

 Supplementary files are available for this work. For more information about accessing these files, follow the link from the Table of Contents to "Reading the Supplementary Files".

SIMULATION OF A B2C E-COMMERCE MODEL OF DURABLE CONSUMPTION GOODS

Catalina Ochoa

Jorge E. Uribe

Manuela Velásquez

Escuela de Ingeniería de Antioquia (EIA)

Carrera 43C # 1 A sur 182. Apto 802 Medellín – Colombia

(574) 266 0510

fochoa@geo.net.co

franquicias2@epm.net.co

furibe@epm.net.co

catyochoa@hotmail.com

1. ABSTRACT SUMMARIZING THE ENTIRE PAPER

The work managed to develop an administrative tool that has the purpose of facilitating the strategic decision-making knowing the results towards the future of the actions, without having to invest money, time, resources and personnel. Additionally the risk of making erroneous decisions is diminished and it qualifies the managers. It gives fast and easy answer to the day to day questions of “What happens if...?” making it possible to play with the company.

The model developed “simulation of a B2C e-commerce model of durable consumption goods” based on real data obtained from Amazon.com, Buy.com and Egghead, allows taking different decisions: price, site launching (budget and time period), marketing expenses and selling of banner advertising. The different decisions enable the trial and error development of a profitable dynamic strategy. As you play with the model you may experiment different scenarios and use variable sensibility.

2. KEY WORDS

B2C, simulation, profit, strategy, decision-making, I-think, e-commerce, scenarios.

3. EXTENDED ABSTRACT

Recently, e-commerce presents great development and growth; these can be seen clearly with the number of companies of this type all over the world, especially in the USA. Any way, these companies’ present low cash return for investors, generating in most cases great losses.

Basically this study pretends to develop a profitable strategy for the e-commerce B2C companies who sell durable consumption goods (kind of goods

sold the most online) by developing a continuous and dynamic simulation model. The simulation model lets reenact global functions of the company basing on its operating areas.

The model developed in this study shows how the strategies used in the three biggest e-tailing companies in the USA: Amazon, Buy.com and EggHead where not the best and didn't show a promising future. The model also lets you analyze the sensibility of each variable to see its effect in the others variables of the model. With the results obtained a strategy is proposed, which is not the only one, but it is a strategy that assures the companies' well being over time by generating high cash flow and operating profits.

In the complex enterprise world that we live today, the use of simulation tools like "I-think" generates competitive advantages and better strategies. The model of e-commerce companies allows simulating transcendental decisions such as the determination of price and investment in marketing, and then analyzing the results in graphical or numerical form. The simulation is without a doubt a learning tool, of trial and error, that generates experience instantly and at very low cost.

This project must be concluded from two approaches, given that the simulation model was developed both as a tool that allows any company to improve their strategic decision making; as well as it enables the analysis of the results of e-commerce companies from the point of view of the users of the tool (managers, administrators, owners, etc.)

TOOL CONCLUSIONS

The work managed to develop an administrative tool that has the purpose of facilitating the strategic decision-making knowing the results towards the future of the actions, without having to invest money, time, resources and personnel. Additionally the risk of making erroneous decisions is diminished and it qualifies the managers. It gives fast and easy answer to the day to day questions of "What happens if...?" making it possible to play with the company.

The tool emphasizes the integrality and integrity of the multiple perspectives in the model. Every area of the model, logistics, marketing, order processing, other income and financial, interact with each other forming a system where every cause has its effects. The processes of all the areas are reflected in changes in the financial area and for easy interpretation and handling they are expressed in money. Simultaneously the model counts with integrity within its areas because each one contains everything that ordinarily constitutes it. With these two characteristics the users of the model can visualize the company globally and understand the effect of their area in the financial results.

When understanding a company the model allows the handling of business dynamics, the adaptation to the market and enables the use of information

for strategic decision-making. The model is an administrative instrument based on dynamic relations. Relations that update each differential of time giving a new result every instant and assuming the changes that take place in every company by the single fact of existing in the present world.

The model agrees with the last dominant management tendencies, because its operation incorporates them. Planning by sceneries: the model is useful to analyze different sceneries and helps to make the best decisions in every scenery since the future results are known previously. Management based on value: the model allows analyzing the added value that each variable generates because it makes possible the sensitization of each one with respect to indicators like the ROI, Discounted Cash Flow and EVA. It represents the seeing from the graphical or analytical point of view the way in which the processes that generate value are materialized. Balance Score Card: the model displays a strategic map that materializes the vision, mission and the strategy from the operation, defining indicators. In other words the model shows how to make day-to-day activities endorse what is formulated or that the operation endorses the planning. All of the above, in an integrated form, makes it possible to use the model like a tool that adjusts clearly to the tendency of managing from the clarity and against complexity.

RESULTS CONCLUSIONS

The results demonstrate that it is possible to break the existing paradigm where it is thought that e-commerce companies are always going to generate losses; it breaks the belief that by themselves they cannot exist. On the contrary, it was verified according to the model, that these companies could generate cash towards the future if they change their strategies. The high sensitivity of the cash flow based on different decisions, shows the vulnerability of these companies when making wrong ones and points out the importance of using the simulation to try to understand better the reality of the industry.

Of the different strategies that were simulated, we found enlightening situations with respect to the decisions in conflict and the model managed to simulate the American market with some proximity. Nevertheless, it must be recognized that the model, like any model, tries to simplify the reality in order to be able to simulate it and, therefore, has certain limitations starting off by the assumptions.

The strategy of a strong campaign of launching must be taken into consideration now that, these companies, as they are in Internet and not in a commercial passage, must make themselves known aggressively. Nevertheless, once reached the optimal level of clients, marketing should be reduced just to maintain the clientele and turn them profitable. This conclusion is partial since maintaining clients on the Internet it's extremely complicated, in fact the Internet is reined by the anonymity and clients are lost easily upon new offers from competitors.

The price offered by e-commerce companies does not have to be far below the one of the traditional commerce as it is thought; these companies require a margin sufficient to maintain its operation although they have different models of business. It is clear that the type of business does not allow working with very low margins.

Generating high sales growth in the Internet is very expensive since they are obtained mainly with greater marketing or acquisitions, nevertheless, it is shown that the costs (general, administrative, content and development) increase with the same rate as the sales and therefore there are no economies of scale generated in the operation. From this point of view, growing indefinitely only leads into more losses; in addition, to be innovative in a world where copying is quickly does not generate sustainable barriers in the short term. Everything added to the difficulty to patent advances in the e-commerce sites. Considering all these restrictions, when having only variable costs, all unitary sales must generate cash and be profitable.

The investment capitals are limited and have reached their end after the apogee of Internet; definitively the e-commerce companies must generate cash towards the future and obtain the so yearned profit. They cannot depend on risk investors or on the stock market since they are both demanding fast results.

It is difficult to find an additional value offered by the e-commerce in the durable consumer goods, it is possible that greater convenience exists when buying them in the network but at the same time this is done without really knowing the products. The previous situation is not due to resist with low prices, on the contrary, the sites must be specialized in offering products that are scarce, in order to offer what the clients are looking for, so that they are willing to pay more to obtain them. Finally, the sites of Internet must take advantage of the income by banners, and how this contributes to their margins. The model shows that the benefits are higher than the damages caused by selling banners. What is clear is that the strategy cannot be centered solely in the advertising income, since the e-commerce enterprises are commerce companies not media companies.

The previous conclusions are sustained by the results of the model, and although they are sustained mathematically, they must be reviewed with thoroughness at the time of applying them to each business. We cannot deny that all models have great limitations when predicting the real world. Limitations like the behavior of consumers, the reaction of the market, the actions of the competition and the accelerated advance of the technology because they make some apparent truths loose validity with time.

Anyway, the model is one of the first approaches to the present situation of e-commerce companies. Today it is structured for the United States market, but it invites people that are interested to make improvements, add significant variables to each particular business, apply it to the Colombian market or other markets by just by changing the statistics, and especially to enjoy and take benefit from it.