

TOWARDS A MASSIVE MULTIPLAYER ONLINE BUSINESS SIMULATION

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ABSTRACT

Millions of players are participating in Massive Multiplayer Online Games (MMOGs). In addition to adventuring, socializing and exploring, MMOG players have created vibrant economies within their online virtual worlds. Enterprising players convert their virtual property into real-world currency through online auction sites. As these games have grown in popularity, business simulation researchers have been designing economic models that support many players accessing the content online. The present paper traces the convergence of these two styles of game, and identifies remaining simulation issues that need to be addressed before a Massive Multiplayer Online Business Simulation (MMOBS) becomes feasible.

INTRODUCTION

“Currently, several million people have accounts in massively multiplayer online games...significantly, each world also seems to grow its own economy with production, assets and trade...” Castronova 2003

So begins Edward Castronova’s 2003 article, On Virtual Economies. For advocates of business simulations, two important points are mentioned. One, the marketplace for massive online games is very large, and two, the players of these online games are adapting these games to create

emergent virtual economies. At the same time as these virtual worlds and their economies have developed, business simulation researchers have continued to refine their economic models to make them more realistic and more valuable for the players. The present article explores the current trends in simulation research as well as remaining issues that support business simulations becoming more similar to massively multiplayer online games.

MASSIVE MULTIPLAYER ONLINE GAMES (MMOGS)

Massive Multiplayer Online Games or MMOGs represent a new and very popular form of entertainment, interaction and learning. Over the last 6 years, Massive Multiplayer Online Games have gained a huge following. The breakthrough MMOG, Everquest, was released in 1999 by Sony Online Entertainment. By 2003, Everquest had accumulated over 400,000 subscriptions. More recently, World of Warcraft by Blizzard Entertainment announced paid subscriptions in excess of 2 million.

A key aspect of these games is the maintenance of a “virtual world”, wherein all players have the opportunity to interact. Because MMOGs try to create a realistic virtual experience, the interaction among players can take on many forms- fighting, exploring, talking and also trade. The trade aspect is somewhat surprising, because the games are designed to emphasize a storyline of adventuring in a

The screenshot shows an eBay auction page. At the top, the eBay logo is on the left, and navigation links (home, pay, register, sign out, site map) and buttons (Buy, Sell, My eBay, Community, Help) are on the right. Below the navigation, the breadcrumb trail reads: Listed in category: Video Games > Internet Games > Other. The main title of the auction is "WOW World of Warcraft 1000GOLD Any US Servers 82.99USD". A status bar indicates "You are signed in" with a "Watch" link. The auction details are as follows: Current bid: US \$0.10 with a "Place Bid >" button; Time left: 6 hours 45 mins, 1-day listing, Ends Oct-27-05 14:41:30 PDT; Start time: Oct-26-05 14:41:30 PDT; History: 2 bids (US \$0.01 starting bid); High bidder: 4153joseph (Q) with a bid icon; Item location: Indio, California United States; Ships to: Worldwide; Shipping costs: Check item description and payment instructions or contact seller for details. A link for "Shipping, payment details and return policy" is provided. A "Description" section is partially visible at the bottom.

fantastic realm. Through these adventures, however, players acquire both game currency (say gold pieces) or other items. A thriving marketplace emerges as the players buy and sell these items. The economies that develop in MMOGs are powerful enough that the currency in the game has value in the real world. For example, figure 1 depicts one of many ebay auctions where game money is exchanged for US currency.

MMOGS AND BUSINESS SIMULATION ARCHITECTURE

At the same time that MMOG players have adapted their games to create vigorous economies, business simulation researchers have begun to develop frameworks and models that enable more participants to play online. To better appreciate the relationship between MMOGs and today's business simulations, consider the taxonomy described in Thavikulwat (2004). This framework provides a structure of several dimensions that characterize business simulations. Examining MMOGs using the same structure reveals some similarities and key differences between the two types of games.

The first dimension in the taxonomy is based on a classification by Crookall, Martin, Saunders and Coote (1986). Their analysis classifies games based on control (computer versus participant) and interaction (computer-participant versus participant-participant). The interaction dimension for MMOGs is clearly participant-participant. Indeed, this is why the acronym includes "Multiplayer": the whole idea is for many people to interact online. However, the control dimension is not so simple. The virtual worlds in MMOGs correspond to a "Computer-Controlled" simulation, with high computer control. This is the aspect of the game that includes a story line and adventuring. The trade aspect of a MMOG (wherein players barter and trade) includes higher participant control, indicating a "Computer-Assisted" simulation.

The second dimension in the taxonomy is the representational system. The adventuring aspect of MMOGs is a purely phenotypical representation, meaning that the simulated adventures are purely virtual, and are not in any way real subsets of actual happenings. However, the trade aspect is a genotypical representation of a marketplace since items with real value are actually changing hands.

The timing dimension (following Thavikulwat 1996) is divided into 3 subdimensions: Scaling, Synchronicity, and Drive. MMOGs are Clock Driven, and Synchronized, meaning that the virtual world has its own clock which is always ticking, and that players experience events at the same time.

The hosting dimension for MMOGs is clearly the Internet. The scoring system is not as clear. Of the many options, current MMOGs are probably closest to the Goal achievement model, since players take on multiple quests to achieve their own and the story's goals.

SIMULATION ISSUES FOR MASSIVE MULTIPLAYER ONLINE BUSINESS SIMULATIONS:

While it is clear that MMOGs are comparable to business simulations along all of the dimensions of the taxonomy, it is also the case that there are many differences between the two game styles. The present section considers simulation issues that would be required to achieve a Massive Multiplayer Online Business Simulation. The fundamental departure from existing business simulations would be the creation of a persistent virtual business world, wherein players and their organizations enter and exit freely.

TIME & MARKET ENTRY

"The time factor and all of its components will be a critical modeling factor as we rapidly move into an Internet age." –Gold & Pray 2001

The timing of players' decisions and the resulting impact of those decisions on other players is a fundamental aspect in any multiplayer game. Of particular importance to the MMOBS is the fact that different participants will enter the game at different times. This creates several important challenges.

First, the traditional reporting cycles for organizations do not necessarily match with the decision timing of the participants., Teach (2005) suggests a micro-simulation approach, wherein the individual consumers are simulated. Through this approach a population of simulated individuals can determine market opportunities for entering firms. The micro simulation approach is also relevant because MMOG generally work with a virtual geography and landscape. If a population and resource distribution were laid down a priori, participants could choose to locate in a way that is advantageous to them. Walmart, for example, has identified and executed a strategy based around the location of their super stores to great success.

Secondly, as in the real world, new businesses that enter the simulation will compete with entrenched, successful businesses. Thavikulwat 1994a discusses this issue in terms of Synchronization:

"Unsynchronized, a participant with six periods of experience might be in competition with another participant with three periods of experience...On the other hand...an especially energetic participant in a freely asynchronous business simulation could triumph over a less energetic one whose decisions were better planned."

While these points are true, it is important to remember that new products and new businesses are started every day in the real world. Certainly, some of these are successful and change the existing market structure. A virtual economy

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would need to embrace these new ventures in a way that is realistic.

The simulation literature includes some relevant research that could begin to describe how best to treat new entrants. First, consider new entrants in an existing industry. This is realm of new product development. Pray & Gold (1987) present a statistical technique for firms to set goals and be evaluated based on the attainment of those goals. Their technique begins to address how to assess teams that are not starting in exactly the same starting position. Perotti & Pray (2002) described some of the challenges in modeling new product development. These challenges include opportunity selection, market timing and marketing concerns for new products.

Another challenge is how to manage how firms compete in MMOBS: If thousands of players can create a business, what defines the set of firms that are in direct competition for a given market? Thavikulwat (1993) presents a model wherein multiple industries can be available to players. The model is consistent with the Standard Industrial Classification system, and does allow for some inter-industry competition.

If instead of new products, we consider entrepreneurship, the simulation literature yields several existing games that allow players to create and run competitive businesses. Thavikulwat (1994b) describes DEAL, a local area network simulation that allows participants to create firms in one of 5 industries based on the SIC system above (Thavikulwat 1993). More recently, Anderson, Kaliske, Lawton and Scott (2005) includes an explanation of Entrepreneur, an Internet-based simulation that includes one industry and emphasizes the choices that entrepreneurs make to start up and run new businesses. Teach & Schwarz (2003) describe DUALITY, a simulation which models new product development within entrepreneurial firms as an exponentially smoothed sine function. The new products are ready for alpha and beta testing as they reach specific targets along the product development function.

LEARNING VS PLAYING

An obvious question is whether anyone would even be interested in playing a Massive Multiplayer Online Business Simulation. The rich graphics and expensive technologies that support the MMOG online worlds could be the key factor that draws their huge audiences. Certainly, the scale of the investment in a virtual world like World of Warcraft is beyond the range of many business simulation developers. On the other hand, the social nature of the MMOGs does seem to represent an important element in their success, and educational technologists have begun to consider how MMOG approaches can be adapted to support learning.

For example, Kauchak (2003) lists a great number of military simulation efforts that leverage MMOGs. His observation about military simulations may well hold true

for business simulations: “A natural evolution is the migration from games whose average training audiences are the size of a ship’s wardroom or other military unit (about 25 personnel) to larger scale games—including MMOGs.”

Ethnographic researcher Constance Steinkuehler has captured communications from game play to identify learning patterns among MMOG players (see Steinkuehler 2004). Her initial findings demonstrate convincingly that MMOG players learn through collaboration and interaction with the other players. She further finds that the structure of the MMOG learning environment might hold the key to the highly motivated (some would say addicted) player mentality:

“What you do risk by failing is minimal and easily recovered...particularly in the early stages of game play, and performing at the outer edge of one’s current competency, which seems to sustain engagement...and to constantly pull one forward into more complex and demanding tasks, is highly valued and socially promoted.” -Steinkuehler 2004

In light of Steinkuehler’s findings, a common element of most business simulations comes into question: the fixed game length. Most business simulations are played for a fixed number of periods or a fixed period of time, with learning coming from feedback during the simulation and possibly debriefing afterwards.

One wonders whether there is value in a persistent business simulation that does not lend itself to comparison and assessment of the players, but rather rewards learning. As in a MMOG, the motivation could be social: For example, players could demonstrate their expertise by amassing profits, market share or stock price over time.

CONCLUSIONS

This paper examines the possibility of a Massive Multiplayer Online Business Simulation. Such a simulation would include a persistent virtual world, wherein players interact with each other both socially and economically through their firms for both entertainment and learning.

Based on the review here, the business simulation literature includes modeling techniques that would address many of the needs of this new game form. While some minor gaps have been identified, it is the very notion of learning versus entertainment that provides the most complex challenges. In particular, the social nature of MMOGs helps to create their success, but traditional business simulations have not embraced social interaction through their system.

A recent creation, Industryplayer “The Ultimate Online Business Game on the Internet” has just celebrated one year of operation and 45,000 paid subscribers. It will be interesting to see whether other simulation designers will embrace the idea of a MMOBS.

REFERENCES

- Anderson, Kaliske, Lawton & Scott (2005) "A Demonstration of Four Web-Based Simulations: THRESHOLD COMPETITOR: A MANAGEMENT SIMULATION ENTREPRENEUR: A NEW VENTURE SIMULATION MERLIN: A MARKETING SIMULATION MICROMATIX: A STRATEGIC MANAGEMENT SIMULATION." *Developments in Business Simulation and Experiential Learning*, Volume 32, 19-21.
- Castronova (2003) "On Virtual Economies" *The International Journal of Computer Game Research*, Volume 3, Issue 2, December 2003.
- Gold & Pray (2001) "Historical review of algorithm development for computerized business simulations." *Simulation and Gaming*, Volume 32, No. 1, March 2001, 66-84.
- Kauchak (2003) "Creating a World Classroom", *Military Training Technology Online Edition*, November 19, 2003. available online at: <http://www.military-training-technology.com/article.cfm?DocID=268>
- Perotti & Pray (2002) "New Product Development (NPD) Simulations: Some Challenging Questions and Tough Modeling Issues", *Developments in Business Simulation and Experiential Learning*, Volume 29, 265-269.
- Pray & Gold (1987) "Goal Setting and Performance Evaluation With Different Starting Positions: The Modeling Dilemma", *Developments in Business Simulation and Experiential Learning*, Volume 14, 169-174.
- Steinkuehler (2004) "Learning in massively multiplayer online games" In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon, & F. Herrera (Eds.), *Proceedings of the Sixth International Conference of the Learning Sciences* (pp. 521-528). Mahwah, NJ: Erlbaum.
- Teach & Schwarz (2003) "Modeling the Product Development Function for an Entrepreneurial Firm." *Developments in Business Simulation and Experiential Learning*, Volume 34, 244-249.
- Thavikulwat (1993) "Multiple Industries in Computerized Gaming Simulations." *Developments in Business Simulation and Experiential Learning*, Volume 20, 108-109.
- Thavikulwat (1994a) "Activity Driven Time in Computerized Gaming Simulations." *Developments in Business Simulation and Experiential Learning*, Volume 21, 13-15.
- Thavikulwat (1994b) "DEAL and GEO: Progressively Integrating Gaming Simulations for Entrepreneurship and International Business." *Developments in Business Simulation and Experiential Learning*, Volume 21, 13-15.
- Thavikulwat (2004) "The architecture of computerized business gaming simulations." *Simulation and Gaming*, Volume 35, No. 2, June 2004, 242-269.