CUSTOMER COMMUNICATION MANAGEMENT

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Abstract

The study of the purchase/adoption behaviours on the products/services has seen the overcoming of the operating structure of the Customer Relationship Management (CRM). For the companies/agencies/institutions this study means a renewed attention to search new occasions to improve the economic performances. This paper proposes to use some methodologies of data analysis in order to make the three driver of the Customer Communication Management (CCM) measurable. We will refer especially to the customer communication management in pharmaceutical industry proposing techniques as the factorial analysis, the textual analysis and the shift-share analysis.

Keywords: Market Analysis, Communication scatter.

1. INTRODUCTION

Many changes occurred in the markets of products and services during the last years: the great number of existing competitors as well as the evolving legal framework obligates both Enterprises and Customers to concentrate on several aspects linked to the renovation and the differentiation of the offer. For each company various criteria of segmentation can exist: what is important is that these criteria are always objective, measurable, shareable. These characteristics distinguish the segmentation from the targeting: this last one is in fact characterized by one strongly subjective member not measurable and difficultly replicable (Berry & Linoff, 2000). Companies can use many statistical techniques in order to segment customers; we propose some solutions in order to implement the Customer Communication Management (Mariani, 2006) that associate to the three CCM drivers the proper techniques: factor analysis for the Value of the product/service; textual analysis for the Promotional Pressure and shift-share analysis for the Relationship. In order to offer the possibility to examine the role of the CCM both for the manufacturers and services, we will use as reference the pharmaceutical
industry and in particular the activity of the REP (Representative, or Scientific Informer about Drugs).

Physicians enrolled in the Italian Physician Roll are 347,759, the number of health organisations like hospital, public and private, in convention or not with Health National Service, is 1,410; pharmacies both private and hospital are 16,808. Pharmaceutical industries, that contact doctors in different ways are, more or less, 262; their distribution network supplies the pharmacy of 5,019 drugs for an amount of 8,742 packages (Mariani & Ventre, 2006). Pharmaceutical distributors have direct contact with doctors through REPs; by means of these representatives the companies communicate and inform about their products.

2. CUSTOMER COMMUNICATION MANAGEMENT

CCM is exploited in those environments, mainly concerning enterprises, in which a precise economic value can be attributed uniquely to each product or to each service.

CCM implements aggregated level strategies in order to optimize investments and resources, with the aim of increasing the Return On Investments. The logic underlying a CCM system is explained by showing the relationship among the following three drivers:

- product/service value,
- promotional pressure,
- relationship.

The space defined by these three drivers (Figure 1) represents the way clients/users are identified according to the different interactions among these three critical success factors; the clusters represent homogenous customers for positions on the drivers.

CCM was introduced to identify which mix of these three components is more suitable to our needs, in order to better permit to the end-user to act in a personalized way whenever querying services or products (Treacy et al., 1993). The optimal mix is defined as a function of these three axes, and is obtained using different and numerous information internal to the entity. The CCM gives the opportunity to define a common space where to understand and to share the results of the analysis on the customers. A specific analysis should be conducted for each category of customers through the segmentation: each factor is divided according to some statistical techniques.
3. THE PRODUCT/SERVICE VALUE

We propose the technique of factor analysis of correspondences (Bouroche, Saporta, 1980), which allows to reduce the informative complexity deriving from the number of variables found on the reference universe. Families of variables are collected on customers, with the structural data of individuals used exclusively to describe the phenomena. The questionnaire is the designated instrument in order to collect the qualitative and quantitative variable information on the object of surveying. Finalized instrument of communication must be seen like something to facilitate the interaction between the investigator, the detector and answering.

Let \( m_j (j=1,...,p) \) be the number of the modalities associated to each character \( j \). The composed data form a disjunctive table \( X \) with the number of rows equal to the number of individuals and \( m_1 + m_2 + ... + m_p \) columns equal to the number of modalities in the \( p \) variables,

\[
X = (X_1 | X_2 | ... | X_p).
\]

Using the generalization of the canonical analysis (Carrol, 1968) it is possible to represent the individuals by means of new variables \( z^1, z^2, \ldots \), solutions of the equation.
\[ \sum_{i=1}^{p} A_i z = \mu z \]

where

\[ A_i = X_i \left( X_i^D X_i \right)^{-1} X_i^D, \]

being \( D \) a matrix of weights,

and \( z \in \mathbb{R}^n \) maximize \( \sum_{j=1}^{m} \text{cor}^2 (z, \varepsilon_j); \mu = \text{average} \)

The search of the eigenvalues is reported to the equation carried out with one analysis of the correspondences considering the disjunctive table as a contingency table. The application of the analysis of the multiple correspondences offers the opportunity to define a space of interpretation and to share the results (Mariani, 2006).

4. THE PROMOTIONAL PRESSURE

The driver of the promotional pressure regards the frequency and the modality of contact between company and customer. In other words the basic concept of the CCM consists in collecting the information necessary to their identification, to the differentiation, the interaction and the personalization. In the CCM the objective will be pursued from all the companies through the modalities of interaction, the distribution of services and every occasion of contact. Schematically they can be collected in the relations with the sales force, in the contacts of the call center, in the medical information, during the conferences, through the Web, with direct marketing, with the participation to the clinical trials, through the druggist sampling or the group meeting. In order to estimate the precision of the message we suggest a criteria that supply a quantitative and qualitative measure of the loss of information in every receiving passage from transmitter to receiver (Mariani & Ventre, 2005).

The measure of the memory of the medical scientific information communication assumes particular importance in the pharmaceutical market where the choose of means is limited and there are law enforcements about the ways and the contents of the communication.

The flow of communication starts from the “middle” of the firm and arrive outside across different steps. During his path towards the final receiver it is possible that message it is liable to variations and transformations. In other words, it may happen that a part of the message is lost or misunderstood. This work proposes a technique to use the Broadbent’s model (Broadbent, 1997) concerning the quote of scattered communication between companies and physicians.
Medical-scientific information, like in general advertising and promotion, has the goal to improve the brand and product notoriety, the perception of product characteristics and the prescriptive propensity.

A three steps process represents the answer of the consumer, in this case the physician, to the promotional/informative action: a first cognitive step where the message is perceived, elaborated and, at least in part, memorised; a second step where the communication effect can change the perception related to a product or a brand, and the third step where behaviour can change.

In the literature several models for the measure of advertising effects in the mass market are proposed; among them the more utilised is the models by Zielske, Morgenzstern, Broadbent (Brasini, Tassinari & Tassinari, 1999). In general in these models the memory is a function of the variables correlated with the number of exposure. In the Broadbent’s model the memory is function of a latent variable indicating until time “t” the share of advertising memory like effects of past and present activity: this variable is called “adstock”.

The proposed technique measures, by means of textual analysis, the memory of the communication and calculate an index that considers the exposure to the communication. This index represents the parameter expressing the decay or the memory in a model that relay the physician’s behaviour with the exposure at the scientific-medical information.

The proposed model, for the time $t$, is:

$$S_t = b \left(r A_t + r^2 A_{t-1} + r^3 A_{t-2} + \cdots + r^n A_{t-n+1} \right)$$

where

- $S_t$ advertising memory,
- $r$ decay rate of information action (product; pathology; total),
- $A_t$ promotional pressure at time $t$,
- $b$ constant.

The value of $r$ (the decay of the memory) may be defined in three different ways in relation to:

- the product: the ratio between key words referred to the products and found within the responder’s clusters and the whole of the products key words;
- the pathology: the ratio between key words referred to the pathology and found within the responder’s clusters and the whole of the pathology key words;
- the total of the communication: the ratio between the sum of key words the products and referred to the pathology and found within the responder’s clusters and the whole of the key words.
In front of a communication from the emitter, the receiver absorbs partly or totally the communication but can adapt the contents by his experience (Williams, 1981) or by “communication filters” (Kanizsa, Legrenzi & Sonino, 1983). Measures can be performed asking to the receiver to describe the communication contents by means of a verbalisation of the communication itself. The use of multiple correspondence analysis and cluster analysis (Bouroche & Saporta, 1980) offers a quantification of the main dimension beneath the data and a division in patterns on the basis of different linguistic models (Lebart & Salem, 1994).

5. THE RELATIONSHIP

Medical-scientific information, like advertising and promotion, has the goals to improve brand and product notoriety, to improve the perception of product characteristics and to augment the prescriptive propensity.

For companies it is important to measure the territorial dynamics of the market in order to verify if the promotional effort have produced the hoped result: a greater market share of their product. Considering available figures and geography the objective will be to apply the Shift-Share Analysis (SSA) in order to isolate the contribution of the single REP to the information and the relative prescription of the product (Mariani & Ventre, 2006).

Traditional shift-share analysis (Biffignandi, 1993) subdivides country growth into national growth, industrial mix and competitive components (BIDC, 2005). In a marketing model it is possible to translate this approach decomposing the volume of sales growth.

Let \( Y(t), Y_i(t), Y_{ij}(t) \) be the amounts of sales, occurred in the period ending at time \( t \), respectively in the nation, in the area \( (i) \) and in the area \( (i) \) for the sector \( (j) \). Furthermore, let \( r_{ij} = Y_{ij}(t)/Y_{ij}(t-1) \) be rate of sales growth from time \( (t-1) \) to \( t \) (in analogy to the capitalization factor).

The Shift-Share approach suggests to decompose \( r_{ij} \) into the following three components:

\[
    r_{ij} = r + (r_i - r) + (r_{ij} - r_i)
\]

where

\( r = \) rate of sales growth nation-wide,

\( r_i = \) rate of sales growth for the area \( (i) \).

The difference \( (r_i - r) \) takes into account if area \( (i) \) is growing faster than the national average, while \( (r_{ij} - r_i) \) describes the inter-area competition, in terms of the
comparative advantages of a company in a specific area.

In this perspective, SSA can be used to investigate impacts of company initiatives by comparing responses of a state, region or country over more periods in a dynamic approach.

6. THE CCM ARCHITECTURAL FRAMEWORK

This section briefly describes the technical components of a reference architecture which would be helpful in the design and redefinition of the users’ requirements towards the system. First of all, the system needs a back-end CCM portion where the data uploaded from the actors of the network can be managed and reorganized according to the aforementioned parameters. Figure 2 depicts an architectural model used to achieve the CCM goals.

The components referring to the CCM architecture must be integrated with any other portion of the system. Firstly, the Communication Management part comprises all the customer devices used to interact with the Company (paper, phone, faxes, mail, websites, and so on). Secondly, the Customer Interaction Management deals with the primary front-end functions and the monitoring of the client; the Content and Information Management portion assures the client on the correct and active operation of the system and the session is browsing. Finally, the last component is essential to perform the client’s analysis in order to support the Company system in the indexes computing, validation and in the decision support on how to act to the obtained results and to propose new services or improve the existing ones (Cesarini, Mariani, Mezzanzanica, Fugini & Nanini, 2006).

7. SUM UP

Fig. 2: Technical components of the CCM.
Each communication contains aspect of topics and of relation and the second classifies the first one. Moreover between factors that influence the degree of effectiveness of a communication we found the channel and the frequency of transmission. (Pecchenino, 2004).

This paper has intended to show the meaning of using Customer Communication Management in the Pharmaceutical Industry. In particular, it was shown that CCM is more adherent to the communication needs and to the exchange in the Company of local and connected domains. It is to be considered that information is gained through the channels to which customers are used to refer (phone, websites, mobile Internet access devices, and so on). All the entered information, coming both from customers’ personal opinions and from data stored into the several databases of the network, is precious to conduct statistical analysis on the user’s requirements and needs, with the primary goal to accomplish their necessities, to monitor and continuously improve the system functionalities and delivered services.

The contribute crosses the thematic of the CCM and joins the methodological proposals for uses operating. The total vision that emerges from this picture offers the opportunity to receive other techniques of analysis in order to improve the theoretical system of the CCM. Different modalities of data collection and different industries can advise various segmentations.

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GESTIONE DELLA COMUNICAZIONE CON IL CLIENTE

Riassunto

Lo studio dei comportamenti di acquisto/adozione sui prodotti/servizi ha visto il superamento della struttura operativa del Customer Relationship Management (CRM) ed una rinnovata attenzione da parte delle aziende/enti/istituzioni alla ricerca di nuove occasioni di miglioramento delle performance economiche. Il presente lavoro propone l’utilizzo di alcune metodologie di analisi dei dati per rendere misurabili i tre driver del Customer Communication Management (CCM). In particolare verrà fatto riferimento alla gestione della comunicazione al cliente in ambito farmaceutico proponendo tecniche quali l’analisi fattoriale, quella testuale e la shift-share.