Developments in Business Simulation and Experiential Learning, Volume 29, 2002

THE E-COMMERCE GAME™: A STRATEGIC BUSINESS BOARD GAME

Schwartz, Robert G.
Mercer University
Schwartz_rg@mercer.edu

Teach, Richard D.
Georgia Institute of Technology
Richard.teach@mgt.gatech.edu

ABSTRACT

The E-Commerce Game™ teaches participants how to compete more effectively in E-commerce as they learn the importance of continuous strategic decision-making. Participants must make appropriate funding choices that will serve to enhance the firm's position in the marketplace. Valid strategic marketing decisions regarding target markets, price, product/services, and promotion strategies will serve to maintain and enhance the firm's viability. Exogenous occurrences are built into the game to teach about both monitoring the external environment and how uncontrollable events can affect and imperil a firm. The game is designed for one or many players, or teams.

INTRODUCTION

With many new firms failing, venture creation is a seemingly stochastic process. The primary reason for new firm failure is generally cited as "poor management." In the last one and a half years over 600 dot.coms have gone out of business and a like number have been acquired or merged with other firms, most of which were older, established ones (Schwartz et al., 2001). Over 100,000 employees have been fired or laid off and the US stock market has taken a major downturn. The cause "and fault" for all this is now obvious, the lack of strategy (Porter, 2001).

In 1999, the young entrepreneurs and their management teams did not possess the appropriate skill-sets or resources. In addition, they did not focus their resources on the defined problem at hand, i.e., the establishment of a successful firm. A partial cure could have been starting the firm with the appropriate strategies and concomitant resources (Schwartz and Teach, 2001 d).

Given a need to better educate E-commerce professionals (whether in their own entrepreneurial dot-coms or in an established firm beginning to participate in e-commerce), the E-Commerce Game™ was designed to teach participants how to compete more effectively as they learn the importance of continuous strategic decision-making. Game participants must make appropriate funding choices that will serve to enhance the firm's position in the marketplace. Participants must also make appropriate strategic marketing decisions regarding target markets, price, product/services, and promotion strategies that will serve to maintain and enhance the firm's viability. Exogenous occurrences are built into the game to convey the importance of both monitoring the external environment and how uncontrollable events can affect and imperil a firm. The game is designed for one or many players, or teams.

BACKGROUND

Discussed in the authors' prior papers (Teach and Schwartz, 1999 b; Teach and Schwartz, 2000 a, b) was the growing recognition among business simulation developers that firm strategies must be taken into account in their games. Simulations have begun to include a better, but far from perfect, capability for the players to choose strategies when playing business games (Wolfe and Roge, 1997). Given the nature of the E-commerce world, anything that works to provide strategic marketing and finance choices that results in better decision-making as measured by firm cash flow, could be a valuable learning aid and teaching tool. Game players will develop an understanding of the value of sound strategic decision making.

THE E-COMMERCE GAME™

The intended participants are students, entrepreneurs, and business people interested in strategic decision-making and its impact on firm development and performance. Individuals or groups can play either alone, or in teams. They can also play competitively on the same board or when two or more games are played simultaneously.

The game allows participants to maximize their game performance through strategic decision-making. As in the Congruence™ games (Teach and Schwartz, 1999 a; Schwartz and Teach, 2001 a, b, c), all participants can be "winners." The game allows for strategic learning, i.e., decision making by performance and reward, thus teaching, in a creative way, about the efficacy of strategic choices. Those choices are related to marketing and target markets, products/services, price, and promotion; and financial choices related to debt and equity. The game has been designed with multiple product types. These provides for the opportunity of learning about different strategies in different industries and how strategy can vary by the nature of the firm and industry (and team).

Similar to Monopoly™, the board contains squares that are reached by the right throw of a die. Each functional square (20 total) provides for a selection of strategies (five squares on each side for target markets, product, price, promotion, and finance). The choices are contained in the sets of cards that include the various strategies. When landing on a strategy square, a card is drawn, and the player has the choice to accept or not to accept the strategy printed on the card.

Eight additional squares relate to tactical and strategic occurrences that will influence the firm either as opportunities or threats. No choice is involved as in the strategy cards. An occurrence must be accepted, but strategies can be rejected. The remaining four squares (32 in total) include the beginning/ending square and three corners that represent environmental incidents that again create opportunities and threats. These incidents affect the firm's operating environment, such as the September 11 attack on the United States.

COSTS

Time costs the firm cash (burn rate) and thus there is a fee assessed each time a player completes a circuit of a board (overhead). For example, if a player has difficulty acquiring a needed strategy, then additional moves should be made. The total fees would depend on the number of times the player has to move around the board. Further, if the player selects a less then optimum strategy, and wishes to change it, the costs of some changes increase each time the player moves around the board. Moving many times around the board penalizes a player for either being unlucky in terms of landing on the needed squares (to complete the strategies) or in selecting the less than optimum strategies. Further, there are fixed costs associated with the start-up and operations of a firm, and while the game does not go into detail, as noted above these charges serve to account for those costs.

There are start-up costs for each of the strategies selected as well as the variable costs associated with each that are charged to the player. Thus if a player changes his/her strategy, additional start-up charges are incurred, as well as the inclusion of the old and the addition of the new variable costs. Finally, cash resulting from sales is also reduced by contribution margin costs, which represent Cost of Goods Sold (COGS) charges.

CONTROL OF THE GAME

The elasticites of the various marketing strategies can be controlled in the game by changing the values in the strategy matrices in Appendix V (Teach and Schwartz, 2000 a).

THE GAME BEGINS

The game begins with a player being given the description of the firm's product and its potential customers. The game is designed for multiple product scenarios and multiple target markets, but only one target market, the Young Urban will be presented in this paper. The player can play one product at a time and by doing so learns about differences in strategies based upon the specific product (chosen by the player or the administrator) and associated industries and customers. The game proceeds as the player begins to move around the board. Moves are determined by the throw of a die. The use of a die allows for the introduction of a stochastic element into the game, thus somewhat mirroring the nature of both entrepreneurial firm development and the concept of opportunity recognition.

A player will likely have to go around the board five or more times to achieve the desired outcome. Each "around the board trip" could be viewed as a "period," either a quarter, two quarters, a year, etc. Outcomes are determined by chance, as the player lands on various squares (as in Monopoly™) that represent marketing and finance strategies as well as tactical occurrences and environmental interventions. The player makes a decision as to whether or not to accept the strategy on a particular drawn card. The board outcomes must include a certain level of congruence (Schwartz and Teach, 2000) in strategies. Accumulated cash determines the overall outcome. If a player cares to increase the firm's cash flow or change strategies, this may be done but at progressively higher costs as the players move around the board each new time. The longer a firm waits to make changes the costlier it becomes.

GAME ADMINISTRATION

Game administration requires one individual to explain the overall play of the game, to distribute materials, and to perform introduction to the game, the scoring and debriefing. The game set includes a set of boards; sets of cards that include all the strategic choices for each of the squares on the board; many die, one die for each board being played; the player score cards; and the administrator's key for scoring.

At any time, the player may request an update on the amount of accumulated cash. Once all the strategies are selected, the player may take the risk of going around the board to either change strategies or accumulate additional cash. The cost of replacement strategies or changes in target markets or financing options is then deducted from the player's cash position.

GAME END

The play ends when the players have accumulated all selected strategies, are satisfied with their cash, or 45 minutes to an hour have gone by, whichever occurs first. It may end when the player has achieved the goal that he or she desired, i.e., knowledge of the impact of strategy on performance. Another way for it to end is when time runs out. A third way for the game to end is for the player to run out of cash, as he/she learns about "burn rates" for capital, a very real phenomena that "cost" the dot.coms their viability.

DEBRIEFING

At the conclusion of the game, the player is debriefed, emphasizing the relationships among the various strategies selected and performance.

SUMMARY/CONCLUSIONS

The developers of the game have extensive experience in studying the relationships between performance and firms' strategies. The play of the game has been designed so that the presence and absence of needed resources and chosen strategies can be easily determined and final firm performance calculated.

The firm performance evaluation is based upon the acquisition of cash, not profits. The reason the authors have selected cash, versus profits, is that at start-up "Cash is King." While long term, profitability is the goal, short-term survival depends on cash availability. In the short term, most startups are not profitable. As The E-commerce Game™ is played in the short term, it does not represent the entire life cycle of a firm, only the start-up and early stages of firm growth. Thus, cash is the performance measure.

The firm sales are determined by the appropriateness of the selected strategies resulting from the chosen strategies, and their efficacy for certain product types. Depending on what the initial learning goals were for the individual player, i.e., firm performance in one market or many markets; beating the other players, etc., single or multiple lessons can be learned. The game can be played for many different reasons in multiple industries. Finally, chance plays a role in the game, but strategic decision-making and leadership, if teams are playing, reduces that chance. Sound strategic choices increase financial outcomes.

REFERENCES

Porter, M. E. (2001), "Strategy and the Internet," *Harvard Business Review*, March, 63-78

Rao, V. R. and Stickel, J. H. (1995), *The New Science of Marketing*, Chicago: Irwin Professional Publishing, pp. 297-307

Schwartz, R. G, Southern, L. and Teach, R. D. (2001): "E-commerce: A Global Retreat?" *Proceedings, Hawaii Conference on Business,* pp. S13-27

Schwartz, R. G. and Teach, R. D. (2001 a), "Congruence II™: A Strategic Business Board Game," *Proceedings of the Association of Business Simulation and Experiential Learning*. pp. 221 – 224

Schwartz, R. G. and Teach, R. D. (2001 b), "Congruence II™: A Strategic Business Board Game, Enhanced Play," *Proceedings of the International Simulation and Gaming Association*. In Press

Schwartz, R. G. and Teach, R. D. (2001 c), "The Congruence Game™: A Team Building Game for Entrepreneurs," Accepted and to be published in *Simulation and Gaming: an Interdisciplinary Journal of Theory, Practice and Research*. In press.

Schwartz, R. G. and Teach, R. D. (2001 d), "Strategy and Performance in Dot-coms," *Proceedings of the 2001 AMA/UIC Marketing at the Entrepreneurship Interface Conference*. In press.

Teach, Richard D. and Schwartz, Robert G. (1999 a), "The Congruence Game™: A Team Building Game for Entrepreneurs," *International Simulation and Gaming Association Proceedings*. pp. 103 - 107

Teach, R. D. and Schwartz, R. G. (1999 b), "Putting Strategy into Strategic Business Games," *Association of Business Simulation and Experiential Learning*, Proceedings, **26**, pp. 226-235

Teach, R. D. and Schwartz, R. G. (2000 a), "Introducing Cross-Elasticities in Demand Algorithms," *Association of Business Simulation and Experiential Learning Proceedings*, **27**, pp. 125 - 131

Teach, R. D. and Schwartz, R. G. (2000 b), "Strategy Versus Tactics in Computer Generated Management Business Games," *International Simulation and Gaming Association Proceedings*. pp. 103 – 107

Wolfe, Joseph and Bruton, G. (1994), "On the Use of Computerized Simulations for Entrepreneurship Education," *Simulation & Gaming: An Interdisciplinary Journal of Theory, Practice and Research*, 25(3), pp. 402-415

Wolfe, J. and Roge, J. N. (1997), "Computerized General Management Games as StrategicManagement Learning Environments," *Simulation & Gaming: An Interdisciplinary Journal of Theory, Practice and Research,* 28(4), pp. 423-441

APPENDIX I

THE BOARD

The board has seven squares a side, 32 total with the four corner squares. The 28 squares are repeated randomly one set on each of the four sides. Environmental issues are placed in three of the four corners of the board. The squares include:

Strategy Issues	*Environmental Issues*
Target Markets	Economy
Price	Technology
Product	Regulatory
Promotion	Customers
Financial Resources	Competitors
Strategic Issues	Vendors
Tactical Occurrences	Social
	Cultural
	Legal

APPENDIX II

THE MOVES

Moves are made by the throw of one die. Player(s) must land on a square, draw a card and make a decision in order to pick strategies and accumulate cash. The player(s) must accept the strategic and tactical occurrences and environmental interventions, but the strategy cards can be passed on. However, before a player completes a game, all strategies have to be selected. The cost for every circuit of the board is $10,000,000 the first time; $20,000,000 the second; $40,000,000 the third; and then $80,000,000 respectively for every additional circuit. The more time it takes to pick the "right" strategies or secure the desired funds, or the more strategy changes, a greater number of circuits of the board is needed and the more costly it is to the player, thus reflecting time in the market and the penalty for lack of clear strategic focus. This result mirrors the realty of small business.

APPENDIX III

THE CARDS

Target Markets The game can be played in either industrial or final consumer markets. As an example, a recent consumer segmentation case study of the sports apparel market suggests six distinct target markets (Rao and Stickel, 1995):

Segment	Percent Market (%)
Mature Conformists	17
Blue Collar	13
Fitness Enthusiasts	18
Young Urbans	15
Self-oriented	18
Tough Customer	19

These target markets suggest distinct price, product, place and promotion choices for each (marketing mix). Thus, game scores for a particular product and a particular target market can be maximized through appropriate player strategy choices. The game authors have developed scoring paradigms consistent with the both the target market and strategic marketing choices, selecting an optimum combination of choices that serve to maximize scores (and cash through sales). A diversity of product or service opportunities with concomitant target markets and a variety of strategic choices serves to teach strategic marketing lessons as measured by final game performance.

Products/Services In E-commerce many disparate products and services are sold into many markets internationally. The game has been developed with two sets of target markets. These are the consumer and business customers, i.e., B2C and B2B for the e-commerce firms. The selection of a product or service to sell can produce different economic outcomes.

Players will have to decide what marketing strategies are best for the selected products or services and the target market chosen to sell to. The "best" paradigm is reflected in the game scoring and is based upon the prior knowledge of the game developers relative to target market types and appropriate marketing strategies for each. The game administrator, depending on the desired learning outcomes, can alter the scoring paradigm.

While the scoring paradigm in this paper will only reflect high end sporting goods for the affluent young urban consumer, some example E-commerce related products and services are shown below. These too could be added to the game and appropriate target markets and associated scoring paradigms could be developed for them.

1. Specialty Jewelry (e.g., American Indian, Latin countries, …) sold to final consumers.
2. Printer cartridge refills (consumer supplies the empty cartridge in a "film" like envelope and a filled one is returned) sold to either industrial or final consumers.
3. Specialty natural products sold to the final consumer.
4. Business planning services for entrepreneurs and small firms.
5. CD based business cards.
6. High end sporting goods clothing (Demonstration for this paper)

Some product attributes could include:

Product Properties
Quality
Differentiation
Innovation
Technology intensity

Promotion Strategies Various promotional strategies have been utilized in E-commerce. These are indicted below, but are not meant to be inclusive, simply representative. Particular strategies appear to be more effective for certain products or services. The scoring paradigms, based upon the authors' prior knowledge, reflect that effectiveness resulting in greater or lesser sales, i.e., more or less cash.

Conventional Marketing	E-commerce Marketing Choices
Advertising	Pop-up ads
Publicity/PR	Banner advertising
Sales promotion	Browser placement
Personal selling	Direct e-mail
Direct marketing	

Price Strategies Appropriate pricing strategies relate to different product and service types and their customers. For example, if a player selects a high quality innovative product strategy for a final consumer, then a high price strategy would be most appropriate and would return greater sales to the player. If a player selected a lower quality, undifferentiated product strategy focused on an organizational customer, then a low price strategy would be the appropriate choice.

Price Choices
Low
Low moderate
Moderate
Moderate high
High

Financial Strategies Each card will have an equity or debt opportunity and an associated cost for each. The player can choose to accept and pay the price for adopting a particular financing opportunity and receive the benefit, or can decline it. A decline means that the player can wait to accumulate additional funds later on and pay either less, or more for the funds.

Strategic Occurrences Each card will have an opportunity or threat and the value or cost for each. For example:

> The firm has its bank loan called.
>
> The angel investor dies and his/her estate take the funds back.
>
> The technology market has revived; the firm stock splits and $5,000,000 is realized from its sale.

Environment Interventions These cards create random occurrences in the environment that will create opportunities or threats and related value or cost. For example:

> NASDAQ has crashed and the economy has slowed. The firm's maximum sales potential is reduced to 40%.
>
> A technical breakthrough has created an opportunity for wireless Internet services, but governments are outlawing cell phones when driving and cutting phone power. Sales decline 60%.

APPENDIX IV

FINANCIAL ISSUES

Before the game begins, the player owns 100% of the firm. Up to 49% of the firm can be sold. The player receives $17,500,000 for 25% of the firm as the initial start-up capital (typical early 2000 venture capitalization of a dot-com start-up). The player may not give up control of the firm to gain additional capital. Cards will have an equity or debt opportunity and an associated cost. The player can choose to accept and pay the price for adopting a particular financing opportunity and receive the benefit, or can decline it. Because the firm may or may not have a greater value as it makes subsequent circuits, new financing on later circuits of the board could be more or less costly. This too effectively mirrors what happened to the dot-coms as failure loomed! All debt must be repaid at the end of the game.

Utilizing strategy scores and multiplying those scores by potential sales, each circuit of a board provides for cash accumulation. However, selecting strategies has a fixed cost as well as costs for maintaining and changing those strategies. There is also a gross margin cost charged to a player for each circuit of the board. For the first time around the board, the maximum sales for a firm are $10,000,000; for round two, the maximum sales are $50,000,000; round three, $100,000,000; round four, $500,000,000; round five, $1,000,000,000, followed by a market crash in round 6 to 1/die throw of the administrator or whatever number he/she chooses, all irrespective of the product or service. This paradigm attempts to mirror what has occurred in the market place in two ways, both the recent market crash and firms competing without clear or complete strategies that compromise sales and overall returns. The cost for every complete set of moves around the board is $5,000,000 the first time; $5,000,000 the second; $10,000,000 and then $15,000,000 respectively for the later rounds. These numbers represent operating costs for the firm. While to some these might seem high, in fact many of the dot-coms bankrupted because of the extreme costs of operations and marketing.

COMPLETING A GAME

To stop playing the game, the player must have accumulated a minimum of $100,000,000 in cash and all the marketing strategies; or run out of time; or run out of funds.

"Winners" can be defined by meeting personal goals as stated at the games beginning or if playing competitively, by overall dollars accumulated.

APPENDIX V

SCORING

At any time, each player may complete a scorecard that includes the cash the firm has retained (and obtained) from financing; the equity given up; the strategies selected; any tactical and strategic occurrences; and number of times around the board. The player presents the firm score card to the game administrator for a quick tally of cash accumulated.

The strategy value matrix is used to calculate the value of the selected strategies allowing for the calculation of firm performance. This number is calculated by adding up the scores for each of the selected strategies. This number is then divided by 1050. This result will range between a low of 0.00 and a high of 1.00. This is the strategy score.

The player may add or change strategy selections as he/she lands on the appropriate squares. There is always a cost for selecting a strategy or changing a strategy.

Scorecard **Circuit __**

	First time	**Variable**		**Total**
Price				
Product				
Product Quality				
Product Differentiation				
Innovation				
Technology Intensity				
Promotion E-commerce				
Pop ups				
Banner				
Browser Placement				
Direct E-mail				
Promotion Conventional				
Advertising				
Publicity/PR				
Sales Promotion				
Personal Selling				
Direct Marketing				
Additional costs	Occurrences	Circuit Cost	Debt/Equity	
Sales	Strategy Score X	Circuit Value X	COGS	=
			Total =	

Circuit costs are 5,000,000 the first circuit and $5,000,000 the second.

Circuit sales are $10,000, 000 the first circuit and $50,000,000 the second.

COGS sold are 40% for the first circuit and 35% the second.

STRATEGY VALUES

All Possible Strategies and Their Scoring Values for High End Sporting Goods
Clothing Products for Young Urbans

Strategy					
	Low		Mod.		High
Price	10	20	30	40	50
Product Quality	10	20	30	40	50
Product Differentiation	10	20	30	40	50
Innovation	10	20	30	40	50
Technology Intensity	10	20	30	40	50
Promotion E-commerce					
Pop ups	10	20	30	40	50
Banner	10	20	30	40	50
Browser Placement	25	50	100	150	200
Direct E-mail	20	40	60	80	100
Promotion Conventional					
Advertising	5	10	15	20	25
Publicity/PR	10	20	30	40	50
Sales Promotion	5	10	15	20	25
Personal Selling	25	50	100	150	200
Direct Marketing	20	40	60	80	100

APPENDIX VI

ADMINISTRATOR INSTRUCTIONS FOR PLAYING THE GAME

For a one and a half hour session of playing, 15 minutes should be allocated for pregame briefing; 1 hour maximum for circuits; and 15 – 30 minutes for final debriefing.

APPENDIX VII

ADDITIONAL FINANCIAL INFORMATION FOR A PLAYER'S STRATEGIC CHOICES

Each strategy used in the game has its unique sets of choices and changes in fees that increase as the player advances. Examples for the first two circuits are shown below.

Circuit 1

	(First time)				
	Low		Mod.		High
Price (10,000)	2000	4000	6000	8000	10000
Product (10,000)					
Product Quality	500	1000	1500	2000	2500
Product Differentiation	500	1000	1500	2000	2500
Innovation	500	1000	1500	2000	2500
Technology Intensity	500	1000	1500	2000	2500
Promotion E-commerce (20,000)					
Pop ups	500	1000	1500	2000	2500
Banner	500	1000	1500	2000	2500
Browser Placement	2000	4000	6000	8000	10000
Direct E-mail	1000	2000	3000	4000	5000
Promotion Conventional (10,000)					
Advertising	125	250	375	500	625
Publicity/PR	250	500	750	1000	1250
Sales Promotion	125	250	375	500	625
Personal Selling	1000	2000	3000	4000	5000
Direct Marketing	500	1000	1500	2000	2500

Circuit 2

	(First time)				
	Low		Mod.		High
Price (10,000)	2000	4000	6000	8000	10000
Product (10,000)					
Product Quality	500	1000	1500	2000	25000
Product Differentiation	500	1000	1500	2000	25000
Innovation	500	1000	1500	2000	25000
Technology Intensity	500	1000	1500	2000	25000
Promotion E-commerce (40,000)					
Pop ups	1000	2000	3000	4000	5000
Banner	1000	2000	3000	4000	5000
Browser Placement	4000	8000	12000	16000	20000
Direct E-mail	2000	4000	6000	8000	10000
Promotion Conventional (20,000)					
Advertising	250	500	750	1000	1250
Publicity/PR	500	1000	1500	2000	2500
Sales Promotion	250	500	750	1000	1250
Personal Selling	2000	4000	6000	8000	10000
Direct Marketing	1000	2000	3000	4000	5000

Game Board

E	T	TM	PR	F	P	PN	SO	E
SO								TM
F				E Commerce Game™				T
TM								F
PR				Robert G. Schwartz Richard D. Teach				PN
P								PR
T								P
PN								SO
E	T	SO	F	PN	P	PR	TM	Start ←

T =Target market **SO=Strategic occurrences**

P =Product strategies **T =Tactical occurrences**

PN=Promotion strategies **F =Financial strategies**

PR=Price strategies **E =Environmental occurrences**