETING STRATEGY AND ICT APPLICATION OF THE ITALIAN AGRIFOOD SYSTEM**

Our research allowed obtaining information and data, here shortly summarized, by means with which it was possible to outline today's relation between ICT and the agri-food sector, especially focusing on e-commerce and web-marketing integration within company marketing strategy.

Surveys, which involved some big Italian agri-food companies and some of modern retail trade, allowed pointing out opportunities and limits of ICT application within the system, especially with reference to the adoption of e-commerce B2C and web-marketing strategies in order to intensify customer relation.

The agri-food system, in the last ten years, has joined the virtual scenario, at the beginning with a progressive spreading of web sites, about which some big historical failure was registered concerning the creation of informative-group portal, followed by the spreading of onlinesale of some imperishable products, such as wines.

Despite such approaches we assisted companies joining the web with strategically unclear modalities, and Internet, which instead of being a competitive advantage, is used as a completion of the company's

competitive strategies. SMEs use Internet more for image than as an instrument to relate and interact with customers and suppliers. Potentially, Italian companies could make a better use of the web opportunities.

At the beginning, when many web sites appeared, the error was probably that of considering Internet as a sale channel, while now companies are discovering its strategic potential as an information tool. In fact, it may activate interactive marketing that perfectly meets web-consumer needs, by creating a close one-to-one relation.

The survey revealed that in Italy people restrain from purchasing food products on the web because of skepticism. Overall turnover of this sector has been estimated around 200 million euros in 2010 and despite being higher than in previous years, it is behind other countries, as said before. Wine, beer, biscuits, tea and coffee cover almost 60.0% of on line sales, even if the global network offers Italian niche products (such as excellent wines and pine nut oil), while fresh products are poorly represented such as fruits and vegetables, that people prefer to buy personally.

More than 90.0% of modern retail trade companies are not involved in any e-commerce project. Actually, there is only one big company at the national level, which is successfully investing in it: Esselunga; together with some interesting local ones such as Basko, Prontospesa, Spesaon line (one case is experimental: that of "driveAuchan" in Turin, where the customer can order on line and then pick up the goods from the closest Auchan). Reasons why so few invest in e-commerce is the lack of competence and structures within the company to start a correct e-commerce project; fear of cannibalizing the traditional sale channel; or, in case the e-commerce is already active, the lack of boosting the online channel. Besides, there are difficulties in arranging a logistic-operative process allowing cost control - order execution, delivery, etc.

E-commerce could represent an important lever to export Made in Italy worldwide, as demonstrated by the results obtained so far by those companies that have properly interpreted and exploited the online channel. One such company is Esperya, an

online shop created in 1998 as a dotcom with the only aim of selling food-and-wine as traditional Italian products at the national and international level. In September 2007, Esperya started its first shop in Milan selling high quality food products where customers could also taste them. Esperya has more and more foreign customers: from 16.0% in 2006 to more than 30.0% in 2010. Another experience based on the use of ICT is that of Fratelli Carli, whose project OlioCarli.it was created in 1996 in order to join traditional and technologic innovation. E-commerce in this case, positively affected the turnover and customer retention together with an online strategy of integrated multichannel operators.

In the last ten years, however, there has been a reduction of the number of shop-window like sites and an increase of web sites aiming at developing direct marketing and more recently conversational marketing.

Marketing has changed in terms of adapting to the new characteristics of the new tools and has focused on the "information" as a resource for the company and the company customer relation in an integrated version that may increase the value. Recently, according to a research carried out by Netcomm/Contactlab, social networks have gained the power to steer online purchase choice.

Within the marketing strategy, customer-company relation becomes central because it activates a privileged information channel and because it is a base for customer retention. In a competitive and strongly dynamic environment, immaterial factors become basic sources of the competitive advantage since they make companies evolve, meet consumers' demands and foresee changes [6].

Our survey pointed out some history cases of agri-food companies that have embraced the opportunities offered by the Internet and social networks. In fact, several brands have chosen to establish a company-customer relation so that customers can turn from simple users of content to the creators of the content and experience.

Hence, the aims of the web-marketing strategy are those of building up, involving and widening



company-customer relation by means of the web; of increasing the brand awareness; of acquiring more and more information in order to develop targeted communication and activate e-commerce. Many companies have different institutional sites, according to the different targets, and sites for prize contests. Many others create communities based on the principle of Internet and Social Media, that is, that of sharing. In some cases, the site was visited by many people, 50.0% of which were foreigners with the average age of 28. Others joined the web via Web 2.0 tools, such as Facebook and Twitter with the aim of starting a specific relation with customers, making them feel the creators, co-creators and users of their know-how.

## RESULTS

Information acquired by analyzing a sample of web sites opened a quite articulated scenario concerning both the company presentation and the services offered to consumers by using ICT.

Out of all data gathered according to the 7C model, we here present only the most important results in order to point out the strong and sore points characterizing the web-marketing of our sample agri-food companies.

The analysis of the first C, Content, in particular of the “size of the site”, has shown that most of the web sites include 8-15 pages, while few have 16-25 pages. Less visited are those sites with a lower or higher number of pages. The overall score was 3.8, which is a positive one. As far as “updating” is concerned, it is deemed as one of the most important elements for customer retention, 90.0% of the web sites do not mention it, while 4.3% update their site weekly and 2.7% daily. The remaining percentage does it on a monthly basis. However, data obtained from documents’ dates, has shown an overall updating frequency which was very low, with a score of 1.9. In contrast, graphic quality varies a lot, with excellent sites and home-made ones, with an overall score of 2.6.

The analysis of the Context divided the web sites into two categories: institutional and commercial. Based on their different function, the institutional ones are better articulated with a score of 4.3, while

the commercial ones have a score of 2.3 with limit cases of 0.4. As far as the “market typology” is concerned, almost 63.0% of the web sites belong to B2C, 7.1% to B2B, the remaining share the both.

Among the aspects examined, concerning the Choice parameter, the most important results are those related to the “typology of commercialized products”. The most favorite ones are those certified DOP, IGP, organic with 42.0%, and those bound to specific territories. Web sites concerning their range of products got a score of 3.2, which is good, while 2.2 was assigned to the characterization and description of each product due to the limited information presented.

The Comfort includes many interesting elements. Here, we included just a few of them. Accessibility got a score of 3.9 since it is quite easy to find the web sites, but once entered it is difficult to visit most of the sites, even to open pages. 60.0% of the web sites have language limitations, which prevents internationalization, offering only Italian or at most English. Score: 1.1, meaning that this is one of the most important points to work on in order to reduce the gap with the rest of the world.

The Convenience parameter is different for each site. In general, however, the online offer is huge. Hence, the “online offer” was scored 2.7 according to what has been said above and due to the shop-window function adopted by many companies. However, the advantages compared to the traditional channel are not pointed out, if not completely absent. The score in this case is 1.2.

The approach to Customer Service and Support was careless, which is very important for web marketing strategies, instead, the virtue of the specific characteristics of e-commerce interactivity was compared to the traditional ones. In fact, except for the information system, which got the score of 3.9, the rest of the parameters, such as traceability, claims, customer satisfaction and payment security, got the score ranging from 1.1 to 2.1.

Last but not least, the Community, on which, online companies have focused the most. In fact, all such companies intended, by their online presence, to es-

establish an interaction with customers, besides carrying out market research, spreading technical information and targeted communication. However, the score obtained by this factor was 1.8 due to the wrong policy adopted that prevents customer retention.

Overall, the analysis of the results pointed out that on line companies aim at spreading their brand name without focusing on customer retention or product sale (Table 1).

TABLE 1. 7C EVALUATION SCALE FROM 0 TO 5

Categories	Mean value
Content	
Site size	3,8
Updating frequency	1,9
Graphic quality	2,6
Context	
Institutional site	4,3
Commercial size	2,3
Choice	
Product range	3,2
Offer characterization	2,2
Comfort	
Accessibility	3,9
Surf-worthiness	2,1
Languages	1,1
Offer typology	1,6
Convenience	
Offer range	2,7
Advantages compared to the traditional	1,2
Customer service and support	
Information	3,9
Traceability	2,1
Claims	1,4
Customer satisfaction	1,2
Payment security	1,1
Community	
Customer retention	1,8
Links	2,9
Entertainment	3,4

SOURCE: RESULTS PROCESSED OUT OF DIRECT SURVEYS

## CONCLUSION

Internet has created a quick selection mechanism of the offer, cutting out unprofessional competitors. For a successful competition in this new area of market it is necessary, based on the results of the realized research, at least to pay attention to and promote some essential initiatives:

- to invest in site visibility, by means of advertisement and offline promotion, as many companies are already doing with a good turnover;
- to target the right customers in order to better meet their needs by using the Internet, and in order to know and put them into the right category;
- create a community where customers can share with their strategic partners, by integrating activities and supplying chains.

In this sense, we have to repeat that communities are a social phenomenon before being an economic one and can be useful from two points of view: the social one, based on shared values and one main explanation; the economic ones based on a business model that may take the economic value out of the relational one [10].

In order to exploit the web, it is necessary for all people involved to be flexible, including politics, especially in such a period characterized by this economic global crisis against which, it is very important to show courage by investing in innovative sectors such as ICT. This will reduce the cultural and structural gap typical of the Italian companies, southern SMEs above all, which include agri-food ones.

For this, it will be fundamental to refer to an active and interactive on line model to analyze and revise the company's business structure as a whole, to take into account the company's characteristics, in our case the specificity of agri-food products and the local size of it. In this way, a source of competitive advantages within a global context will be created.

### *Authorship statement*

*Author(s) confirms that the above named article is an original work, did not previously published or is currently under consideration for any other publication.*

### *Conflicts of interest*

*We declare that we have no conflicts of interest.*

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