Modeling and Simulation of Promotion Procedures for IT Companies Through Facebook

Tsiavos G. Panagiotis, Pachtiti E. Foteini, Nasiopoulos K. Dimitrios, Damianos P. Sakas and D.S. Vlachos

Introduction

E-commerce is a modern method of product promotion and services with rapid development in the Internet. During recent years, many companies have a exclusively presence online (Pereira Correia et al. 2014). IT companies create an elegant website, which contain detailed information about the products and services they offer, overcoming in this way the need for investment in offices, professional meeting rooms, shops, etc. The promotion of a successful and profitable e-shop can be done in ways that target the lowest possible cost and to maximize their profitability. One of these promotional methods seems to be the use of social media (e.g., Facebook), which on a daily basis visiting million users. In order to check the success rate or not of such a promotional form used a dynamic simulation model.

Methodology—Tools

All possible factors needed by the company for the promotion and commercialization of applications through Facebook (Lilley et al. 2012) follow a modeling methodology. For each basic variable of the model studied and developed those elements that would help in the future to present profits for the company.

This procedure was implemented through the dynamic simulation model, which allows modeling and simulation of a business idea (Aversa et al. 2015). Essentially, the program allows the development of a model drawing as parameters the results of the studies conducted for the construction of a business that promotes products

T.G. Panagiotis (✉) · P.E. Foteini · N.K. Dimitrios · D.P. Sakas · D.S. Vlachos
Department of Informatics and Telecommunications, University of Peloponnese, Tripoli, Greece
e-mail: tsiavospan29@gmail.com

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(applications) via social media in order to study whether the business idea has the ability to develop or not.

Identification and Development of Variables

This research carried out to identify those variables related to e-commerce, which is implemented through the Facebook, came in four variables that are following to their respective components and are inextricably linked with the initial fund of the company.

These variables are the following:

Market Research: Market research is any organized effort to gather information about target markets or customers. It is a very important component of business strategy. Market research is one of the key factors used in maintaining competitiveness over competitors. Market research provides important information to identify and analyze the market need, market size, and competition (Krush et al. 2016). Market research techniques encompass both qualitative techniques such as focus groups, in-depth interviews, and ethnology, as well as quantitative techniques such as customer surveys, and analysis of secondary data (Zimmerman et al. 2000). Market research is the systematic gathering and interpretation of information about individuals or organizations using statistical and analytical methods and techniques of the applied social sciences to gain insight or support decision-making (Patino et al. 2012).

Facebook Page: The idea of creating a page on the Facebook social networking tool came from the tendency of many companies to have exclusive presence on the Internet. Consequently, the creation of a thorough website, where there will be detailed information about the products and services they offer, disproves the need for investment in offices, professional meeting rooms, shops, etc. The promotion of products is achieved through advertising and various video presenting product.

E-commerce: By the spread has nowadays e-commerce deemed necessary the setup and the integration of an electronic shop (e-shop) on the website of a company (Brengman et al. 2012). Specifically, the purchase was selected from an e-commerce platform, which includes all the features required for a company to facilitate the electronic exchange, and the incorporation of an e-shop in the existing corporate site. The second choice is based on the idea that most companies build and manage websites through a content management system (CMS) (Goodwin et al. 2006).

Applications: Each media creation that can stand in the market as a source of revenue for a business is acceptable. The creation has to follow the flow and evolution that is open to the consumer market in the context of globalization that exists nowadays. The impact of such an integral part of our everyday life, therefore their usability and their quality must be very good to be in every smartphone, tablet, etc.

Analysis of the Simulation Model

The analysis of the model will begin with sharing of principal on four components mentioned in the previous paragraph (Fig. 1).

The orange part of the model relates to the Market Research. We invest 20% of the company resources in this segment and, in turn, it provided satisfy (Satisfaction of MR) through the IF command (Satisfaction_of_MR <65) THEN (0) ELSE (Satisfaction_of_MR * (Percent__of_SMR2CMR/100)) will promote this profit (Counterpoise of MR) with the flow (CMR2A) in the application.

The green part of the model relates to the application and hence the creation. Here, we have two inputs. One of these originates from Counterpoise of MR and the other by the company resources at a rate of about 35%. On their turn will be divided into two levels which will go to the designers (60%) and programmers (40%) who are responsible for the design and implementation of the application. If satisfied or not this process will be examined by the Satisfaction of Application (IF (Satisfaction__of_Application <60) THEN (0) ELSE (Satisfaction__of_Application * (Percent_of_SA2CA/100)) which will give the corresponding gain in Counterpoise of A through flow (SA2CA) performing the relation of (Satisfaction_of_Application * Percent_of_SA2CA) and in turn on the e-commerce and on the object that we are investigating.

The light blue component used in our model is the creation of Facebook Page. From the capital of the company (Company Resources) giving % on the purchase rights relating to the advertising and videos of our application. How goes equally from 50% in Adds and Videos and satisfaction of page (Satisfaction of FP) depends on the IF (Satisfaction__of_FP <55) THEN(0) ELSE (Satisfaction__of_FP * (Percent__of_SFP2CFP/100)). The profit will be transferred via the flow

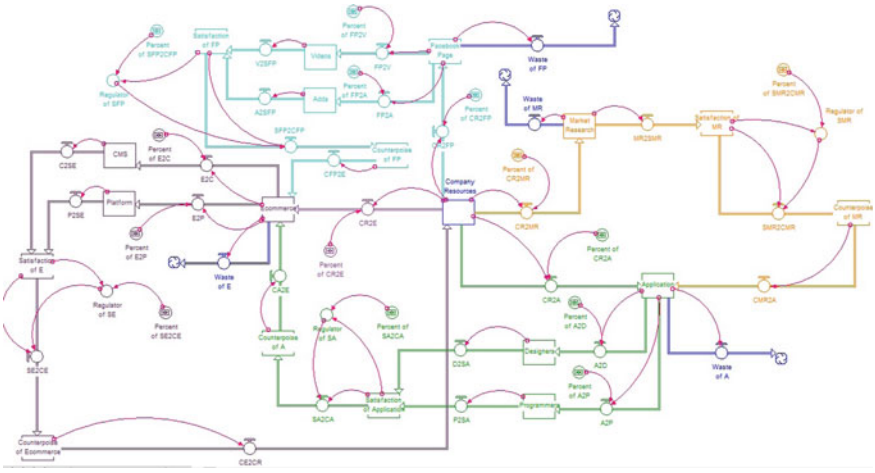

Fig. 1 Model

(SFP2CFP) who performs the Satisfaction_of_FP * Percent_of_SFP2CFP in Counterpoise of FP, which will be a source of inputs for e-commerce.

The purple section analyzes the e-commerce that takes resources as the Counterpoise of A, the Counterpoise of FP as a percentage of the initial capital (company resources). For e-commerce, we distributed equally our resources for the purchase of the platform (Platform) and the content management system (CMS). Their satisfaction (Satisfaction of E) is the only and therefore most important source of revenue for the company and is subject to the condition IF (Satisfaction__of_E <60) THEN (0) ELSE (Satisfaction__of_E * (Percent__of_SE2CE/100)) present in the regulator of SE and promote profit in Counterpoise of E-commerce via flow SE2CE in which we put the relationship (Satisfaction_of_E * Percent_of_SE2CE).

Implementation of the Dynamic Simulation Model

To create the models, the modeling software tool iThink, from iSee systems, was used. iThink creates stock and flow diagrams to model and simulate processes. It presents you the results of specific defined by the user inputs and connects the interrelationships between procedures and functions. Outputs can be displayed in the form of graphs and tables. The results of the dynamic simulation model are shown in tables and figures that we provide (Table 1).

Figure 2 indicated that the satisfaction percentage, as regarding all the four factors, is rising significantly during the first months and then those satisfactions

Table 1 Table results

Months	Company resources	Satisfaction create official site	Satisfaction Facebook E-commerce	Satisfaction information material	Satisfaction create application
Initial	100.00	0.00	25.00	15.00	60.00
1	31.64	0.00	49.86	29.13	94.02
2	10.01	2.75	71.03	37.85	97.50
3	5.82	16.61	77.71	41.93	86.10
4	6.70	43.41	70.40	43.84	71.34
5	9.30	65.12	74.46	45.14	63.21
6	17.18	73.74	70.09	46.47	64.04
7	23.13	71.92	72.70	48.46	64.88
8	25.01	65.19	69.17	51.35	62.42
9	26.59	57.83	73.86	54.82	67.86
10	24.97	52.08	72.38	58.61	64.54
11	22.23	49.07	71.27	62.33	67.58
12	18.95	48.27	70.02	65.77	64.94

gain stability. Market research as regarding the contribution of social media in the management of social relations with customers give successful and satisfied results.

Also, Fig. 2 shows that company resources in the beginning, given in the four leading factors, lead to company resources replenishment in a steady rate, and the four factors are eventually tending to stabilize their resources.

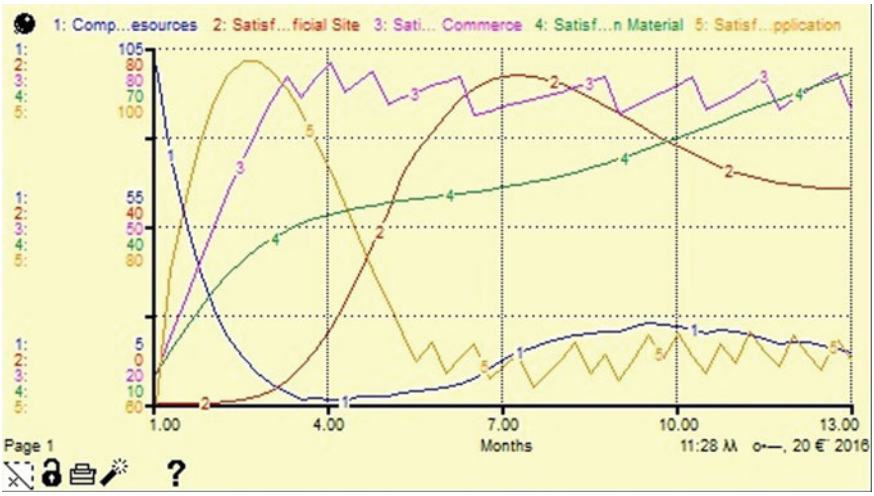

Fig. 2 Graphical results

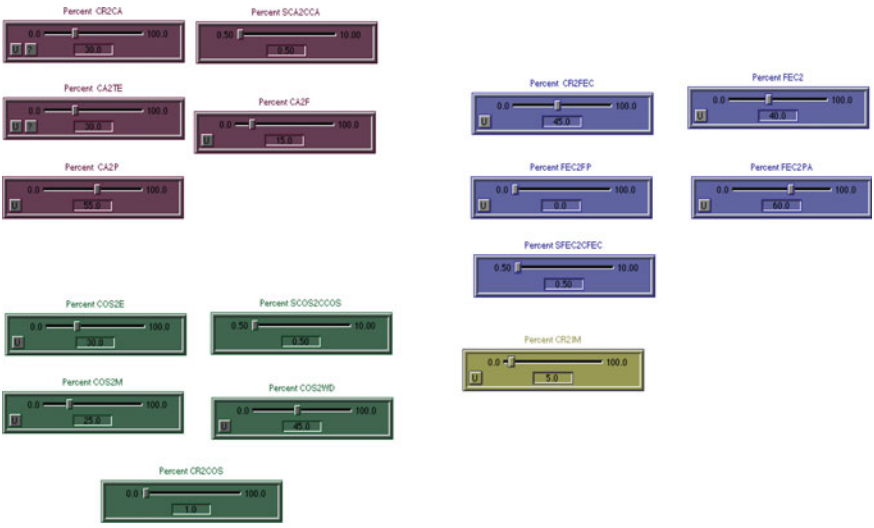

Fig. 3 User interface

Support for Decision Makers

There is need to create the interface of the dynamic simulation model, to enable the user to change the values that the factors can get, studied in the research we have done. Figure 2 shows the main user interface of the simulation model. There are four main sections on this user interface: Market research, Facebook page, E-commerce, and applications (Fig. 3).

Conclusions

From the research conducted as well as the resolution of the exported from the chart model and price lists shows that there is the possibility of promoting technological applications through social media, especially the Facebook.

As the developments of technology and other types of applications are rapid, very soon it will be useful and even essential to new setups to control and thus to see whether the promotion was positively evolving or have to integrate new types of instruments to achieve our goals.

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