

# Virtual Market

## Study case on 20 sectors of Romanian economy

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### ABSTRACT

**v-Market (Virtual Market)** is composed by *online* platforms that allow companies to be present simultaneously on the *Local - Regional - National Markets* as well the *EU Single Market - Global Market* with differentiate products or services and marketing strategies, according to the specifics of each market.

v-Markets are used to raise awareness and develop the markets, the products and services; the sell *online (e-commerce/mobile business)*, the new techniques for **market research** and **consumer behaviour** analyzes, the more persuasive promotion methods, gathering automatically a huge quantity of information and extracting the **knowledge** from it. The combination of classical marketing techniques with *online* marketing creates new opportunities to the companies and makes them more innovative and competitive.

Throughout 2008 and 2009 the authors realized **25 sector studies**, analyzing more than **10.000 Romanian companies**. The analysis had focused on the use of ICT–*Information Communication Technologies* in the marketing processes and the presence of the Romanian firms and products on the virtual market. They had gathered data, information and experiences, creating a databases and developing a **database mining** system in order to transform information into advance knowledge.

The article consists in a synthesis of the last 3 years of work and represents the conclusion of the studies presenting the e-marketing situation of Romanian companies from the most important economic sectors.

### 1. Introduction

The following article synthesizes 25 studies realized by the authors during 2008-2009. Each study focuses on the use of the ICT – *Information Communication Technologies* in the marketing processes and the presence on the virtual market of the Romanian firms and products from different sector of the economy.

The first part of the article describes the methodology used in the sector studies and is followed by the second part in which the results and conclusions of the study are presented.

### 2. Methodology

The 25 economy sectors were chosen after studying the Statistical Yearbook of Romania 2008 (<http://www.insse.ro/cms/rw/pages/anuarstatistic2008.ro.do>), the Romanian

National Classification of Economic Activities (*CAEN - Clasificarea activitatilor din economia nationala* <http://recom.onrc.ro/obco.htm>) and European Commission classification of economic activities ([http://ec.europa.eu/competition/mergers/cases/index/nace\\_all.html](http://ec.europa.eu/competition/mergers/cases/index/nace_all.html)).

For each sector studied was built a database of companies containing the following fields: name, address, city, county, telephone, fax, e-mail, website, contact person, field of activity and remarks.

The next step consisted in using online platforms, databases, websites, search engines and on line catalogues to search the necessary data for each company and fill in the empty fields in the database.

When all the companies from a sector were added and all the information found was introduced into the database we applied queries, filters in order to extract information from that database.

For each sector were calculated: total number of companies researched, number of companies that have an e-mail, number of companies that have a website, percent of companies that use email, percent of companies that use website, percent of companies having their own domain vs. percent of companies that use a sub domain, percent of companies that have a valid e-mail address.

The next step consisted in creating the charts for the parameters calculated above.

After analyzing the tables and the charts a report paper with conclusion was prepared for each sector.

The last step consisted in gathering all the sectors' reports for preparing a final synthesis, a comparative statistics and the global conclusion.

### **3. Sector analysis. Comparative results obtained for the 25 analyzed sectors.**

The 25 studies included the following sectors (in alphabetic order):

- Advertising
- Agriculture
- Agro-food products
- Animal husbandry
- Automobile industry and motor vehicles
- Beauty centers
- Chemical industry
- Construction
- Consultancy and training
- Distribution
- Electronics industry, electrical and electronics
- Electro-technical products
- Fashion
- Food industry
- Glass products, ceramics, pulp and paper
- IT products
- Machine building industry
- Machines, equipment and industrial design
- Non-governmental organizations (NGOs)
- Siderurgy
- Telecommunications
- Tourism
- Transport
- Veterinary medicine
- Wood products and furniture

Applying the first filters to the database we obtained the **number of companies that use e-mail** addresses from each sector.

The percentage of companies that use e-mail addresses for each sector was calculated by the formula:

$$A = 100 * (B/C)$$

where

A = Percent of companies that use e-mails from total number of companies for a specific sector

B = Total number of companies for a specific sector

C = Number of companies from a specific sector that use e-mail

The percentage of companies from a specific sector that **do not use e-mail addresses** were calculated by the formula:

$$D = 100\% - A$$

Where

A= Percent of companies that use e-mails from total number of companies for a specific sector

D = Percent of companies that do not use e-mails from total number of companies for a specific sector

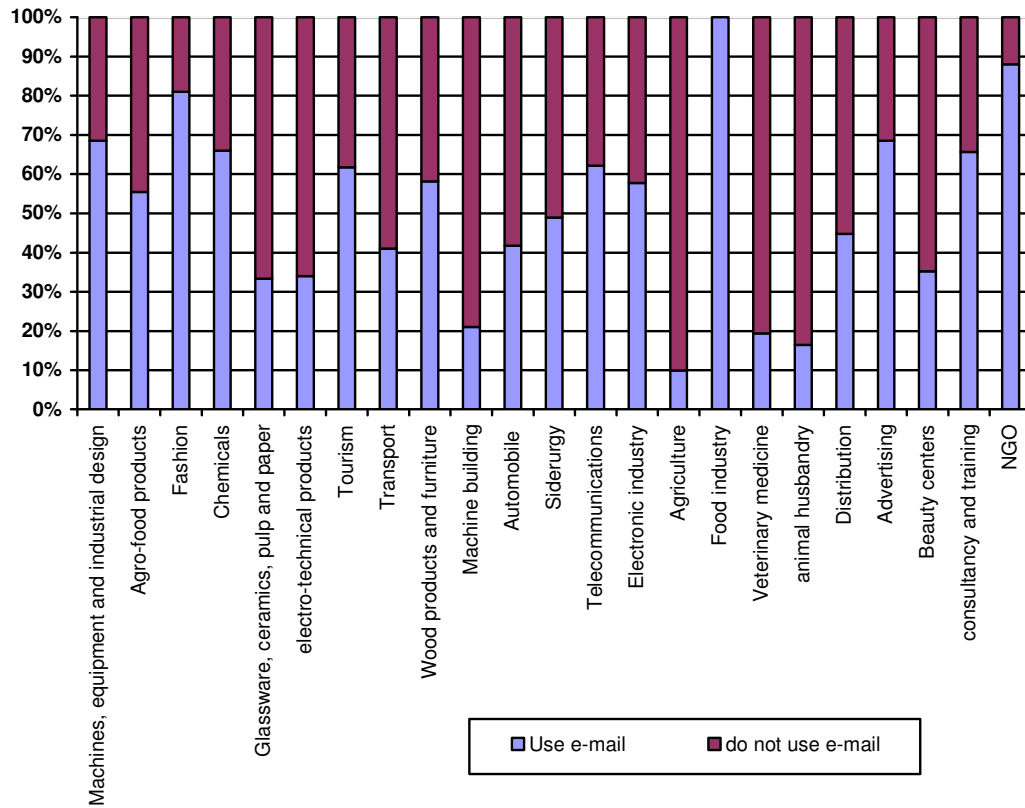
The synthesis of the results concerning the use of e-mail addresses by the companies is presented in Table no.1.

*Table no.1. Romanian Virtual Market Research. Synthesis: Use of e-mail addresses in each economic sector*

INDUSTRY/SECTOR	USE EMAIL (A)	DO NOT USE EMAIL (D)
Wood products and furniture	58,14%	41,86%
Agro-food products	55,4%	44,6%
Non-governmental organizations	<b>88%</b>	<b>12%</b>
Fashion	81%	19%
Machines, equipment and industrial design	68.5%	31.5%
Advertising	68.5%	31.5%
Chemicals	66%	34%
Consultancy and training	65.6%	34.4%
Telecommunications	62.1%	37.9%
Tourism	61.7%	38.3%
Electronics industry, electrical and electronics	57.7%	42.3%
Siderurgy	48.9%	51.1%
Food industry	46.5%	53.5%
Distribution	44.8%	55.2%
Automobile industry and motor vehicles	41.7%	58.3%
Transport	41%	59%
Beauty centers	35.2%	64.8%
Electro-technical products	34%	66%
Glassware, ceramics, pulp and paper	33%	67%
Machine building	21%	79%
Veterinary medicine	19.4%	80.6%
Animal husbandry	16.5%	83.5%
Agriculture	<b>9.9%</b>	<b>90.1%</b>

The results are presented graphically in the Chart no.1:

**Chart no. 1. Romanian Virtual Market Research. Synthesis: Use of e-mail addresses in each economic sector**



We can observe that the most developed sector according to e-mail address is the NGO sector (88% of the organizations have an e-mail addresses) while on the opposite site we find agriculture (only 9.9% of the companies have e-mail addresses).

We continued the research by applying filters to the database to obtain the number of companies that created their own websites for each sector.

Then, the percentage of companies from each sector that have a website (hosted on a domain or sub domain) was calculated by the formula:

$$E = 100 * (F/G)$$

Where

E = Percent of companies that created a website from total number of companies for a specific sector

F = Total number of companies for a specific sector

G = Number of companies from a specific sector created a website

The percentage of companies from a specific sector that do not use e-mail addresses were calculated by the formula:

$$H = 100\% - E$$

Where

E= Percent of companies that had created a website from total number of companies from a specific sector

H = Percent of companies that did not create a website from total number of companies from a specific sector

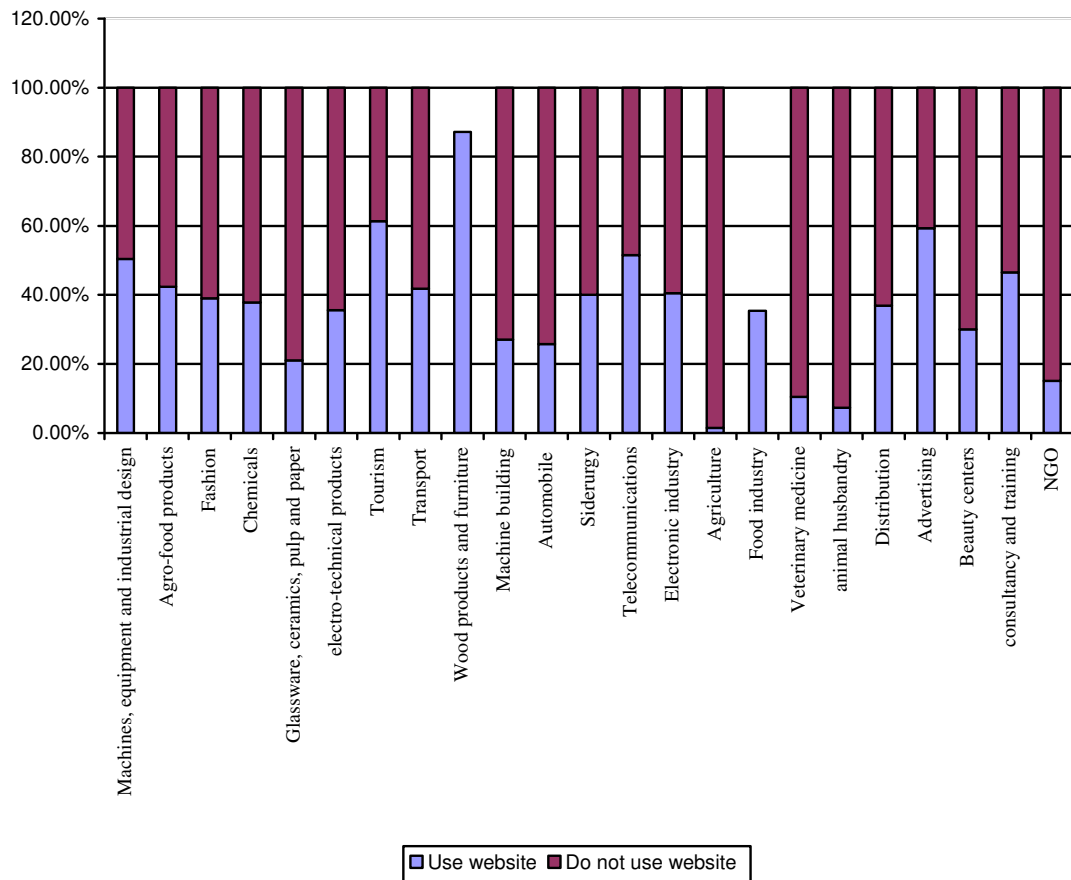
The results concerning the presence on the virtual market by having a website are presented below in the Table no. 2:

**Table no. 2 Romanian Virtual Market Research. Synthesis: Use of websites in each economic sector**

SECTOR	USE WEBSITE (E)	DO NOT USE WEBSITE (H)
Wood products and furniture	<b>87,16%</b>	<b>12,84%</b>
Agro-food products	42,3%	57.7%
Electro-technical products	35,58%	64,42%
Tourism	61.34%	38.66%
Advertising	59.3%	40.7%
Telecommunications	51.5%	48.5%
Machines, equipment and industrial design	50.4%	49.6%
Consultancy and training	46.5%	53.5%
Transport	41.8%	58.2%
Electronics industry, electrical and electronics	40.5%	59.5%
Siderurgy	40%	60%
Fashion	39%	61%
Chemicals	37.8%	62.2%
Distribution	36.8%	63.2%
Food industry	35.4%	64.6%
Beauty centers	30%	70%
Machine building industry	27%	73%
Automobile industry and motor vehicles	25.7%	74.3%
Glassware, ceramics, pulp and paper	21%	79%
Non-governmental organizations	15%	5%
Veterinary medicine	10.4%	89.6%
Animal Husbandry	7.3%	92.7%
Agriculture	<b>1.5%</b>	<b>98.5%</b>

The graphical results are presented in the Chart no. 2:

**Chart no. 2. Romanian Virtual Market Research. Synthesis: Use of websites in each economic sector**



87.16% of the companies in wood industry had created a website using a domain or a sub domain while we find again on the last place the agriculture on with only 1.5% of the companies having websites.

If 88% of the NGOs use e-mails addresses we see that only 15% of them have created a website. So the leading sector in e-mail use is on the 19<sup>th</sup> position in websites' creation. A possible explanation can relate to the costs of creating and maintaining a website and the limited financial resources of this sector.

We had selected 5 relevant sectors and continued our analysis as concerning the companies' website's hosted on a domain or sub domain.

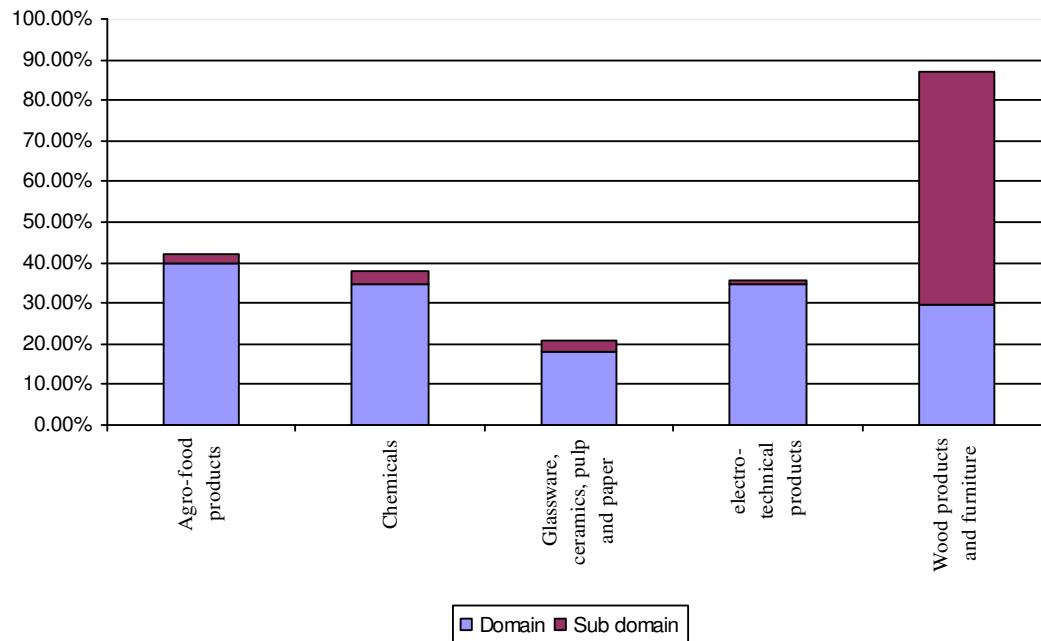
Hosting a website on a domain implies at least two types of costs: (1) buying the domain or (2) paying a monthly or annual fee for the hosting services. Hosting a website on a sub domain in many cases does not imply any cost. The results are presented in Table no. 3.

**Table no. 3. Romanian Virtual Market Research. Synthesis: Use of domain and sub domains for companies' websites in each economic sector**

SECTOR	DOMAIN (I)	SUB DOMAIN (J)
Agro-food products	39,6%	2,7%
Chemicals	34.8%	3%
Glassware, ceramics, pulp and paper	18%	3%
Electro-technical products	34.64%	0.94%
Wood products and furniture	29,6%	57,56%

The results obtained are presented in a graphical form in Chart no. 3:

**Chart no. 3. Romanian Virtual Market Research. Synthesis: Use of domain and sub domains by the companies' websites in selected economic sector**



The above parameters were calculated by the following formulas:

$$I = 100 * (K/G)$$

Were

I = Percentage of companies that host their website on a domain from the total number of companies in a specified sector

G = Number of companies from a specific sector

K= Number of companies from a specific sector that had created a website on a domain (not sub domain)

$$J = 100\% - I$$

Were

I = Percentage of companies that host their website on a domain from the total number of companies in a specified sector

J = Percentage of companies that host their website on a sub domain from the total number of companies in a specified sector

In the next part of our research eleven sectors were chosen for analyzing the validity of the email addresses. We obtained the results presented in Table no. 4.

**Table no. 4. Romanian Virtual Market Research. Synthesis: Percent of invalid e-mail addresses in the selected economic sectors**

SECTOR	INVALID EMAIL (L)
Glassware, ceramics, pulp and paper	<b>39.5%</b>
Tourism	33%
Chemicals	32.3%
Wood products and furniture	28%
Machines, equipment and industrial design	24%
Agro-food	21.8%
Construction	18.9%
Fashion	16.7%
Transport	16%
Electro-technical products	13%
IT	<b>2.3%</b>

The parameter was calculated by the formula:

$$L = 100 * (M/C)$$

Were

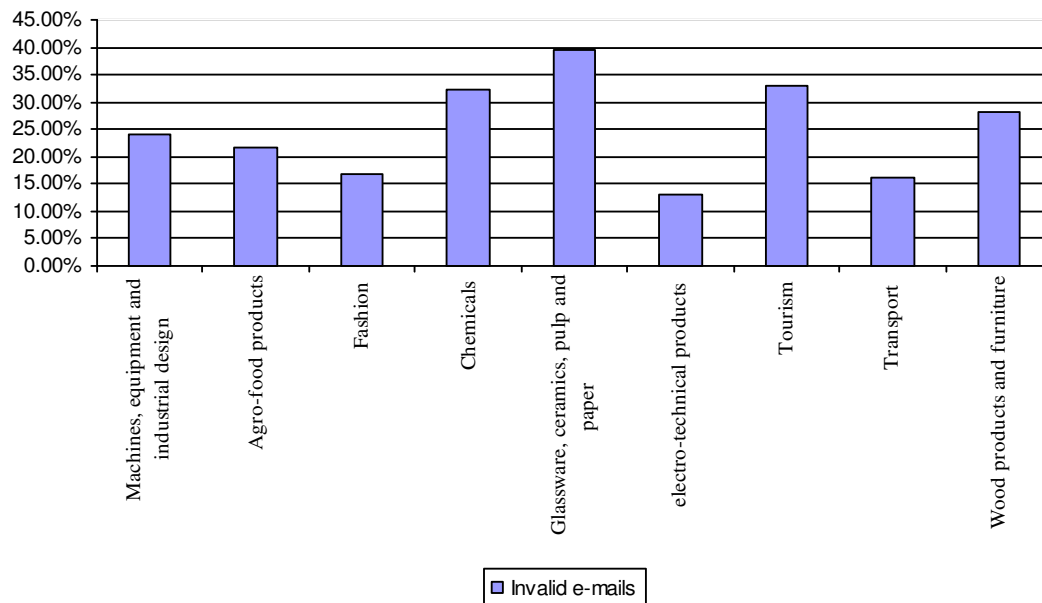
L = Percentage of invalid e-mails reported to the total number of companies that use e-mails for each sector

M = Number of invalid e-mails for each sector

C = Number of companies from a specific sector that use e-mails

These results are also presented in Figure 4:

Figure no.4. Romanian Virtual Market Research. Synthesis: Percent of invalid e-mail addresses in each economic sector (graphical view)



From the 11 sectors analyzed we observe that:

- a. 7 have more than 20% of the e-mail addresses invalid.
- b. 10 have more than 10% of the e-mail addresses invalid

The highest number of invalid e-mails can be found in the Glassware, ceramics, pulp and paper sector. In this industry only 33% of companies use e-mail addresses and from those 33% only 60.5% are valid. If we extract the invalid addresses we can conclude that the actual use of e-mail addresses in this sector is 19.96% instead of 33%.

The lowest percentage of invalid e-mails are as it was expected in the IT sector, 2.3% of the e-mail addresses were not valid.

#### 4. Final conclusion

The Romanian companies' presence on the virtual market with business websites as well with the communication by e-mail is still poor. The transfer of knowledge is slow placing us on the last positions in European Union

Even if the global virtual market is open to anyone and the international economic relations moved significantly on the Internet, a large number of our companies and their "old fashion" management are adopting with low speed the ICT – *Information Communication Technologies*.

Is a problem of mentality, lack of education, opposition to change, political will

The measures to be taken are simple: more IT equipments and more soft application in companies, universities, schools etc. More wireless communications in towns and villages, less bureaucrats and "pen and paper" employees. More training in ICT with every employee, especially those working in the public institutions and companies.

A new generation is coming: **netG**. They will solve this gap and will make the Romanian enterprises again: creative, innovative and competitive in a sustainable economy.

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## Acknowledgement

Investing in people! PhD scholarship, Project co-financed by the  
SECTORAL OPERATIONAL PROGRAMME HUMAN RESOURCES DEVELOPMENT  
2007- 2013  
Priority Axis 1 "Education and training in support for growth and development of a  
knowledgebased society"  
Key area of intervention 1.5: Doctoral and post-doctoral programmes in support of research.  
Contract POSDRU 6/1.5/S/3 – „DOCTORAL STUDIES: THROUGH SCIENCE  
TOWARDS SOCIETY"

Babeș-Bolyai University, Cluj-Napoca, Romania

The authors wish to thank for the financial support provided from programs co-financed by  
The SECTORAL OPERATIONAL PROGRAMME HUMAN RESOURCES  
DEVELOPMENT, Contract POSDRU 6/1.5/S/3 – „Doctoral studies: through science towards  
society".