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Game Theory Analysis of E-Commerce Price War

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Abstract – Game theory has been applied to a variety of e-business decisions (e.g., positioning of retail store brands, retail promotion, and retail channel management); however, retailers have applied game theory for strategic decision-making. The e-commerce has emerged to play an important role in the market. To this end, it is necessary to examine the e-commerce market using game theory. This paper analyzed challenges and Potentials, Bidding Strategies in On-Line Auctions, and Price War among the agent's that help e-commerce strategic decisions.

Keywords: E-commerce; game theory; multichannel strategies; electronic commerce;

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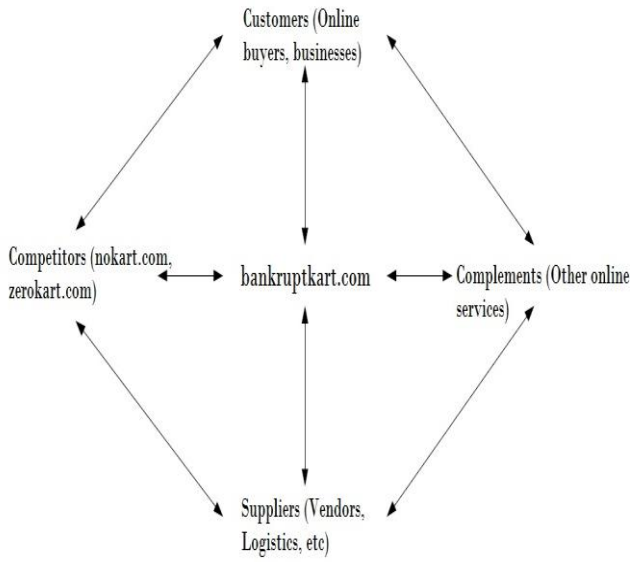
INTRODUCTION

The Indian ecommerce industry is heading the Chinese way where companies are embroiled into fierce deadly price wars. No one is going to make money by just trumping each other's discounts. As Mahesh Murthy, Managing Partner at Seed fund succinctly put it in a tweet recently: In game theory terms, it is a complete loses- lose game and anyone now entering the space would be foolhardy. The ones with deep (deep) pockets will have a chance to survive.



[6]

Along the vertical dimension are the company's customers and suppliers. Resources such as labor and raw materials flow from the suppliers to the company, and products and services flow from the company to its customers. Money flows in the reverse direction, from customers to the company and from the company to its suppliers. Along the horizontal dimension are the players with whom the company interacts but does not transact. Important thing is what changing the game means. We'll take the most famous example of GM- The time was early 1990's and the car manufacturers were in a similar price war, an example of destructive competition (detailed HBR paper). In September 1992, General Motors and Household Bank issued a new credit card that allowed cardholders to apply 5% of their charges toward buying or leasing a new GM car, up to $500 per year, with a maximum of $3,500. The GM card has been the most successful credit-card launch in history. One month after it was introduced, there were 1.2 million accounts. Two years later, there were 8.7 million accounts—and the program is still growing. They changed the game.

REVIEW OF LITERATURE:

In e-commerce, there are multiple firms owned and operated by different parties, and each of these firms take decisions which are in line with their own goals and objectives. As in all decentralized systems, the actions chosen by SC participants might not always lead to the "optimal" outcome if one considers the supply chain as one entity. That is, since each player acts out of self-interest, we usually see inefficiencies in the system, i.e., the results look different than if the system was managed "optimally" by a single

decision-maker who could decide on behalf of these players and enforce the type of behavior dictated by this globally (or centrally) optimal solution.

The combination of the Internet and software agent technologies will radically change electronic commerce. The Internet opens up electronic services to anyone with a computer and a modem, and provides effective market access for many service providers. With software agents, responsibility for purchasing or selling goods and services can be delegated to a piece of autonomous software, i.e. an agent [2].

CHALLENGES AND POTENTIALS

The design of economic agents, mechanisms, and systems has received growing attention in the agents and multi-agent systems communities. Electronic commerce is rich with focused yet challenging problems, ripe for technical advances and practical application of agent technologies. As the domain is characterized by individual agent self-interest and private information, agent mediated trade requires principled design, often incorporating novel combinations of theories from different disciplines. Thus, techniques from fields such as computer science, operations research, artificial intelligence and distributed systems are integrated with principles from economics and game theory. Furthermore, there are challenges to eliciting human preferences and requirements and ensuring that they are represented in automated agent behavior [1].

Bidding Strategies in On-Line Auctions

Electronic markets include electronic auctions and electronic marketplaces. In recent years online auctioning over the Internet is especially established as a convenient, efficient, and effective method of doing business. Research has been done to study the design and control of auctions by designing bidding strategies from a B2C point of view. The research began with a simple scenario, where users only participated at a single auction, and then extended to also consider the case of users participating simultaneously in a number of auctions, all of them not necessarily starting or ending at the same time. According to the data gathered from the study, dynamic optimization and optimal control methods and algorithms for optimal bidding from the point of view of a buyer were proposed [4].

Price War among the Agents

Electronic marketplaces are comparable to traditional markets in a number of ways. As in the distributed nature of a market, participants in a market are considered to be separate individuals with different strategies, needs and options. Market characteristics and e-commerce characteristics, especially the former one, drive online price dispersion and that e-commerce charge prices in line with their characteristics" [3]. It becomes obvious that the current marketing strategy, which is still manually operated by human on the web sites.

CONCLUSION:

There are currently only a small number of distinct examples of agent technology being applied to the electronic commerce domain, primarily price comparisons and aggressive buying agents (price bots and shop bots). In this paper, we found that the consumer typically must visit each website to check pricing and additional terms. This could involve considering alternate products from an online catalog, product availability, delivery options, return policy, or payment methods. After all relevant information is gathered the consumer then purchases the product using a credit card [7].

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