Community knowledge in Massively Multiplayer Online games

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Abstract

The communication possibilities today have made it easier for developers of packaged software to bridge the gap to their customers. One group of developers who have taken this opportunity is the makers of massively multiplayer online games, which has during the last years become one of the best selling software genres. This thesis aim at, by looking at four games in this genre, finding how they involve their customers in development to improve their own product.

List of Abbreviations

AoC .... Age of Conan: Hyborian Adventures
EO .... Eve Online
FAQ .... Frequently Asked Question
FFA .... Free-For-All
MMO .... Massively Multiplayer Online
PvE .... Player vs. Environment
PvP .... Player vs. Player
RvR .... Realm vs. Realm
WAR .... Warhammer Online: Age of Reconing
WoW .... World of Warcraft

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Chapter 1

Introduction

Lately software development has more and more come to focus on packaged software. Packaged software is software that is made to attract as many customers as possible instead of being custom made for one customer. Examples of this are Windows, Photoshop and ITunes. One major part of packaged software is the game industry, which grows just larger and larger. The last years massively multiplayer online (MMO) games have become the best selling game genre with World of Warcraft which has since its release 2004 topped the sale charts every year. The total sales of packaged software 2007 not including games reached a total of 3.3 billion US dollars in USA alone[1]. The PC game industry sold for 911 million US dollars[2], this number does not include digitally distributed games (i.e. games that are sold and downloaded directly on the web), which means that the number would probably be much larger. Additionally to this customers of MMO games have to pay a monthly subscription, and with World of Warcrafts a total of over 10 million active subscription gives an approximately monthly income of 130 million US dollars (given that all subscribers use the cheapest option to use the six month pay plan, this figure is probably quite larger). As recognized by Keil and Carmel (1995) and Sawyer (2000), packaged software development means a lot of differences to traditional IS development, e.g. success is more likely measured in profit and market share than satisfaction and return of investment, the processes tends to be less mature and the customers are distant and less involved in the development process. The question is then how do different developers involve users of their software into the development, both pre-release and during maintenance?

The communication possibilities of today offer a lot of different solutions to bridge the gap between the developers and the users. Online forums, e-mails and built-in report systems (sometimes referred to as ticketing systems) are some of the more widely used systems. The usage of some of these systems was objects of research done by Holmström (2004). Her study focused on one game developer. She pointed out their use of a virtual community to involve the customers in the game development. This led to the "community use model", and the community knowledge process. This process is built up by three phases; knowledge building, knowledge elicitation and knowledge exploitation. This basically means that knowledge is built up by the customers, this knowledge is the

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[1] http://blogs.zdnet.com/ITFacts/?p=14050, February 28th, 2008
[2] http://www.npd.com/press/releases/press_080131b.html, January 31st, 2008

used by the developers to improve the product. As this model is a result of observations from one case only, it is fairly interesting to see if this applies to other cases as well, in order to be able to do some generalization.

Building on the model presented by Holmström (2004), four major have actors in the MMO genre and their usage of virtual communities, has been chosen to be studied. The chosen games can be divided into two groups; already established games that clearly have taken use of the community, World of Warcraft (WoW) and Eve Online (EO), and games that currently is in the phase of beta testing, Warhammer Online: Age of Reconing (WAR) and Age of Conan: Hyborian Adventures (AoC). My intention is to see how these four actors and communities work, and are there any differences and/or similarities.

There are two major reasons why the choice of studying MMO games is relevant from a software engineering point of view.

Firstly, the MMO industry is dominated by one big actor with some smaller actors that constantly is compared to that big actor, just as software industry (especially operative systems) is in general. This makes it interesting to see how the smaller actors use the knowledge building-elicitation-exploitation process in order to be able to survive having a competitor that is so much larger. This will make this study interesting for researchers focusing on these matters.

Secondly, in open-source software (OSS) development concepts like core and peripheral developers (Crowston et al., 1999) are used frequently to identifying the level of contribution and influence. Holmström (2004) found similar patterns where a limited group of users frequently contributed to things that ended up in the product. Meanwhile users outside this core group played only a small part in the contribution. It would be interesting to see how this applies to software's of these sizes, with in World of Warcraft case means 10 million active players and that most likely means a lot of bug reports and suggestions of different sorts for future updates.

Chapter 2

Related Research

2.1 Packaged Software

Packaged Software (also known as shrink-wrapped, commercial off-the-shelf or commercial software) came about in the late 1960's (Carmel, 1997). It was IBM who first introduced the concept after an agreement with the United States Department of Justice that made it possible for IBM to sell software separated from the hardware. Package software has since then grown to be the major part of the software industry. By 1998 package software stood for $140 billion of a $200 billion total (Sawyer, 2000).

Packaged software can be divided in to two large categories, applications and system software. System software are large scaled software of the enterprise resource planning (ERP) type (e.g. SAP and Oracle e-Business Suite). Applications, which stands for the biggest part of packaged software, includes not only regular desktop applications like Adobe Photoshop and IBM Rational Rose, but also games like Valves Half Life and Maxis Sim City.

Much research has been done that recognize differences between packaged software development and traditional custom IS development (Keil and Carmel, 1995; Sawyer, 2000). In packaged software development tends to be less mature when it comes to processes, e.g. design and development is usually done in parallel. To measure success things like market share and sales are more important than satisfaction and acceptance from the customer, like in custom IS. Another big difference is that the customers are more likely unknown during the development, they are also normally geographically distant from the developers, making it hard to involve them in the development process, and user involvement is one of the three mayor factors for software projects to succeed (Herlea, 1999).

2.2   Virtual Community

Virtual communities are groupings of people that share similarities of some sort. That, instead of meeting in real life, meets and discuss through computers. This may be done by several different types of communication channels, like: chats, web forums, IRC channels or blogs.

To define virtual community Rheingold (2000) is commonly quoted:

"virtual communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace."

Merali and Davies (2001) recognizes the great knowledge within a virtual community, and the importance of capturing this knowledge.

2.3   Community-based customer involvement in packaged software development

After looking at the development of the game Clusterball, and how the developers usage of a virtual community to include the players in the development process, Holmström (2004) proposes the community use model (figure 2.1). The model visualizes how a software firm, by the usage of a virtual community, get access to the community knowledge, and the outcomes of customer knowledge (Garcia-Murillo and Annabi, 2002). Holmström recognizes three mayor steps within the process of community knowledge. The first step is the knowledge building phase that is something that is conducted at the customers' side. This is done by using the software and finding bugs and come up with different types of feature proposals for future updates, e.g. someone is playing the game and it suddenly crashes, then the player takes note of what was happening at the moment of the crash. The second step is knowledge elicitation. This means that the customer provides the built-up knowledge to the developers, mainly done by posting on the web forum maintained by the developers, e.g. relating back to the previous example the player posts a bug report at the developers web page, where he writes down what was happening at the crash as well as what kind computer configuration was used, in order for the developers to get an understanding of the crash. Last comes the knowledge exploitation phase. Exploitation in this case means that the developers make use of the knowledge in order to make a stronger product, e.g. the developers finds the bug in the code, fix it and release a patch for the players to download. Further Holmström visualize this process as an ongoing spiral in the community knowledge use cycle (2004, figure 4 pp 47).

In OSS development, contributors can be divided into two sub-groups, namely; core and peripheral developers (Crowston et al., 1999). The core group consists of a limited amount of people that stands for the majority of the contribution, i.e. most of the reported bugs that later have been fixed. The periphery group, on the other hand, consists of people that have very little contribution, with only one or two reported bugs that have been fixed. One important factor that are common for the people in the core

Figure 2.1: The community use model
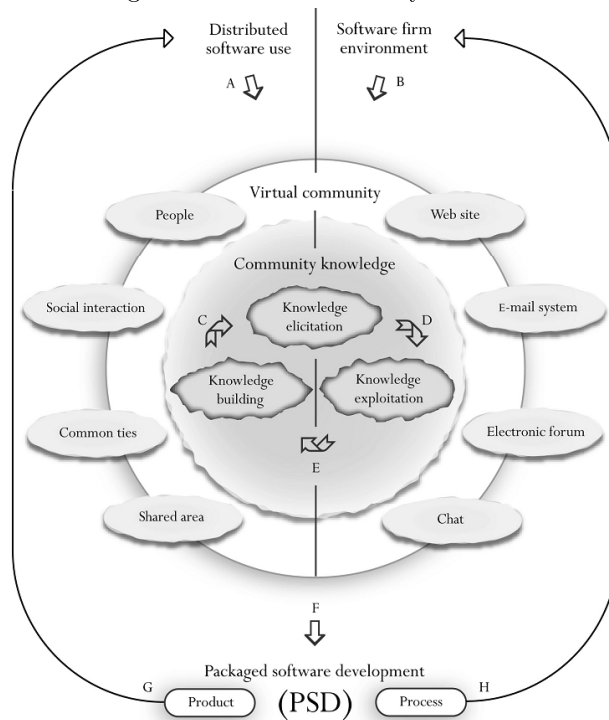
group, is that these are users that have been in the community for a long time, and have great knowledge about the product. This makes them more interesting for the actual developers as their knowledge makes their bug reports more likely to describe an actual bug, while less experienced users may report a bug that is actually not a bug but a misunderstanding of a feature.

Jeppesen and Frederiksen (2004) researched what makes users of a commercial product motivated to make innovative contribution to the product. One of their findings was that innovations are likely to come from leading edge users. They argue this with that the leading edge users are more capable of delivering high-quality innovations. This finding and argument goes hand-in-hand with the concept of core contributors in OSS development.

Chapter 3

Method and data

3.1 Method

The reason for this research is to get an understanding of how MMO developers use their virtual communities to involve and take usage of the gamers and their knowledge. To get this understanding of this social phenomena a qualitative research of an exploratory nature is chosen. Me the researcher takes the role as an "outside observer" (Walsham, 1995). Walsham states one of the disadvantages of an outside observer that he will not be present at many occasions, this will not be the case with my study as it is solely conducted on the Internet. Though the disadvantage that I will not get access to all relevant data due to confidentiality.

3.2 Data Collection and Analysis

Four MMO games and their communities have been selected to be the subject of this research: World of Warcraft, Eve Online, Age of Conan: Hyborian Adventures and Warhammer Online: Age of Reckoning. The reason for choosing these four game is basically that two of these (WoW and Eve) are established and well known games. The other two are games are close to release, and the developers are focusing on providing potential players with information about their game, in order to get them interested in the game, and running the beta test.

Data is collected from April through May, and all data is collected from an outsiders point-of-view, that is data that is not only available for players and/or developers. Forum posts that include some sort of issue, e.g. bugs and feature suggestions, is the most important data source. Data that is of interest in the post are: what the issue is, who reported the issue, has it been reported before, etc. This data will then be matched against update notes to see which issues have been taken care of. An other data source is the in-game ticketing systems. Here it is interesting to see if all games have such systems, how do they work and if there is any difference between how they are used.

Professional critics are also an important source, previews will be checked to see what they think of the game based on the information the developers have provided so far, this may include testing the game at an early stage. Game reviews will also be check to see if the critics concerns from the previews have been taken care of by the developers before the release. Also developers official product information will be target of interests, this is to see what part of the game they point out and how they profile the game. The official information of the companies them self is also something that is of interest, to see if they officially states that they aim to involve the players into the development. The data is listed in table 3.1.

Table 3.1: Data

Data type	Usage
Forum posts	What issues do the community post in the forums, and how are they reflected in the patches
Update notes	How are they presented and how do they relate to the bug reports in the forum
Game previews	What do professional game critics think of the game before release
Game reviews	What do professional game critics think of the game after release
Product information	How do the developers profile the game
Company information	How do the developers profile the them self
Product polls	Do the developers take use of polls, and in what scale

Chapter 4

World of Warcraft

Figure 4.1: World of Warcraft

World of Warcraft (WoW) is developed by Blizzard Entertainment, Inc. It was released 2004 and has become the largest MMO with over 10 million active subscribers. It is a fantasy based role-playing game (RPG) that is set in the world of Azeroth from Blizzards well known strategy game series Warcraft. World of Warcraft is the largest MMO game to date with over 10 million active subscribers.

When it comes to profiling the game Blizzard talks vaguely about things like "captivating quests with story elements, dynamic events, and flexible reward systems" and "faster style of play, with less downtime and an emphasis on combat and tactics against multiple opponents." Other than that Blizzard mostly points at the fact that game is with no doubt the biggest MMO available.

On the company profile page on the official web page[1] they write: "Blizzard Entertainment®is a premier developer and publisher of entertainment software. After establish-

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[1] http://www.blizzard.com

ing the Blizzard Entertainment label in 1994, the company quickly became one of the most popular and well-respected makers of computer games. By focusing on creating well-designed, highly enjoyable entertainment experiences, Blizzard Entertainment has maintained an unparalleled reputation for quality since its inception", then they continue by presenting their games. It is interesting that they do not mention the customer relation at all on the profile page.

4.1 Web Forum

Consider the size of WoWs community it is clear that it is important to have a well structured forum due to the large amount of posts. This is something that Blizzard has succeeded in quite well. When entering the forum you first get to a page with all the subcategories listed. There is a total of 20 subcategories and these include such as Bug Report, Technical Support, General Discussion and Realm Status. Looking at the bug report part you can see all bug reports back to August 2006, this makes it possible to track bugs two years back.

Chapter 5

Eve Online

Figure 5.1: Eve Online

Eve Online (EO) is a science fiction base MMO developed by CCP Games in Reykjavik, Iceland. It was released 2003.

Whats special in this game is that it do not have a collection of independent servers with a maximum of about 3000 players like other games. Instead they have one big cluster of servers for all players to inhabit.

EO currently have about 200 000 active players, which is not a very large number compared to other MMO games, but the game is famous for its committed community.

As mentioned earlier, one of the main things that profiles EO is that all players play in the same server cluster. One other thing that is mentioned at the official web page[1] is that characters advance also when they are not online, which is not the case in other MMO games where all advancement in the game has to be done when being in the game.

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[1] http://www.eve-online.com

On CCPs official page[2] it says: "CCP does this by establishing and nurturing a trust relationship with customers both in terms of quality of content as well as quality of service". It the continues with: "CCP encourages respect, dialog, interaction and co-operation on a deeper level between its employees and customers than is common in online games. By this and through this CCP provides a unique way for improving the quality of its products and creates an inspiring and challenging environment for talent to thrive". This means that CCP sees them selfs as having a better customer relation than competing developers.

5.1 Web Forum

The structure of Eves forum is very similar to WoWs. One of the main differences is that the bug report are not a part of the forum. An other thing that is worth mentioning with this separation is that there is a button called "My bug Reports" under which you can see the bugs reported by you, instead of having your reports mixed up with other forum posts. All posts back since the release 2003 are stored and can be read by anyone making it easy to track back.

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[2]http://www.ccpgames.com

Chapter 6

Age of Conan: Hyborian Adventures

Figure 6.1: Age of Conan: Hyborian Adventures

Age of Conan: Hyborian Adventures (AoC) is an MMO game that is developed by Funcom. Funcom have had previous success with the MMO Anarchy Online.

AoC is based on the world of Hyboria, created by the author of the Conan books, Robert E. Howard. The games release date is May 20th 2008 in North America and May 23th 2008 in Europe which is in the end of the research period. It is predicted that AoC will be a big success and may be the first MMO to threaten World of Warcraft on the throne of MMO games, something that supports this is an article on the official website [1] that reports that over 1 million has signed up to the beta and that several mayor retail chains reports that the pre-order numbers tracks among the highest for any MMO release.

On the official community site[2] Funcom makes it very clear how they are profiling the game. When reading the frequently asked question (FAQ) section on the question "1.8 What will make Age of Conan stand out among the other MMOs out there?" the first

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[1] http://community.ageofconan.com/wsp/conan/frontend.cgi?func=publish.show&&func_id=2471&sort=PRIORITY&table=CONTENT, May 13th, 2008
[2] http://community.ageofconan.com

thing that is mentioned is "one of the main goals with Age of Conan was to improve the MMO formula and take the genre in an innovative new direction". This is further discussed by describing the combat system that is said to be innovative and unique.

On Funcoms official web page they profile them self as "a world leading independent developer of computer and console games with a focus on Action Adventure and Massively Multiplayer Online Games". As far as it goes with customer relations, the only thing mentioned is "All our customers shall be treated with respect, integrity and understanding. We shall deal with customers' needs in the best possible manner within the business and ethical parameters that apply to Funcom", which in contrast to the other developers do not mention as clearly the customers part in the actual development.

6.1 Web Forum

Before the game was released the game had two separated forums, one for players in the closed beta and one for everyone else. The focus here will be on the open forum as I did not have access to the beta.
When browsing the forum one thing that strikes you is that it not as well maintained as WoWs and Eves forums. This especially gets clear when going into the part of the forum called "General Discussion", which is the part of the forum with the highest activity. Here half of the first page is made up by so called "stickies", which are announcements and information from the forums moderator. This makes the space for other posters limited and topics gets pushed back to the second page quickly, and opinions may be missed.

Looking at the discussions in the forums, one that clearly stands out is the one about Funcoms choices of server types. Funcom has chosen to limit the servers to PvE, PvP and RP-PvP, and the PvP are totally free-for-all (FFA), meaning there are no RP-PvE or RvR servers. This discussion is something that it is clear that Funcom listen to because at release both RP-PvE and RvR servers were announced.

Another observation is that the developers are not very active, and questions that are directly addressed to them are more likely to be answered by other community members. Instead, looking at third-party forums, developers are more active posters and are more willingly to answer questions.

At release Funcom decided to remove the old forum and make two new forums where the European and American players are separated. It should also be mentioned that the forums are only accessible for paying subscribers. This could lead to problems as discussions are held separated and players of the different parts don not know what is being said at the other side. Plus that the process of gathering information might become twice the effort.

6.2 Polls

Funcom has during the development of AoC performed large scaled polls. These have been performed continuously for the last years and the questions where of many different

types, such as; age, location, playing style, what class in the game is people prefer and much more. This have clearly helped the developers get an understanding of what the player want, they can also see how the players have changed as more information of the game has been revealed.

Chapter 7

Warhammer Online: Age of Reckoning

Figure 7.1: Warhammer Online: Age of Reckoning

Warhammer Online: Age of Reckoning (WAR) is an MMO developed by Mythic Entertainment who are most reckoned as the developer of the well known MMO Dark Age of Camelot.
WAR is based on the strategic board game Warhammer from Games Workshop. WAR is currently in the beta phase, and will be released at fall 2008.

The main thing that Mythic points out for WAR is the strong focus on Realm vs. Realm (RvR). RvR implies that the game focuses on the wars between the different sides in the world, which in WARs case are: Dwarfs, Empire and High Elves vs. Green Skins, Chaos and Dark Elves. This encourages players of the different factions to participate in large scale PvP battles, that makes the winners side grow larger.

Another key feature that is mentioned is the Public Quests, that are strongly connected to the RvR aspect of the game. These are community driven PvE quests that helps the the players side growing larger. This means that also gamers that prefers PvE over PvP can make an impact on the world.

Mythic profile them self as "a small group of people dedicated to providing the very best in multi-player gaming. In addition to a professional team of programmers and artists, Mythic works with experienced gamers to produce the highest quality products for the gaming public", which very clearly points out that they put much value in their customers.

7.1   Web Forum

In contrast with the other games Mythic do not provide an official forum (other than players in the closed beta). Instead people that are interested in discussing the game is directed to third-party forums. It should also be mentioned the developers are active posters at these forums.

Chapter 8

Discussion

When looking at the four cases it gets clear that developers of MMO games work hard to involve the players into the development. WoW and Eve, being two established MMO games, both provides good platforms in which the communication between players and developers can take place. They are also quite similar when it comes to organization and availability, due to the fact that they are accessible from the official web page and can be viewed by anyone, not only the paying subscribers. This may be helping the knowledge building process of those who are about to start playing an MMO and want to have more information of the game before buying it, and this might be profitable for the developer company in the long run.

When a game is in the beta phase it is clear that the developers has a somewhat different approach. Just the fact that they have beta testing, that anyone can sign up to, shows that they make use of the players. But the number of players taken in to the beta testing is limited, and a lot of players are left out. While Funcom has given the non beta testers an open forum to discuss in, do Mythic refer completely to third-party forums. This do not change the fact that most of the two-way communication done by Funcom is also set out at third-party forums, as their own forum is mostly used by the future players and for the developers to post different types of official announcements. But everything that the non beta testers discuss about is entirely based upon the information provided by the developers, speculations, rumors and experiences from previously played MMO games. This might be the reason for the developers choice not to interact with them to such as an extend as the developers of the established games are.

Reflecting on the model presented by Holmström (2004) and the community knowledge use cycle. By looking at how players interact with each, it can be seen that a big part of the knowledge building process is taken place at the forums, not only in the game, as the players help each other in gaining an understanding of different aspects of the game in their discussions. And as these discussions are taken place at the forums that are moderated by the developers, this knowledge building process is very tightly connected with the knowledge elicitation process. For knowledge exploitation Holmström stresses the importance of product development iterations. Both Blizzard and CCP releases new patches regularly, with usually one or two months between.

Then, how do smaller actors are use the knowledge building-elicitation-exploitation process to survive the bigger actor? As mentioned the differences are not that big between WoW and Eve, and the differences to AoC and WAR are more likely due to the fact that they are in totally different parts of the softwares life cycle. It rather seems like strong profiling of the game and pointing at the uniqueness of the game, that is the most commonly used weapon against the giant.

When it comes to look at who makes contribution, in order to compare with OSS core and peripheral groupings Crowston et al. (1999) and leading edge users Jeppesen and Frederiksen (2004). The only of the four cases in which such a comparison is possible, without making a longterm evaluation and collecting a lot of quantity data, is WoW. This is because all posts shows which level the player has in the game, ranging from 1 to 70. Looking at the 30 latest bug reports in which a Blizzard employee has replied, 23 has been reported by level 70 players and therefor only 7 by lower level players (it should also be mentioned that during this time frame of 30 Blizzard responses there have been over 1000 post with no response). To say why this is the case is hard without making a more deep analyze, but it could mean that the high level players have more knowledge of the game and are therefore more likely describing an actual bug than a misunderstood feature. Though as mentioned this is something that would need a deeper research with this as a focus.

Chapter 9

Conclusion

The study set out to see how four MMO developers are taking use of their customers in order to improve their game. There is no doubt that developers of MMO games have a big interest in involving the customers into the development. And the customers on the other have big interest in improving the games, as many of the players are both spending a lot of time and money on the games. It is also obvious that the use of a web forum is the central platform for the communication between players and developers, when the game is in the maintenance phase. This is also the case for the games not yet released, but not on the developers own forums. Why it is like this is something for future researchers to find out.

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