Chapter No. 7
"Limits of Game Data Analysis"
In this package, you will find:

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About the Author

Coupart Thibault had been studying town planning and statistics for years before he developed an in-game data analysis. Switching from the real world to the virtual world, he studied game design and completed his transformation with his first professional experience at Corexpert. Working on a database of more than 20,000 players, he has experience with the study and analysis of data in order to deliver various insights for the company.

I would like to express my very great appreciation to Mr. Olivier Masclef for the time spent at the Gamagora video game school, my supervisor Mr Jérôme Vuillemot at Corexpert, and Mr. Johan André- Jeanville (from a consulting firm for LudoStat data analysis) for his advice on various topics related to game data analysis.

For More Information:
Game Data Analysis – Tools and Methods

Game Analytics is a general guide about the tools and the methods used in the data analysis applied to the video game field. In the seven chapters of this book, we will see a wide range of topics included in the domain, such as how to use game analytics to improve features and game design, balancing, technical tools, reporting of Key Performance Indicators, and some advanced statistical process.

What This Book Covers

Chapter 1, Context and Themes in Games, contextualizes the subject inside the current state of the video game industry. We will outline some of the economic trends that affect it, and explain why game analytics is going to get bigger and bigger. Moreover, we will highlight the topic under the angle of the sociological approach, providing a list of important gaming appetencies already identified by previous researches.

Chapter 2, Common Key Performance Indicators, gives a complete list of the most useful indicators, which are currently used in the video game industry, classified by type, from the acquisition and the retention of players to its monetization.

Chapter 3, Environment and Tools for Data Analysis, highlights tools dedicated to data mining and the treatment of data. We will have a few words about advantages of relational and non-relational databases, and explore some commercial solutions as well as free solutions.

Chapter 4, Game Analytics and Generation of Content, describes in detail one of the most famous process initiated with the rising of analytics, the A/B testing, and the generation of content based on data analysis. Some very concrete examples will be highlighted in which area of your game the A/B testing is usually the most interesting to perform.

For More Information:
Chapter 5, Advanced Analysis and Statistical Methods, tries to give an overview of different tools used in the statistical field and how they can be used for video game analysis. We will see the most common indicators, such as the mean, median, and standard deviation, and we will also explore some processes from the machine learning field, such as clustering algorithms.

Chapter 6, Data Visualization, gives some of the best practices about visualization of the data and some of the traps you need to avoid with it. We will talk about graphic semiology and present some concrete example problems, such as the choice of scale for a chart.

Chapter 7, Limits of Game Data Analysis, tries to give a final word on the topic and will highlight some of its limits inside the framework of the video game industry.
Limits of Game Data Analysis

In this last chapter, we will see some general recommendations about game analytics and the kinds of limits they have. The first section will detail the philosophy and objectives that should guide the use of game analytics, and the second section will outline their limits.

**Which game analytics should be used**

This section will focus on the role data that should take in your production process. As a studio, the first step is to identify your needs and to choose the goals you will attribute to game analytics.

**Game analytics as a tool**

Firstly, it is important to understand that game analytics are a tool, which means they can serve several purposes. You can use them for marketing, science, sociological studies, and so on. Following this statement, you will need different tools and different approaches to reach your goal. As this book has tried to highlight it, tools are chosen according to problems, regardless if the choice is technique or analysis. You must not choose a tool because it is said to be the best performing tool ever made, or because it is fashionable. Instead, you must choose a tool because it is said to be the most efficient tool for your needs. Try to answer the following questions:

- What are the long-term uses I plan to do with game analytics? Is it simply reporting the Key Performance Indicators or is it the building a user-centric framework for deep analysis?
- What are the types and the level of skills of the people who will work on it? Do I have all of the skills, from data scientists to game analysts, or do I need to choose a solution which will offset some lacks in a particular field?

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• How much data will be collected? How do I plan to deal with possible peaks of frequentation?
• How do I adapt temporalities of reporting and analysis with the rhythm of production I have on my project? Do I split them weekly or monthly?
• What are the main goals of my process? Do I want to build a predictive model (for example, based on correlations) in order to define the next acquisition campaign I will run? Do I want to increase the monetization rate on the current player base? Do I want to perform A/B testing? And the list goes on.

Game analytics must serve your team

Secondly, it is important to ensure that the use of game analytics must serve your team as a whole. They should not have any disagreements about the long-term objectives that you have chosen.

They must accompany it and especially improve it, but the general objective should remain the same. Given the current state of the field, withdrawing the "human touch" from the design process entirely and listening only to data would be a mistake. That's why the game analytics process should be thought through the prism of your own team; and therefore, should be presented as a new tool. This will help them to make good decisions for the game.

The best example for the democratization of "game analytics way of thinking" inside your team is certainly the A/B testing aspect. If you experience debates about particular features in the game, instead of taking part you can propose to use A/B tests for some of those features.

Following this, there are no particular limits to the use of the tool. A game designer can test different balancing on the virtual economy of a game and an artist can experience different graphic styles.

When starting, focus your attention on simple practices

If you are new to the field, the following list may help you to start defining your first objectives. It contains most of the typical use for online games, especially free-to-play games:

• Producing KPIs on a weekly or monthly basis, according to your needs. These KPIs will help you to orient the upcoming development of your game and to anticipate the return on investment of your acquisition campaigns.
• Identifying if some of the steps of your tutorial phase are poorly designed; for example, if you have a sudden player loss at a particular step of your tutorial.

• On the same idea, having the loss of players at each level is also very useful to improve the general balancing of your game, especially the progress curve and the difficulty. This topic is more important if you have a part of your business model based on purchasable goods, which can increase the progression rate of the player.

• You can evaluate which area and which purchasable goods of your game are generating the best income.

• You can perform A/B testing on particular key features of your game in order to see which ones are the most efficient.

What game analytics should not be used for

On the other hand, there are a few limits that you need to know before using methods and processes from game analytics.

Keep away from numbers

You must always be careful about the fact that numbers are used to represent a given situation during a "T" instant. From this statement, the predictive models must always be revised and improved. They should never be considered as the perfect truth.

In order for the process to be efficient, it is quite important to keep research on the data inside the structure defined by the initial goals. Otherwise, you might split your efforts and no actionable insights would be identified.

In other words, numbers must remain at their place. They are a tool in the hands of a human subject, and they should not become an obsession. Try to reason if they make any sense and if you are asking the right question.

Practices that need to be avoided

As mentioned in the previous section, if you are new to this field, be aware of the following situations:

• Data cannot dictate the full content of your next update. If it is the case, you may first re-evaluate the general intention behind your product and talk with the game designer.

For More Information:
- When starting, try to avoid complex questions that involve external factors in the game, even if they seem crucial for you. For example, trying to understand why people stopped playing your game over a long period of time is usually impossible. Old players might stop playing because another game came out or they just got bored. Data cannot make miracles at this point of the engagement.

- Data must not take too much ampleness in the creative process. There are some human intentions and ideas, and only then the data comes in order to verify and improve the potential success of those intentions.

- Data must not slow down the performances of the game. One of the common methods to avoid this is to send the data when the player logs in or logs out and not at each click or each action.

**Summary**

This is the end of this chapter, and the most important thing you need to remember about game analytics in general is the importance of the definition of your objectives. The reason why you choose this tool instead of another (and this book has tried to list a maximum of them, from data mining to pure analysis) is because it fits your needs as much as possible. This statement is true at every stage of the reflection process which surrounds game analytics, from the choice of the storage solution to the type of analysis you want to perform.

The rising of a fully-connected state in the video game industry offers developers the opportunity to change the way they create games, but there is no doubt that the level of maturation related to this tool has not reached its maximum yet. Therefore, even if the benefits of game analytics are great, be prepared to make mistakes as well; and keep your own process open to various criticisms from your team.

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Where to buy this book


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