

Tesauro, Carlo

**Conference Paper**

## EURO AND WEB SERVICES IN CUSTOMER BEHAVIOUR

45th Congress of the European Regional Science Association: "Land Use and Water Management in a Sustainable Network Society", 23-27 August 2005, Amsterdam, The Netherlands

**Provided in Cooperation with:**

European Regional Science Association (ERSA)

*Suggested Citation:* Tesauro, Carlo (2005) : EURO AND WEB SERVICES IN CUSTOMER BEHAVIOUR, 45th Congress of the European Regional Science Association: "Land Use and Water Management in a Sustainable Network Society", 23-27 August 2005, Amsterdam, The Netherlands, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/117661>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# **EURO AND WEB SERVICES IN CUSTOMER BEHAVIOUR**

Carlo TESAURO <sup>(1)</sup>

(1) I.B.A.F. – U.S. Napoli, C.N.R.

Via P. Castellino 111, 80131 NAPOLI.

Phone: (+39)-081-5607317 Fax (+39)-081-5605835 E-mail: carlo.tesauro@ibaf.cnr.it

## **ABSTRACT**

The removal of internal customs barriers, the introduction of Euro and the suppression of frontier controls (Schengen treaty), joined with the enlargement of number of Members from 15 up to 25 represent the most meaningful aspects of the integrating process between the Countries of European Union before the forthcoming European Constitution. The actual configuration of the Union still completed the initial plan of a “Common Market”, obtained introducing some complying elements in the course of time. The last step of this integrating process was represented by the adoption of a common currency that really transformed the Union area in a unique market.

The adoption of a common currency represented the main care versus the integration process. The reason of this care is that it really represents the first step towards the giving up of some intrinsic privileges in the sovereignty of a State. These steps are (and will be) requisite for a full achievement of the European Union aims.

Nevertheless, some recent national events showed how much that unconfessed fear was undoubtedly well-grounded. A first unexpected effect of the introduction of Euro is the possibility to outline all the persistent differences between States in a more effective way. These differences enable also to identify the heterogeneous conditions of economic, political, social and cultural behavior of each Country.

The increased effectiveness of Internet made this evaluation simpler, enabling to consider the whole virtual environment as an immediately reachable place to obtain information, services and goods from sources that are distributed in all over the world.

The aim of this paper is to outline that the homogeneity of internal market of European Union is still not completed showing some specific examples. A further attempt is to identify some factors of persistence of the still existing differences between European Countries.

## **Key words**

Knowledge, Technology, Innovation, Infrastructures

**Paper presented at**

**45th Congress of the European Regional Science Association**

Vrije Universiteit, Amsterdam, 23–27 August 2005

## 1 INTRODUCTION

The virtual environment quickly evolved during last years and generated such innovative products and services unforeseen since few years ago. The larger percentage of these innovations was generated by the application of innovative tools in pre-existing activities or projects that was impossible to upgrade or realize only for technical constraints.

The most meaningful example of this evolution is the information diffusion that increased in terms of quantity but was also strongly enhanced by the contribution of computer technologies. The technological support amplified the information capacity supplying means to integrate and link raw elements.

However, the usage of most updated technologies can lead results absolutely unexpected, as it still occurred for Internet origin. In facts the Internet phenomenon is mostly due to the contemporarity of some independent technical events and not developed by a specific idea or project.

Another example of such unpredictable concomitance could be represented by the large diffusion of Internet that actually involves a very high population percentage in most developed Countries, joined with the introduction of Euro in some of the Union Countries and the supremacy of economic activities inside the virtual environment.

The result obtained by the contemporarity of these components is the completion of the former idea of Common European Market. The citizen of a Country in the Euro-area is able to visit virtually a market that is enlarged to the enterprises of all the Euro-Countries avoiding any “exchange” constraint.

Moreover, the actual Union legislation enables the same citizen to complete the virtual visit with real purchases. In facts a purchase operation can be realized as in the real world, because also the different taxes of each Country are standardized by the law in force.

This particular condition introduces some deeply innovative aspects in the economic environment, because it widely amplifies the boundaries of the area of interest with the total integration between two ambits that were considered as totally disjoined since few time ago: the virtual environment and the real world.

In (Tesauro, Campisi 1998) was outlined the need for virtual enterprises to adopt different criteria with respect to the traditional activities. This need was due to a different perceiving of competition considering both types of operators, the traditional in the real world and the virtual inside Internet, without any reference to their physical localization.

As the matter of fact, a hypothesis of a particular initial strategy for virtual activities against operators of the real world was suggested. The idea was to develop a sort of “fair effect”, using crossed hypertextual references, to generate an attractive capacity able to improve appeal of virtual operators and to produce a business growth with large benefits for each involved enterprise.

Viceversa the actual scenario shows that the competition is not limited to the real-virtual dualism, but involves the whole sector of economic and commercial activities. In facts, any enterprise, independently of its real or virtual nature, has to consider carefully the offer supplied from the whole environment because the sudden enlargement of boundaries substantially modified the operating conditions for all the actors.

## **2 ACTUAL MARKET CONDITIONS**

The operating conditions for commercial activities substantially changed during last years. This change was mainly due to the entrance of large scale distributors also in those particular sectors formerly neglected for their special characteristics. In particular, the sector of high technology, formerly limited by the quick obsolescence of its products, rapidly achieved the common market configuration adopting adequate management tools.

Computer and telecommunication technologies supplied an important contribution to this evolutionary process that involved a lot of sectors formerly considered as neglectable. This contribution was further on amplified by the explosion of Internet phenomenon.

The actual configuration of retail activities seems largely heterogeneous for any commercial sector. In facts small, medium and large retail enterprises coexist and share as operating environment the real world, the virtual environment or both ambits at the same time.

This upgrade of retail operating environment seems more effective for the enterprises of the European Union. In this case the enterprise has to face three different innovations generated by the Union legislation: the wide enlargement of the reference market, the increased number of subjects in the list of competitors and, last but not least, different competitors behaviour drove by non homogeneous cultures and traditions.

In this upgraded environment most of traditional and usual criteria partially or totally lose their effectiveness, while new experiences are still useless to identify suitable methodologies to face the modified condition.

The competition on absolutely original products, as an example, is not influenced by the new market condition, because it involves only some information about products that can be considered as a total alternative. Viceversa, for products highly similar the actual scenario supply completely different conditions in terms of winning new potential markets.

Finally, the condition for subjects actually operating in the retail of large scale products is totally different from those formerly described. The ambits for competition or acquisition of new markets have always less defined boundaries and generate conditions well described in the expression “global market”.

### **3 DISTANCE SELLING**

In Internet the commercial business devoted to the final user, known as “B2C” or business to consumer, is obviously a “distance” type of activity. Nevertheless, the retail activity operating via traditional mail delivery system started many years before the explosion of Internet phenomenon. This activity was paper based and used the traditional mail service.

Thus, since few years ago this kind of approach required a huge amount of resources only to complete its first step: the delivery of illustrated catalogues. The effort was burdensome and the activity was reduced to a couple of annual phases. Between these two phases any update of the price list or special advertising campaign was absolutely impossible.

Following this general condition the distance selling necessarily had to avoid those particular products characterised by a high evolution process or a quick obsolescence. Thus, the advantages for a distance selling activity were represented by a strong reduction of both supply and logistic costs. This costs reduction was due to the greater volumes required in the first case and to the possibility to operate in a highly centralized way for the second.

The addition of these products became possible contemporarily with Internet explosion because the electronic medium cancelled any limit of the paper support for the diffusion of information about updated price lists. It follows that the advantage supplied by the new technology deeply changed the distance selling making void any former disadvantage.

- *Internet users*

In (Tesauro, Campisi – 2002) the problems in obtaining reliable surveys about the total number of Internet users was absolutely remarked and linked to the persisting lack of official information sources.

Nevertheless, some values provided by private organizations can approximate the phenomenon dimension in a suitable way to define a reliable scenario of the actual “cruiser” population in Internet.

COUNTRY	YEAR	USERS	POP. %
Austria	2002	3.7 millions	45.2
Belgium	2002	3.8 millions	36.6
Finland	2002	2.7 millions	51.9
France	2002	17.0 millions	28.4
Germany	2002	32.1 millions	38.9
Greece	2001	1.4 millions	13.2
Ireland	2002	1.3 millions	33.7
Italy	2001	19.3 millions	33.4
Luxemburg	2000	0,1 millions	22.9
Netherlands	2002	9.7 millions	60.9
Portugal	2002	4.4 millions	43.6
Spain	2002	7.9 millions	19.7
Denmark	2002	3.4 millions	62.7
Sweden	2002	6.0 millions	67.8
United Kingdom	2002	34.3 millions	57.2

**Tab.1:** Internet users in some European Union Countries  
*Source:* NUA Internet survey 2003

The data actually available (Tab. 1) show a doubling value of Internet users in the four year interval 2000-2003, an evolution close to the forecast presented in 2001. In particular, the Italian value that presented a high increasing rate probably due to an initial diffusion delay, changed from 11 millions of users sampled in the year 2000 to more than 19 millions in 2001.

These data furthermore demonstrates both the continuous growth of people involved by the new medium and the importance of Internet phenomenon as a potential market for any enterprise.

○ *Distance retail activities*

The distance retail activity can be used to analyse the scenario formerly described representing its most evident effect, even if the actual configuration affect the whole economic environment at multiple level.

In facts, the actual relationship between the traditional retail activity and the distance retail renewed by telecommunication usage shows the described behaviour. Moreover, the data about these sectors seems to be sufficient both in terms of reliability and of quantity.

POP. (X 1000)	COUNTRY	INVOICED (IN €)
8.100	Austria	1.204.000
10.300	Belgium*	655.000
5.200	Finland	798.000
61.400	France	10.500.000
82.300	Germany	21.000.000
10.800	Greece	N.A.
3.900	Ireland	111.000
56.900	Italy	823.000
450	Luxemburg	N.A.
16.200	Netherlands	2.500.000
10.400	Portugal	N.A.
42.700	Spain	802.000
5.300	Denmark*	643.000
8.900	Sweden	995.000
59.200	United Kingdom	14.596.000

\*data of 2001

**Tab.2:** Distance retail invoiced in some European Union Countries  
*Source:* EMOTA

Tab 2 shows some data about invoiced values of distance retail activities for the year 2003 collected from Internet pages of European Mailorder and Distance Selling Trade Organisation (EMOTA).

Viceversa, data collected by the Italian organization (ANVED) are presented in Tab. 3 and was collected for the year 2002. Nevertheless, these Italian data supply some more interesting information, enriching the former sample of national invoiced values for each Country with the pro-capita expenditure and the percentage of distance retail invoiced with respect to a couple of traditional data: the overall retail and the non-food retail invoiced.

These values show remarkable differences between Union Countries for each sampled indicator. As the matter of fact, the variation between two years assumes both negative and positive values, in a range with lower value of -2.5% for Denmark and an upper 19.3% value representing the growth in Netherlands, the percentage of total retail vary from the Irish value (0.17%) up to the 6% of Germany and, finally, the pro-capita expenditure with a lower bound in Italy (13.98 €) vs. an upper bound of 258.00 € for a German citizen.

POP. X 1.000		2002 2001	Invoiced €x 1000	% on total Retail	% on total non food Retail	pro-capita expenditure €
8.100	<b>AUSTRIA</b>	0,10%	1.177.000	3,10%	-	145,309
10.290	<b>BELGIUM*</b>	-	655	0,48%	-	63,654
5.200	<b>FINLAND</b>	2,50%	764.000	2,60%	-	146,923
61.400	<b>FRANCE</b>	2,70%	8.900.000	2.36%	3.90%	144,951
82.558	<b>GERMANY</b>	3,2%	21.300.000	6.0%	-	258,000
10.800	<b>GREECE</b>		N.D.			
3.700	<b>IRELAND</b>	22%	99.000	0,17%	-	26,757
56.900	<b>ITALY</b>	1,20%	795.500	0,40%	1,30%	13,981
450	<b>LUXEMBURG</b>		N.D.			
16.100	<b>NETHERLANDS</b>	19,3%	2.196.000	2,70%	4,40%	136,398
10.400	<b>PORTUGAL</b>		N.D.			
41.100	<b>SPAIN</b>	1,45%	735.000	-	-	17,883
5.368	<b>DENMARK*</b>	-2,50%	643.256	2,31%	4,48%	119,832
8.900	<b>SWEEDEN</b>	3,20%	943.000	2,20%	4,30%	105,955
58.600	<b>U.K.</b>	5,00%	13.259.000	3.56%	5.91%	226,263

\* data of 2001

**Tab.3:** Distance retail invoiced in some European Union Countries  
*Source:* ANVED

The ratio between the distance and the non-food retail seems more interesting because its mean value, represented by France datum, is close to 3.9%. This value shows that the distance retail activity can reach an important market share.

#### 4 THE EMPIRICAL ANALYSIS

The sample used to investigate the overall market conditions in the Euro area was based on large scale goods that are produced outside the area of interest, with a special care to avoid the Countries of the selected enterprises. Further criteria in sampling are the wide diffusion of these goods and their quick obsolescence caused by the high technological content. This choice enable an analysis about the different behaviour of any operator in terms of dimension, operating mode (traditional or via Internet) and usages inherited by the local culture.



In particular, the chosen items were laptops (portable computers) and digital cameras, mainly due to the speediness of their technological development. These two products integrally meet the formerly cited criteria and offer also some more interesting elements for the analysis.

In fact, these two kinds of goods represent also two different stages in terms of product diffusion, because laptops are in a mature market phase, characterized by a hard operator selection, while digital cameras represent the last technological “generation” of goods and their distributors may have totally different sources, optical instead of electronic culture, with a lack of experience with highly dynamic products.

In the presented sample any reference to trade-marks or single item identification is left out, even if this care can be exceeded in a very simple way. This choice involves both the items and the enterprises sampled.

- *Products sample*

The existing difference between the mature market and the “novelty” case still appears at the first step of sampling: the choice of items. As the matter of fact, in laptop case the identification of an item useful to build a reliable sample is strongly influenced by different evolutions in local markets. In some Countries the offer is focused on highest quality, while in other areas cheapest items with lower technical performances are preferred.

Viceversa, the selection of digital cameras was simpler, probably due to the higher degree of novelty they represent in the global market. In fact, for this sample there is a higher standardization of supplied items.

The trouble in identifying a laptop contemporarily available in the whole area of interest was exceeded choosing a particular item representing the highest level of technological endowment actually available that is the kind of product usually required by the most important professionals. Following this need, the choice involved a single specific laptop. Viceversa, for digital cameras two different products largely available was identified, mainly in terms of a good quality/price ratio.

- *Enterprises sample*

The selection of enterprises also created some initial troubles, mainly caused by the need of subjects present and easily reachable in Internet. In particular, there are few or no subjects

operating in small Countries, because their activity is absorbed by enterprises developed in larger markets, especially in a common language area.

Moreover, the reduced number of multi-language Internet pages needed to face an international market enabled the classification of an identified operator as “global” only in few cases.

The sample also has to be purged of all the manufacturers exclusively operating in the virtual environment because they are unable to cover the whole area of interest. Nevertheless, these enterprises can provide many interesting information for a different kind of analysis.

Viceversa, the sample was based on many different types of subjects, as:

The largest distance retail enterprises operating with different territorial offices for each Country;

The greater *e-commerce* operators in Internet;

The enterprises of each Country that use Internet pages for advertising (usually classified as “large retail”);

Some national enterprises directly sampled (with the appreciable help of some colleagues).

- *Sampled values*

Tab. 4 shows the values of lower and greater price sampled for each product in all the Internet pages of the two main distance retail operators in Europe. The prices do not include taxes. The case of the first product (camera 1) presents remarkable differences either in terms of absolute values (lowest vs. greatest) or between different national pages of each operator (respectively France and Italy for the operator 1, Netherlands and Spain for operator 2). As additional remark, the best sampled price proposed by the first operator, in its French pages, is for the last updated release of the camera and that release is not always available in the other national pages.

The differences about the second camera (distributed by one operator only) seem reasonable. Viceversa, for the laptop a remarkable difference can be identified between the different national pages of the second operator. This difference also represents the maximum gap in this table.

	Camera 1		Camera 2		Laptop	
	Min.	Max.	Min.	Max.	Min.	Max.
Oper. 1	290,00*	329,00	319,00	339,00	2.317,00	2.369,00
Oper. 2	252,00	292,00	N.A.	N.A.	2.155,00	2.381,00

\* updated version

**Tab.4:** Prices of the two greater distance retail operators  
*Source:* Personal sample

	Camera 1		Camera 2		Laptop	
	Min.	Max.	Min.	Max.	Min.	Max.
France	305,00	306,00	274,00	274,00	2.253,34	N.A.
Germany	264,42	309,00*	271,90	320,83	2.008,56	2.232,76
Italy	307,00	324,18	299,16	314,35	2.695,21	2.782,00
Spain	282,56	N.A.	269,22	269,56	2.195,66	N.A.

\* updated version

**Tab.5:** Prices of *e-store* in some Countries of Euro area  
*Source:* Personal sample

The minimum and maximum values sampled from distance retail enterprises found in four Countries are presented in Tab 5. As formerly noted, the French-speaking subjects cover also the area of Luxemburg and, partially, Belgium, as far as German-speaking pages are available also for Austrian people. Viceversa, English-speaking suppliers, even available for Irish area, are not included in the sample because their prices are exposed in Pounds.

The price variation sampled between the lists of enterprises operating exclusively in the virtual environment seems smoother when compared with the former case, but the differences still remain remarkable at all. In particular, this table includes very interesting prices for the laptop, while for cameras can be found either prices really close to the best (model 1) or absolutely discouraging values, especially for the second model.

Last table (6) is devoted to enterprises of the real world, sampled from both large distribution and retail. In this case data are limited to Italian area, including values collected either via Internet or observed in many different cities, avoiding a specific search for the best price in each city.

The values presented in Tab 6 show that prices in traditional retail are higher with respect to distance selling, as expected. Nevertheless, an interesting value is still present here because a minimum value closer to the best price was sampled for the laptop in a large distribution enterprise.

	Camera 1		Camera 2		Laptop	
	Min.	Max.	Min.	Max.	Min.	Max.
Large Distr.	332,50	350,00	315,83	339,00	2.082,50	2.350,00
Shops	332,50	360,00	262,50	342,50	2.350,00	2.600,00

**Tab.6:** Prices of Italian traditional operators (large distribution and retail)  
*Source:* Personal sample

The differences between lowest and highest values seems uniform in this table, varying from the 22% for the first camera (25% for the second) and 27% for the laptop. Sometimes the price in traditional activities can be really competitive, or at least very close, with those offered by distance retail.

Viceversa, there is a very small or no difference between best prices in physical shops vs. worst prices offered in Internet. This note is particularly interesting considering that in the real world the sample was selected in a totally random way, without any care in searching the best offer.

## 5 CONCLUSIONS

The exclusion of local taxes from the sample is mainly due to the persisting differences in rates required by each Country of European Union. The difference is not remarkable but can affect the sample if considered, amplifying or smoothing the real existing variation.

The scenario of market dynamics that can be defined using the obtained data shows behaviours still contradictory, even if Internet is fully operative from long time ago. The overall image seems still fragmentary as the result of a summation of a variety of components behaving in a totally independent way without any consideration of their potential competition.

The complex articulation of the supply scenario introduces remarkable troubles also in the demand side. The consumer position seems uncomfortable, because the former effort in searching for the best offer has to be increased also by the need to exceed the distrust versus the distance retail, as outlined by the actual market rates of this kind of activity.

The amount of operators actually present in Internet started also new services for cruisers: some search engines for products available in *e-commerce* pages via network. This innovative

service was still developed by the manager of one of the most popular search engines and is still available using different national languages.

The service enables the search of all the references to pages offering a specific product and can operate either identifying directly each specific product (by mean of trade-mark and model) or selecting through macro categories and specifying some parameters (trade-mark, price, technical peculiarity, etc.).

The lack of attention paid by any subject with respect to other activities can be easily tested through few attempts using the formerly described engine. The reduced competition between different operators in Internet is probably due to the small market share available for distance retail operators, either for more “ancient” companies or the newer *e-commerce* enterprises.

Nevertheless, the distance retail companies show different behaviours for different type of products. As the matter of fact, they seem highly aggressive against operators of traditional retail when the product is a camera, but in the computer market supply prices close to the lowest offered by ordinary shops.

The actual different phase in the diffusion process of each considered type of product probably affects the enterprises in their approach to competition. In facts, the personal computer is a product which reached a “mature” phase of its diffusion, while digital cameras still are in the initial phase.

Also for distance retail activities a similar evaluation can be proposed, because *e-commerce* enterprises seem less competitive in the personal computer market, the most steady sector, which instead represent the area of their maximum specialization at least for cultural affinity.

Moreover, the consideration paid to the Country parameter in the study sample, joined with the enlargement to different national pages of international companies, enhance the influence of localization on the behaviour of distance retail enterprises and show remarkable differences between Countries of European Union.

The most important differences can be observed, for both product typologies, either between *e-commerce* companies or the different language-based pages of any international company in the sample. In both cases the Italian market seems to offer less appealing offers which are, viceversa, competitive with respect to the values offered by traditional shops.

The small market share owned by distance retail companies represents a partial explanation of the reduced competitiveness with respect to traditional retail activities. Nevertheless, the continuous evolution and growth of Internet phenomenon suggests a potential increase of the market share for *e-commerce*, especially if considering the contribution supplied by the growing confidence of people with virtual activity which will affect the final preferences.

## References:

- BIANCHI R., NOCI G. (1998): “Obiettivi e determinanti dell’utilizzo del sito Web nelle imprese industriali”. Atti del IX Congresso Nazionale AiIG, Roma, novembre 1998.
- CAVE M., WAVERMAN L. (1998): “The future of international settlements”. Telecommunications Policy, 22, 11, 883-898.
- INTERNET SOFTWARE CONSORTIUM (2000): <http://www.isc.org/>
- LAMBORGHINI B. (1998): “Prospettive ed opportunità della rivoluzione digitale per l’Europa e per l’Italia”. Atti del Congresso Nazionale AICA 98, Napoli, novembre 1998.
- MAIER G., KAUFMANN A. (1998): “Externalities and the development of computer networks”. XXXVIII Conference of the European Regional Science Association, Vienna, settembre 1998.
- NEGROPONTE N. (1995): “Being digital”. *Sperling Kupfer*.
- TESAURO C., CAMPISI D. (1998): “Potentialities and usage of Internet communications: A qualitative and quantitative overview”. XXXVIII Conference of the European Regional Science Association, Vienna, settembre 1998.
- TESAURO C., CAMPISI D. (1999): “www.euro: The Telematic Information Supply of Commercial Banks to the European Citizens”. XXXIXth European Congress of Regional Science Association, Dublin (EIR), august 1999.
- TESAURO C., CAMPISI D. (2002): “Internet diffusion vs. the crisis of the new economy”. XLIIInd European Congress of Regional Science Association, Dortmund, august 2002.

## *Informazioni Suppliers in Internet:*

ANVED	<a href="http://www.anved.it">http://www.anved.it</a>
EMOTA	<a href="http://www.emota-aevpc.org">http://www.emota-aevpc.org</a>
NUA	<a href="http://www.nua.com/">http://www.nua.com/</a>