Marketing Decision Support Systems and the New Economic Challenges

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Abstract

Even marketing is told to sell dreams to customers, it must take into account the real power of potential markets consumption that relies on the economic state-of-affairs. If the economic draw-back must change the methods used by marketing strategists or how the crises that lead to under-consumption even for the most common goods affect the publicity budget, it is a fair study to be made. We can only imagine how a commercial for a tiny electric car will appeal the inflated ego of a man from the post-petro/dollar new economic era...But, even the "times are changin'", a merchandiser will always claim his merchandise, so the commercial message, even more blunt, sincere and compelling, must reach the client. Still, nowadays the commercial message is not enough to bring clients and grow the business. The marketer has to become specialist in using the IT facilities, such as marketing decision support systems (MDSS), in the process of taking important decisions: lancing an new product, spreading on a new market, changing the supplier, changing the commercial message. etc. The article shows how useful is MDSS in the process of taking decisions

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1. Introduction

The introduction of industrial machines on a large-scale led to masses of skilled workers revolt (e.g. the introduction of cranes to Braila harbour led porters to revolt). Luckily the economic boom resulting from the industrial revolution has generated enough jobs to cover the excess of labour supply.

The strong overproduction crisis of 1929 was due largely to new production methods, as were applied in Chicago slaughterhouses or the assembly line at Ford's, leading to reduce consumption due to widespread unemployment. World War II had mobilized labour force for the war (e.g. soldiers in the army and defence industry workers).

General economic progress since World War II resulted from the application of scientific discoveries arising from research to equip the army (atomic energy, semiconductor technology, etc).

The ecologic and economic crisis from the '70s slowed down the economic development and favoured the emergence of chronic unemployment, even in developed countries.

The popularity of modern computing systems and computer networks triggered a new generation of employees in IT&C and diverse classical methods of production (tele-working, electronic commerce, industrial robots, etc.).

The computer and hard/soft development supported the economies of the developed countries as long as the business processes had benefited from the automation of the economic activities in terms of ROI.

The stop of the electronic business development (years 2000) was the signal that the IT sector alone cannot support economic growth anymore. From now on constructions and capital flows generated by construction sector stands for the vector of economic development. Shortly after the last economic boom, economies that had relied extensively on this sector have been overheating. Also, the use of financial instruments based on mortgages to cover banking risk has favoured the appearance of financial "bubbles".

Financial crisis was felt acutely only when the national social protection system behaved like a true pyramidal strategy. Factors such as population aging coupled with stopping the economic growth leaded to their collapse.

Thus, the marketing specialist task becomes very difficult, having to find new ways:

- to meet customer requirements with limited resources;
- to determine the actual opening of international markets, not just in theory;
- to have a strengthened online presence using Webmarketing techniques;
- to promote in particular those products which require more limited resources, and in accordance with restrictions imposed by the ecological environment (products that are built using wave power, wind power, green buildings, etc.);
- to have a long term vision.

Although the computer cannot solve alone difficult issues, it can be considered an asset. We refer both to the expansion of the internet facilities that can be enhanced by Webmarketing techniques and the use of computing power and the latest tools such as Marketing Decision Support Systems (MDSS). We analyze in the next section the MDSS.

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2. Marketing Decision Support Systems nowadays

2.1. Models and tools for a wide range of marketing analysis

Given the scarcity of resources, of information (information is available on the Internet, but it is not organized and the reliable sources are not known) and time (decisions should be taken " in no time" for a competitive advantage) MDSS future must be accessible or free (open source licenses) for every business to consider their use and be reusable (has to be developed in modules, easily integrated, independent of platform and web dedicated so that the same software to be adapted for different types of business by choosing only the modules that the business needs.

Marketing Decision Support Systems (MDSS) is a coordinated collection of data, of systems, of tools and techniques with software and hardware support for an organization to gather and to interpret relevant information from the business environment and to turn it into a marketing database. Storage and retrieval system capacity enables the collection and use of a wide range of data across the enterprise. Senior management can access the database and continuously monitor sales, markets, sales staff performance, etc. [1]

Modern MDSS should include prediction models. Businesses should be able to examine what happens when exploring a new market or expanding a market. [2]

MDSS should include models and tools for a wide range of marketing analysis, such as sensitivity analysis, what-if analysis, goal setting, exception reporting, Pareto analysis, forecasting models, simulation models, scorecards and dashboards. [3]

1. *Sensitivity analysis*. This analysis allows decision makers to juggle a strategic variable, such as quality and follows the impact on consumer behaviour.

2. *What-if analysis*. With this type of analysis can check for example how is going to change the costs for organizing a course in conditions that the number of students enrolling in that course varies.

3. *Setting goals*. After applying the SWOT analysis it may be seen which the available resources are. Then the achievable goals can be formulated and the resources for each objective can be allocated.

4. *Exception reporting (gap analysis)*. Sometimes income for a particular activity does not fall within the original forecasts. Highlighting exceeding segments these forecasts can analyze the causes of disparities and especially if they are structural or conjunctural. Major strategic decision may be influenced by these causes.

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5. *Pareto analysis*. We know that many companies have some loyal customers who may support even 80% of the business. To these clients the business has to devote their resources, however without neglecting the other customers. The loss of such a client can seriously affect business activity. To detect these clients, their activities, products, services that generate disproportionate results Pareto analysis is very useful.

6. *Forecasting models*. Generally companies have data characterizing the activity of previous years. These data can be transformed into knowledge when considering their trend and make predictions. They are captured by econometric models, sometimes with seasonal component, or determined by the events organized, by the promotional period, by natural, economic phenomena etc.

7. *Simulation models*. Simulations involve the analysis of the influence of one or more independent variables on other dependent variables. The simulations are done as pore Scenarios included with Excel or using Monte Carlo for taking marketing decisions under uncertainty conditions. For example to launch a new product on the market can only guess the possible market share that will be disputed by the product. Although, previously taking the decision to create a new product, it can be done market inquiries and other various analyses such as niches, competition, market saturation level yet so cannot be known the consumer reaction to new product until after launching the product. If a negative result in the simulation company must change their values or variables to achieve a reasonable result.

8. *Scorecards and dashboards*. They appear as very friendly interface that can aggregate and display the results of others types of analysis, to provide an overview, but at the same time a depth view on the effectiveness of the activities, on markets, on customers and competitors..

2.2. Types of issues addressed by MDSS analysis

The following list shows some of the most common types of issues addressed by analysis MDSS. [3]

1. Analysis of market segments. It can be achieved through cluster analysis or other modelling techniques. Along with the market segments can analyze economic trends, demographic and behaviour for each segment.

2. Market share analysis. Market share in its static analysis can be dynamic. Static evaluation involves determining the factors that influence a particular time and context can influence overall non-quantifiable. Take into account the dynamic time series prediction and analyze results.

3. Competition analysis. Competition can be viewed from several perspectives such as market share, brand perception among consumers over on quality and price of products and services, resources (financial, informational, human, technical, etc.), innovative and strategic potential etc.

4. Price analysis. Internal and external economic factors influence the price elasticity and how they are set. But costs and demand are the most important factors to be considered in pricing

5. Cost analysis. Studies on the structure of a firm's total costs and its impact on product cost. The analysis combines the analysis of marginal cost pricing analysis. Variance analysis seeks explanations for the excess costs admissible and inadmissible.

6. Sales analysis. Factors such as pricing, degree of popularity, accessibility, culture, advertising and exposure type, product type etc. can influence a firm sales distribution.

7. Sales force productivity. Make a quantitative and qualitative analysis of sales force and factors that contribute to their efficiency and effectiveness, and theirs degree of financial or professional reasons. Comparisons consider each person in a team and the entire team.

8. Advertising analysis. It relies more on new webmarketing techniques. Analyze the effectiveness of advertising, media choice and brand. It analyzes the attributes covered ("free attributes") - opportunities to improve brand image

and generating ideas for new products. It examines how brands are perceived, category of products / services and attributes that are most likely to enhance the brand image?

10. Distribution analysis. Analyze factors that influence the distribution channel choice decision.

11. Simulation Different scenarios are created takes into account dependent and independent variables in conditions of certainty or confidence, such as Monte Carlo method.

12. Customer satisfaction. Analyze the attributes with the greatest impact on consumer satisfaction, customer expectations and product performance.

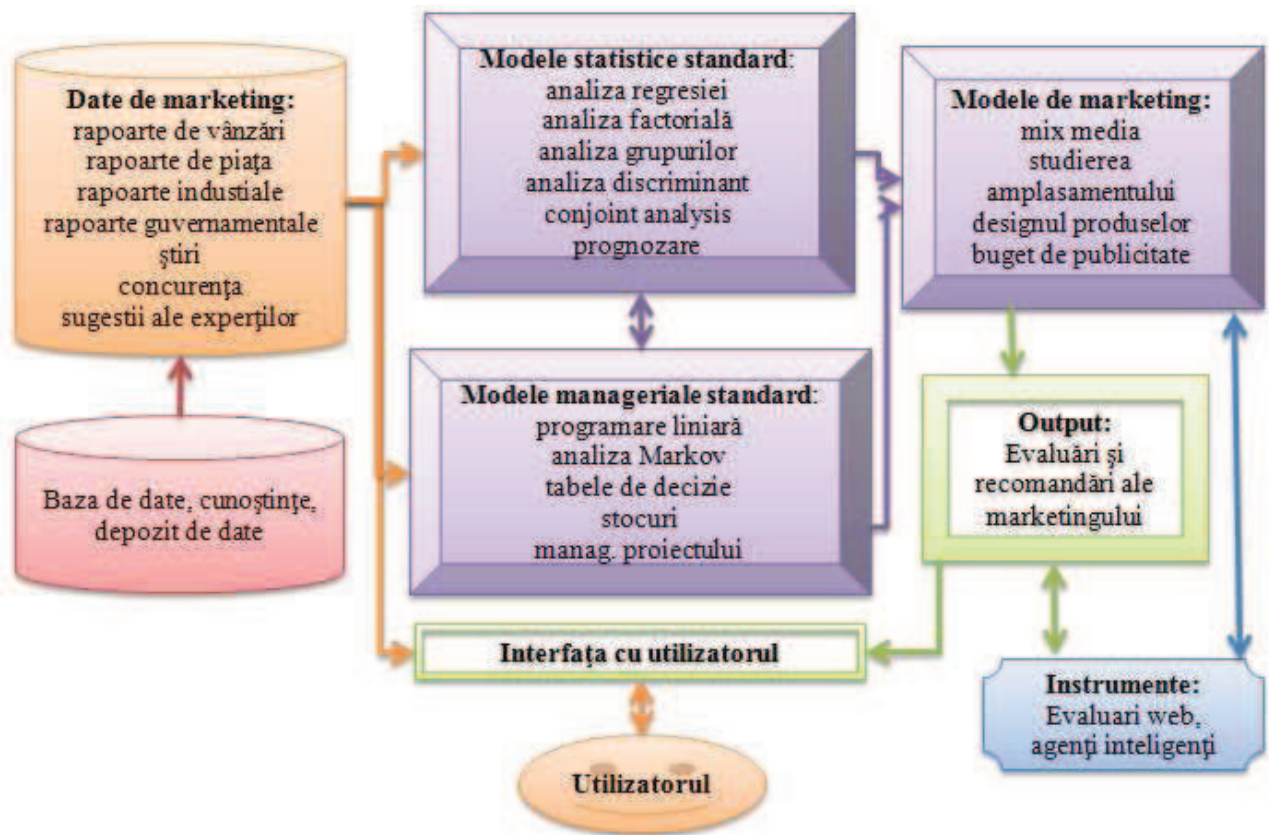An example of MDSS models for marketing problems is shown in Figure 1.

Fig. 1: MDSS models for marketing problems (source: Hartulari, 2009).

To the above described MDSS some models often used in marketing can be added. The MDSS has to be able to do:

- quantitative analysis (simple statistics frequencies, amounts, minimum, maximum values, measures of central tendency, measures of dispersion, covariance)

- qualitative analysis (tests of difference between average and percent, analysis of variance (ANOVA), correlation analysis, correlation analysis, factor analysis, cluster analysis, discriminant analysis, regression models, Conjoint analysis, Kano model, Brand Attraction Maps (BAM), Brand Usage Profile Analysis (BUPA), Brand Image Profile Analysis (BIPAI), Quadrant Analysis, Brand Belief, BCG matrix, GE matrix, Space Model, etc.).

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- prediction (dynamic series analysis, regression, probability transition matrix Markov method). Forecasting models facilitates a vision of the future based on data obtained in the past. Thus the company can establish management and marketing strategies on medium and long term.

2.3. Case study

A dashboard example that is part of a MDSS is presented in the following case study. In this case the dashboard allows the observation of the relationship between economic profitability, commercial profitability, financial profitability and net profits of several companies. If we take into account the interest rate we will know which of the firm can obtain a bank loan, we know which of these companies fail to use resources in terms of efficiency. It is preferable to choose a business partner engaged in a profitable activity for the establishment of trade relations for a long time, one that can provide high quality products and services, latest technology, discounts, promotional offers, etc. Panel allows comparisons between these values depending on the time dimension: year, quarter, month, week, day. Panel display allows total assets (TA), turnover (CA), equity (KP), the number of employees (NrSal) and operating income (RezExpl).
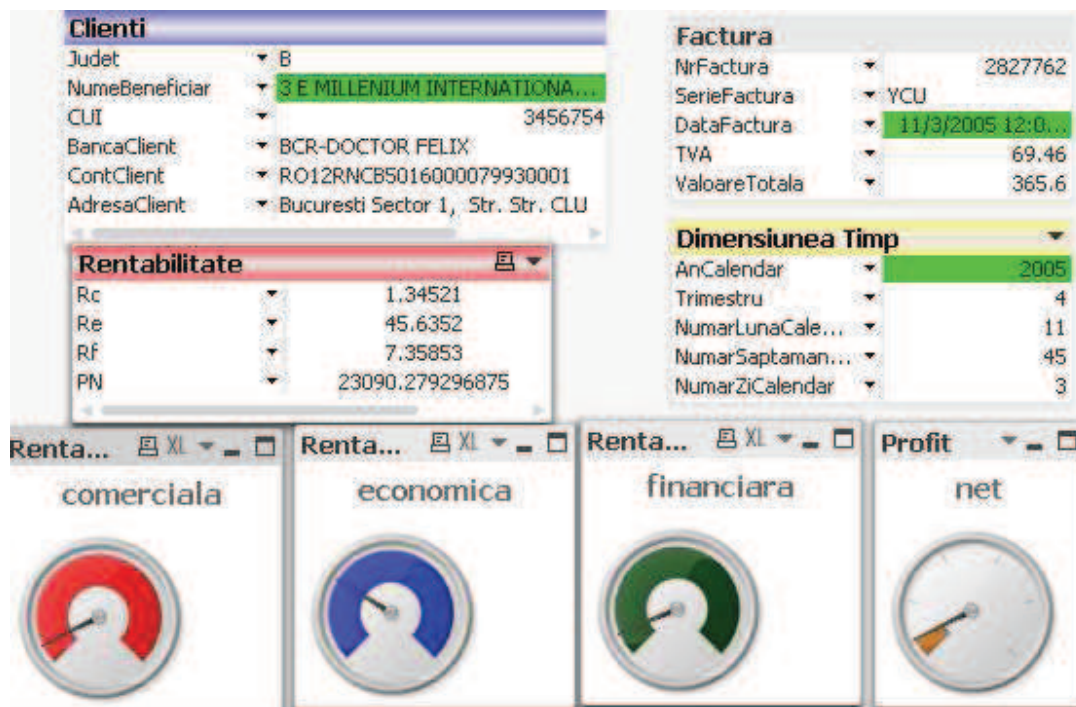

Fig. 2: Dashboard as a component of a MDSS

You can add graphic objects representing the trend of sales, margins sales and relative sales on week or day. Once done such a dashboard user can show the analysis and synthesis skills and make decisions based, because a simple click on any of the elements of a list is running a SQL query and automatically changes the contents of all other objects in the dashboard. The interface allows a user who does not have time or computer knowledge necessary for the query to analyze all aspects of business features. It can "freeze" a particular criterion above and add additional criteria. The operation is reversible. Thus the user has access in real-time to dynamic analysis visually, explicit, in a simple click. He can see which are best and worst selling

products that are today the most profitable, if there is some cyclicity in the consumption of certain types of products, how much they sold, etc.

3. Conclusions

Possible solutions for escaping the spiral of sovereign debts are:

- eco-friendly extensive agriculture/industrial methods, with increased human capital in order to stimulate consumption;
- using equivalent fuel prices/ hourly labour costs in the formulation of economic strategies, since the trend associated to the natural resources price is rising;
- structural problems of China's economy can be a good opportunity to expand over new foreign markets on medium term, though the economic region of South-East Asia has formidable resources.
- cheap labour from the emerging and developing countries will continue to reduce the wage index and hence the consumption to a level not very comfortable for the citizens of developed countries;
- a MDSS should be employed in the economic activity unless the associated ROI is negative; MDSS should be accessible or free of charge and independent of platform

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