

# Press Start Now! How the Video Game Industry is using Big Data and Analytics in Today's Games.

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Bellevue University - DSC500-T304 Introduction to Data Science

## Introduction

What started in the research labs of scientists [1] has become one of the most popular and profitable forms of entertainment [2] in the 21<sup>st</sup> Century; one that rivals the likes of Hollywood mainstream movies. Video games have demonstrated an unprecedented evolution in terms of presentation and gameplay mechanics over it's 60 years of history.

### 2017 GLOBAL GAMES MARKET - TOTAL REVENUE (BILLIONS)

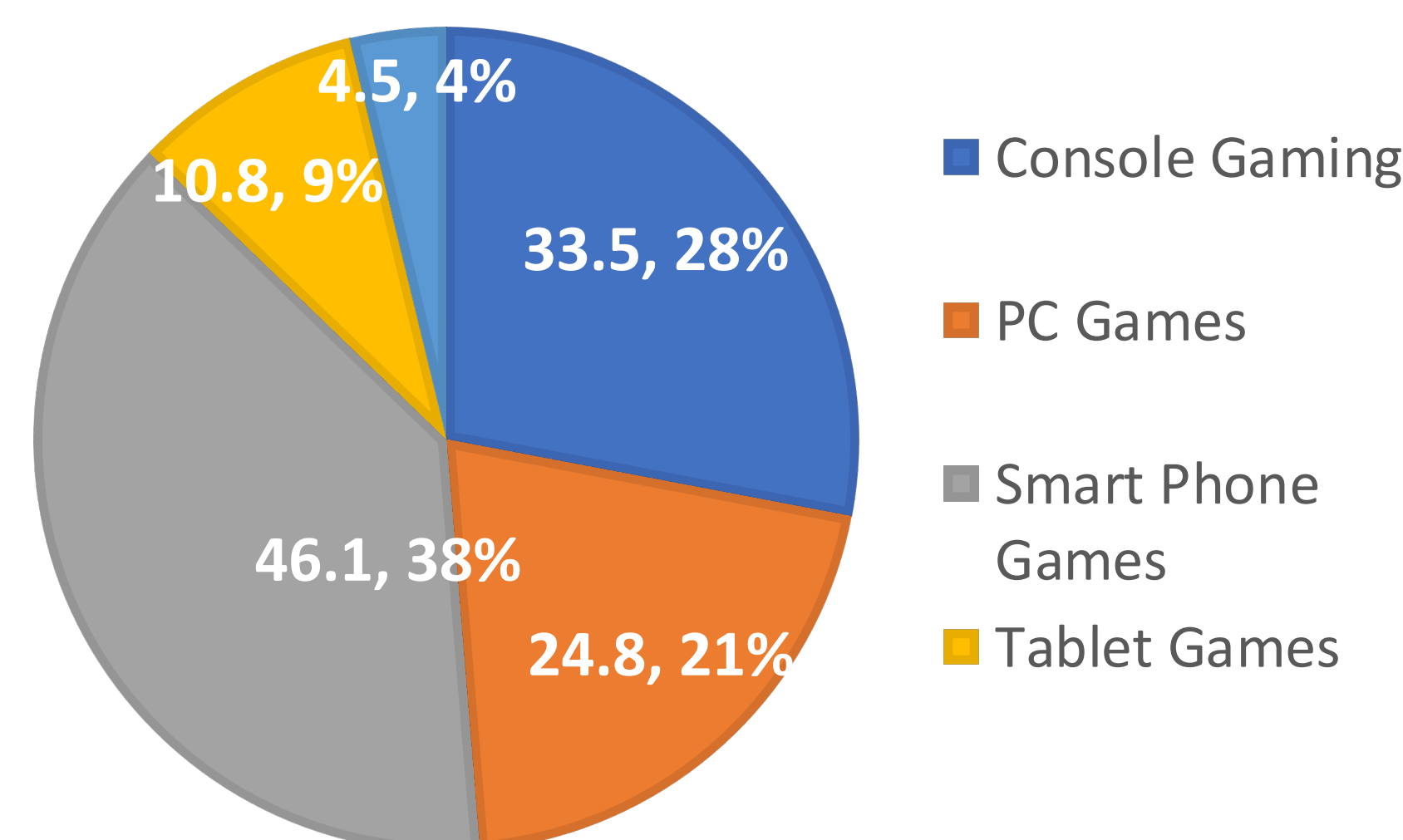


Figure 1. Total Revenue for 2017 by Segment [10]

Video Games development has attracted the attention of anyone and everyone wanting to express their creative endeavors or simply wants a take of the earnings, leading to an market oversaturation: too many developers making too many games all vying for our attention. Innovation and quality are no longer measures of success; however, this turn of events has lead companies and developers to recognize a new key success factor: understanding their player base and how they play games.

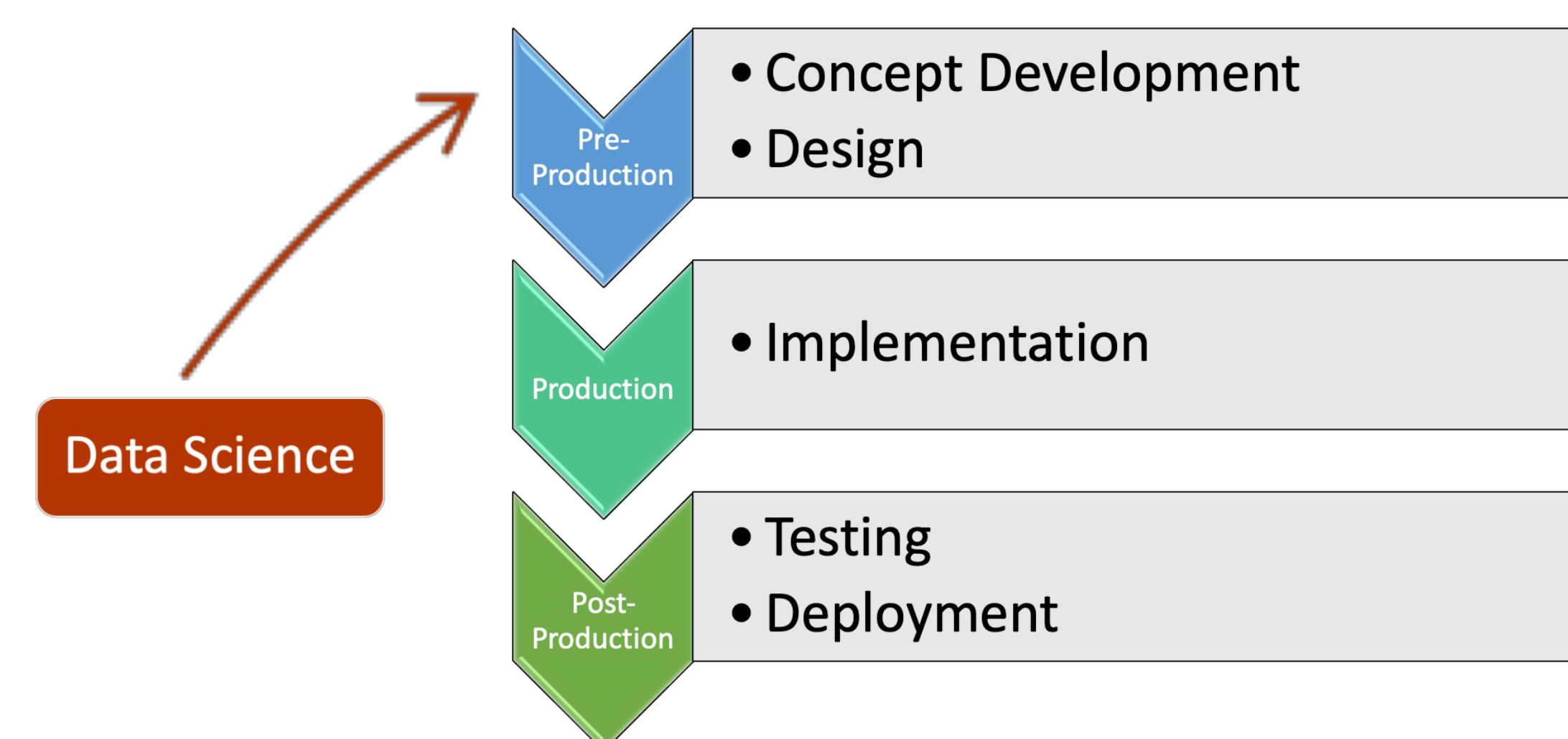
## Big Data and Analytics in Games

Based on research conducted by Nielsen in 2013, gamers (ages 13 and up) spend an average of 6 hours playing video games a week [3]. That's six hours of telemetry [4] which Video Game companies actively collect. This data, along with non-gameplay related data from social media and Internet, are used for a wide variety of purposes, including: gauging customer engagement, determine strategic advertising and optimize the gaming experience [6].

## Data Science in the Video Game Development Cycle

Current state, this way the gaming industry is using the insights Big Data and Analytics falls more in line with the objectives of Business Intelligence. Companies and developers can leverage these insights to determine the best course of action within the development of a new product. However, does this incite any real change to the development process?

The Game development cycle, despite it's various iterations and flavors, follows a decidedly procedural approach on how games should be made[5]. What would happen if we were to add the Data Science process to the mix?



## Machine Learning Applications In Gaming

Machine Learning has to potential to streamline workload, such as:

- Scripting non-player character (NPC) behavior.
- Creating models for complex systems
- Improving graphics and special effects [9].

## Pause! - Concerns

While the prospects of Data Science appears exciting, there are few games that actually implement these [11]. The concern of use stem from:

- Time and resources to set these up properly.
- Not enough available historical data.
- Little understanding of Data Science and Machine Learning from Developers to see any value.

## Beyond the Bounds

Despite the hurdles and multitude of questions that can and will arise, the Data Science process poses a unique and exciting opportunity. One that can potentially streamline the development time and costs, but also introduce new avenues for gameplay and creativity.

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