Analysis and Design of E-Commerce on the Game Information Portal

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Abstract. The gaming industries stated to have income up to USD 40.6 million or around IDR 541 billion in 2016 with around 43.7 million gamers but unfortunately this growth only on gaming platforms and developers but not information providers. The purpose of the study is to provide facilities and information to everyone who is engaged in gaming and technologies industries. The research is designated using analysis design method with the unified modelling language (UML) diagram by Satzinger, Jackson, and Burd. The analysis are conducted merely on the social-business environment process in order to provide an all-in-one package that can help answers all the potential users’ requirements. The aim of this study is to show the business possibilities and opportunities for those who might want to expand their business or knowledge in gaming information platform industries.

Keywords: Gaming Industries, Unified Modelling Language (UML) diagram, Gaming information platform, Technologies

1. Introduction

In this era of information and technology, all of human activities could be improved and accelerated by the sophisticated technology of modern era. Thus, modern people want everything to be quick and easy, including the process of information gathering that could fulfill their curiosity and useful for them. Due to the rapid development of technology, companies that are included in small, medium and large industries, which is one of the deciding actors and supporters of economic activity in the country, are encouraged to use advanced technology in order to survive against their competitions.

Nowadays, the demand from the internet related transaction is increasing from the need for sales transactions as well as information and service. Internet based entertainment like Online games is on a high demand in the modern era, according to a report from Unity Technologies with regard to the development of the world gaming market throughout 2016. The revenue of the global gaming industry had reached US$ 40.6 billion (around IDR 541 trillion) in 2016 [1]. In the same report, SuperData reports the numbers of gamers (people who play videogame) in Indonesian, which continue to experience significant increases. Based on their data, Indonesia is currently a potential market for mobile platforms advertisers, not only in the Southeast Asian region but also around the world. That is because the high numbers of comparison regarding the game application instalment in Indonesia that could reach into the three times the numbers in three other countries such as the United States, Mexico, and India.
According to the predictions of the Indonesian Creative Economy Agency, as quoted from Detik, the value of the game market in Indonesia increases rapidly from year to year. In 2016, the Indonesian gaming market is estimated to have nearly broken the US$ 700 million figure (around IDR 9.3 trillion). This number is likely to increase by the end of 2017 [2]. The illustration of the global revenue generated from the mobile gaming industry is shown in Figure 1 below.

![Figure 1. 2016 Mobile Games Revenue (Source: Superdata, 2016)](image)

According to the Open Gaming Alliance (OGA)’s latest report stated that PC Gaming is expected to experience an increase in the market in 2018, which means that it would increase by 33% over the next 4 years [2, 3]. In their report, OGA also stated that electronic sports (e-Sports) and games that require a lot of players (multiplayer) would be the type of game that dominates the market. Mobile and tablet games or mobile gaming are also estimated to get profits exceed USD 30 billion figure (around 407 trillion rupiah) as illustrated in Figure 2.

![Figure 2. Prediction for Global Game Development (Source: Newzoo, 2017)](image)

It is obvious that player of the game needs the internet in order for the game process and conducting activities related to the game such as looking for game recommendations, looking for the
latest news related to the game or looking for tips and tricks to properly play a certain game. However, there are only a handful of video game information suppliers on the internet. There are only few platforms on the internet that provide all kinds of information needed by gamers related to the game. It would be difficult for gamers to look for game information on the internet, usually they would move from one website to another website due to the incomplete information on a single site. It would obviously take a lot of time due to the difficulty in finding a reliable information from a single source which is in contrast with the current trends. There is also the fact that modern people want everything quick and easy.

Therefore, there is a business opportunity in the videogame information media and intend to create an e-commerce game information provider where people could get all the information of multiple games in one place. However, some economic constraints as well as technical reasons prevent this research from completing the whole business planning process. The research did complete several stages of the business planning process which in accordance with the System Development Life Cycle (SDLC) theory by [4] which includes planning, analysis, and design.

2. Research Method

This research method was conducted through a survey that aims to obtain information through a number of respondents which is considered to represent a particular population. The main point of this research is the explanation in which it aims to explain the state and situation of the business related to the game information provider.

2.1. Sample and Population

2.1.1. Population

According to Sugiyono, population refers to the area of generalization which consist of objects or subjects that possess certain qualities and characteristics which would be studied by researchers and then achieve the conclusion of the topic [5]. So the population is not only people but also objects and other natural objects. Population is not just the amount that exists on the studied object or subject, but it also includes the characteristics or properties possessed by the subject or object. In this study the population is gamers who played several both online and offline games.

2.1.2. Samples

According to Sugiyono the sample is part or number and characteristics possessed by the population. If the population is large, and researchers may not learn everything in the population due to the limited funds, time and human resources. Therefore, researchers will only take a portion of the sample to be studied and examined, and the results of the research will be the conclusion to the topic that is currently being studied, thus, the sample taken from the population should be truly representative in regard to the things that are being studied [5]. In this study the samples are gamers those who play video game at least 15 times in a month. The author managed to get 50 respondents who met these criteria.

2.2. Sample Collection Technique

The sampling technique used in this study is non-probability sampling, which is a sampling technique that does not provide an opportunity for every member of the population, and purposive sampling which is a sampling technique for data sources with certain considerations. This study criteria of taking samples of men and women who like to play games at least 15 (fifteen) times in a (one) month.

2.3. Data Collection Technique

According to Sugiyono, the type of data that would be used in this study consists of two data [5]:
1. Primary Data: Primary data is an information collected by researchers directly from the source. Primary data used in this study are as follows:
   a. Questionnaire: conducted By giving questions to respondents with questionnaire guidance. Questionnaires are data collection techniques by handing written questions that would be answered by respondents [5]. In this study the questionnaires would be distributed through Google Form media.
   b. Observation: Observation would be done directly to the research subjects, ie gamers who like to play games for at least 15 (fifteen) times a month.

2. Secondary Data: Data obtained indirectly in the form of information or literature relating to research.

3. Results and Discussion

3.1. Current Environmental Conditions
The Game Industry today has prospered with a large amount of profit and market share and is certainly accompanied by a high amount of demand, but unfortunately the same thing does not happen in the type of game information business as evidenced by the fact that only a handful of people involved in the business that provides game information.

3.2. Problem
However, it cannot be denied that even though the gaming information business has a plenty of business opportunities, there are problems that need to be faced in the development of the gaming information industry such as:
1. Sources that would be able to provide clear and reliable information is still hard to find and maintain due to informations being scattered on search engines and less structured.
2. The difficulty of getting a complete information regarding certain game since most of the informants who provide information about the game on search engines does not provide complete and comprehensive information.
3. The process of getting information is quite long and troublesome because it needs to pull many informations from various sources.

3.3. Problem Solution
Here are some solutions that the authors implement to solve the problems that are being faced in the gaming industry. One of the solition could be done by providing a website or platform that would be able to provide a complete, accurate and reliable information since an existence of a platform that could provide information means that gamers won’t be bothered by the process of searching and filtering information.

3.4. Problems and Opportunities
The rise of gamers and the fact that there are not yet many competitors in the industry of game information providers as well as problems regarding the difficulties that were experienced by gamers in order to obtain complete, accurate and reliable game information would open a big opportunity for the researchers to conduct a GIP based business.

The problem that would be faced is the difficult of sorting out information that would be displayed as well as the difficulty to keep in check for the latest trend and news from game developers as well as challenges in ensuring the satisfaction and trust of GIP users to obtain the expected information. To ensure that everything goes according to the expectations of GIP, it is necessary to continue research and development of the product in order to continue to innovate to provide an expected services for the community and fulfill all the company's vision, mission and personal goals.
3.5. Ongoing Information Systems

Based on the system that is running in the field of gaming, the author has observed and surveyed several similar types of websites and business and determined several businesses that could be used as a reference and benchmark in the sector of gaming information services such as Wikia, Steam and Gameinformer.com. Company, as a benchmarking actor would be determined through the perspective of the game information provider only. All of the assessments would refer to the perspectives and interests of the gaming information service provider and putting aside all other aspects. The selection of the company as a benchmarking actor is based on an assessment from the aspect of game information service providers where some of the competitors that are mentioned earlier have a potential to become a source for the gamers to look up for information.

The author makes comparisons on several websites regarding the features offered by several companies earlier, and the results are displayed in Table 1 and Table 2 as follow:

**Table 1.** Comparison with Other Game Information-Provider Websites

| No. | Features                           | GIP | Wikia | Steam | Gameinformer.com |
|-----|------------------------------------|-----|-------|-------|------------------|
| 1.  | Looking for a game information     | V   | V     | V     | V                |
| 2.  | Buying game                        | X   | X     | V     | X                |
| 3.  | E-wallet                           | X   | X     | V     | X                |
| 4.  | Real time chat with friends        | X   | X     | V     | X                |
| 5.  | Real time chat with admin          | V   | X     | X     | X                |
| 6.  | Playing Game                       | X   | X     | V     | X                |
| 7.  | share, comment and likes feature   | X   | V     | V     | X                |
| 8.  | digital magazine                   | X   | X     | X     | V                |
| 9.  | Gameplay watching                  | X   | X     | V     | V                |
| 10. | Looking for tips                   | V   | V     | X     | X                |
| 11. | Looking for guide                  | V   | V     | X     | X                |
| 12. | Looking for walkthrough            | V   | V     | X     | X                |
| 13. | Looking for cheats                 | V   | X     | X     | X                |
| 14. | Looking for top gamers             | X   | X     | V     | X                |
| 15. | Looking for game review            | V   | X     | V     | V                |
| 16. | Making a game review               | V   | X     | V     | V                |
| 17. | Making a rating                    | V   | X     | V     | V                |
| 18. | Gives rating                       | V   | X     | V     | V                |

*Assessment was based on the subjective preference of the researcher*
Table 2. Assessment Comparison of Similar Websites

| No. | Comparison  | GIP | Wikia | Steam | Gameinformer.com |
|-----|-------------|-----|-------|-------|------------------|
| 1.  | UI interface | 3   | 4     | 5     | 4                |
| 2.  | Usage       | 3   | 5     | 5     | 4                |
| 3.  | Utility     | 5   | 3     | 4     | 2                |

(notes: 1 = Bad, 5 = Good)

*Assessment was based on the subjective preference of the researcher.

Based on Table 1, it could be inferred that Wikia's website could only search for information, tips, guides, game walkthroughs as well as the feature of share and comments. Then, there is the Steam website which is also doubles as a game developer is indeed focused more on game sales, so do not be surprised if Steam has an e-wallet feature which enables visitors playing online games, purchasing games, real time chat features with friends and admin, searching for reviews and rating a certain game. The downsides are steam does not provide information on tips, guides, walkthroughs and cheats. The last website is gameinformer.com website which is the website that provides the a fewer features compared to steam and wikia namely watching gameplay, giving and searching for game reviews and ratings.

And thus from these data it could be concluded that some user needs cannot be answered by some of the websites above and from that the authors see an opportunity to provide complete, clear, accurate and reliable information to meet the needs of users. By providing a GIP that outlines almost all the features associated with the game such as the search feature tips, guides, walkthroughs, cheats, news, real time chat features with the GIP admin, create and search for ratings and reviews on the game. Some of which are not featured by other websites.

With the detailed assessment in Table 2 this is a UI GIP display that still does not allow a good interaction process, and website design is still minimal with a lack of graphic design and aesthetic value in it, this is in contrast to Wikia, Steam, and Gameinformer.com where they can provide attractive and easy-to-use websites for their users with designs and functions that are easy to understand. Then for a comparative assessment regarding the difficulty of using the system would be assessed from UI design aspects that prioritize aspects of customer convenience (users friendly) in using a website and the speed of a website in processing activities conducted by the user, GIP is underdeveloped in regards to the aspect of customer convenience due to UI design and websites that still tend to be less than good and require a relatively longer time to use compared to other websites, which shows GIP inability to shows a maximum convenience to their customers. Regarding the assessment of website utilization based on its function GIP has the highest value where GIP in the context of game information providers could provide all the features needed by the users where these features have been selected based on the respondents' choice on the distributed questionnaire.

Table 2 shows that the GIP user interface and the design of the GIP website are still below its competitors due to the GIP website still in the stage of development, but the utility (utility) of the GIP website is better than other websites.

3.6. Financial Analysis

This study would obviously include the calculation of the total of expenditure and income when the GIP business is conducted in the future. These are the estimated calculation of the expenditure:

1. VIP Member price per month is IDR 100000
2. The employees that would be involved in the initial phase of business (development) is the Marketing Staff who will conduct the marketing process and website content management, the General Administration who will take care of legalization and human resources issues, and the IT Staff who will take care all of website needs.

3. The initial capital needed is the provision of office space and office supplies where the office is a co-working space rental in the Jakarta area and the administration of business opening legalization (SIUP).

3.7. Initial Budget Spent
The calculation of the initial budget, especially to cover the initial expenses to launch the business is shown in Table 3 as follows:

| Expenses            | Description           | Quantity | Frequency | Cost (IDR) | Total (IDR) |
|---------------------|-----------------------|----------|-----------|------------|-------------|
| Marketing Admin     |                       | 2        | Monthly   | 3500000    | 7000000     |
| Marketing Advertising|                      | 1        | Monthly   | 2500000    | 2500000     |
| General Administration Finance |           | 1        | Monthly   | 3500000    | 3500000     |
| Rent Office Co-working Space |         | 1        | Yearly    | 10000000   | 10000000    |
| Office Supplies     |                       | 1        | Yearly    | 6000000    | 6000000     |
| Permits (SIUP)      |                       | 1        | Yearly    | 2500000    | 2500000     |
| IT IT Staff Hosting |                       | 1        | Monthly   | 3500000    | 3500000     |
| Website Hosting     |                       | 1        | Monthly   | 500000     | 500000      |
| **Total Expenses**  | **IDR 35500000**      |          |           |            |             |

3.8. Return on Investment (ROI) Calculation

ROI = \( \frac{\text{Total expenses}}{\text{Investment}} \times 100\% \)

ROI = \( \frac{35500000}{18500000} \times 100\% \)

ROI = 191\%

3.9. Target Marketing in One Year after Initial Website Launching
1. Acquire a total of 2000 VIP Member in a year
2. Acquire a total of 20000 Visitors in a year
3. Acquire a total of 288 Advertisers in a year
Detail of yearly income calculation is detailed in Table 4, Table 5, and Table 6 below:

**Table 4. Income Target**

| Month | Persons | Qty (month) | Price (IDR) | Total (monthly, IDR) | Total (Annual, IDR) |
|-------|---------|-------------|-------------|----------------------|---------------------|
| 12    | 2000    | 167         | 100000      | 1670000              | 20040000            |

**Target of Income from Advertising**

| Month | Ads    | Qty (month) | Price (IDR) | Total (monthly, IDR) | Total (Annual, IDR) |
|-------|-------|-------------|-------------|----------------------|---------------------|
| 12    | 288   | 24          | 200000      | 4800000              | 57600000            |

**Table 5. Table for Visitors Target**

| Month | Persons | Qty (month) | Price total (monthly) | Total (Annual) |
|-------|---------|-------------|-----------------------|----------------|
| 12    | 20000   | 1,667       | 0 IDR                 | 0              |

**Table 6. Table for Revenue Target**

| TOTAL REVENUE (Annual) | |
|------------------------|---|
| VIP Member             | IDR 200,400,000 |
| Ads                    | IDR 57,600,000  |
| TOTAL                  | IDR 258,000,000 |

It cannot be denied that during its first year, GIP will focus on marketing and will spend more money than getting revenue but it is done solely to achieve the above calculation.

4. **Conclusions**

Nowadays the developments and advancements of technology affecting the gaming industry has led to the rise of the number of players. This has expanded the game industry which in turn overtake the international market. Even though information about certain game is available on search engines, the majority of the information is still incomplete and unfinished, making it difficult for gamers to find a complete and accurate information. The situation created a business opportunities, where there is a demand for a one-stop platform providing complete information on games.

To answer this problem, the research created a business called GIP which stands for Games Information Platform. GIP aimed to provide all the needs of gamers in one place. GIP itself is designed to be able to provide all needs in terms of information about the world of gaming ranging from news, tips and tricks, cheats, guides, walkthroughs to game ratings and reviews as well as the choice of membership type, namely regular members and VIP members which are distinguished with a portion of information and features that could be enjoyed. As a business, GIP offered an online information
system media that is accessible as long as there is a connection, accommodating the gamers’ information needs, and to seek profits. Even though the demand for GIP originated from the need for complete information about the world of gaming, it also offers other benefits such as providing search effectiveness and time efficiency for gamers, replacing the function of current search engines which could take a lot of time.

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