SERIOUS GAME MARKET

ANALYSIS & FORECAST (2015–2020)

BY VERTICAL (EDUCATION, CORPORATE, HEALTHCARE, RETAIL, MEDIA AND ADVERTISING), FUNCTION (TRAINING, SALES, HUMAN RESOURCE, MARKETING), PLATFORM, END-USER (ENTERPRISE, CONSUMER), AND REGION
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1 INTRODUCTION

1.1 OBJECTIVES OF THE STUDY

- To define, describe, and forecast the serious game market on the basis of types of vertical, function, platform, end user, and region
- To provide market statistics along with a detailed classification on the basis of market size
- To provide key trends related to the serious game market that shape and influence the market
- To analyze the serious game market with a special focus on end-user segments that have a high growth rate
- To forecast the market size of segments with respect to four main regions (along with countries), namely, North America, Europe, Asia-Pacific, and Rest of the World
- To strategically profile key players on the basis of each type of market and comprehensively analyze and understand their capabilities
- To provide the impact analysis of market dynamics with factors currently driving and restraining the growth of the market, along with their impact on short-, medium-, and long-term landscapes
- To provide a detailed Porter's Five Forces analysis along with the evolution and time-line of the serious game market
- To provide an overall view of the global market through illustrative segmentation, analysis, and forecast of the major regional segments
- To track and analyze competitive developments such as joint ventures, mergers & acquisitions, new product developments, and research & development in the serious game market
- To track the competitive intelligence from company profiles, key player strategies, and game-changing developments such as product launches and acquisitions

1.2 MARKET DEFINITION

A serious game is a game whose main purpose is not to entertain but rather to provide education and training services. Serious game simulates the real world into a virtual world scenario. These games are useful especially when the cost of on the job training is much expensive. Serious games provide the opportunity for learning and training, thereby allowing the employees of a company to be challenged and rewarded. The serious games are primarily targeted beyond primary & secondary education, and are used for verticals such as aerospace & defense, automotive, corporate, energy, government, healthcare, and retail.

*Capabilities of the companies are captured in terms of their key developments, SWOT analysis, and key strategies adopted by them to sustain their position in the market.*
1.3 SCOPES OF THE STUDY

1.3.1 MARKET COVERED

Based on the type of vertical, the serious game market has been segmented into aerospace & defense, automotive, corporate, education, energy, government, healthcare, retail and others.

Source: Annual Reports, Press Releases, Investor Presentations, Expert Interviews, and MarketsandMarkets Analysis

1.3.2 YEARS CONSIDERED FOR THE STUDY

The base year used for company profiles is 2014. Wherever the information is available, the financial year 2015 has been considered for providing the latest company information.
1.4 CURRENCY & PRICING

The currency used in the report is U.S. dollars, with market size indicated both in $billion and $million.

- For companies that reported their revenues in U.S. dollars, their respective annual reports were used as reference.
- For companies that reported their revenues in other currencies, the average annual currency rate during a particular year has been obtained from the OANDA website to convert the value in U.S. dollars.

1.5 LIMITATIONS

This report focuses only on the functions mentioned under the serious games market. The scope of this report is limited to the software segment only and the hardware segment has not been considered.

1.6 STAKEHOLDERS

- Game designers and developers
- Technology providers
- Application providers
- Training providers
- Advanced visual systems providers
- Research organizations and consulting companies
- Universities and associations working on serious games
- Technology investors
2 RESEARCH METHODOLOGY

2.1 RESEARCH DATA

Secondary sources such as encyclopedia, directories, and databases such as OneSource and Factiva have been used to identify and collect information for an extensive technical and commercial study of the serious game market. Primary sources such as experts from related industries and suppliers have been interviewed to obtain and verify critical information as well as assess future prospects. Key players in the serious game market have been identified through secondary research, and their market share has been determined through primary and secondary research. This research includes the study of annual reports of top market players and interviews with opinions of key leaders such as CEOs, directors, and marketing personnel.

FIGURE 1 RESEARCH DESIGN

In the secondary research process, various secondary sources have been referred to for identifying and collecting information pertinent to this study. Secondary sources include annual reports, press releases and investor presentations of companies, white papers, certified publications, articles from recognized authors, directories, and databases. Secondary research has been mainly done to obtain key information.
about the industry’s supply chain, the market’s monetary chain, the total pool of key players, market classification and segmentation according to industry trends to the bottom-most level, geographic markets, and key developments from both market- and technology-oriented perspectives.

In the primary research process, various primary sources from both supply and demand sides have been interviewed to obtain qualitative and quantitative information relevant to this report. The primary sources from the supply side include industry experts such as CEOs, vice presidents, marketing directors, technology and innovation directors, application developers, application users, and related executives from various key companies and organizations operating in the serious game market.

After the complete market engineering (including calculations for market statistics, market breakdown, market size estimations, market forecasting, and data triangulation), an extensive primary research has been conducted to verify and validate the critical numbers arrived at.

Primary research has also been conducted to identify segmentation types, industry trends, and key players, and to analyze the competitive landscape, key market dynamics such as drivers, restraints, opportunities, burning issues, industry trends, and key player strategies, and the Porter’s five forces. In the complete market engineering process, both top-down and bottom-up approaches have been extensively used along with several data triangulation methods to estimate and forecast the market, including the overall market segments and sub-segments listed in this report. An extensive qualitative and quantitative analysis has been performed on the complete market engineering process to list the key information/insights throughout the report.

2.1.1 SECONDARY DATA

Secondary sources used for this research study include government sources, corporate filings (such as annual reports, investor presentations, and financial statements), and trade, business, and professional associations among others. The secondary data has been collected and analyzed to arrive at the overall market size, which has been further validated by the primary research.

2.1.1.1 Key data from secondary sources

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<thead>
<tr>
<th>PARAMETERS</th>
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<td>Qualitative Information</td>
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<td></td>
<td>• Company Websites</td>
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<td></td>
<td>• Annual Reports</td>
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<td>• Press Releases</td>
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</table>
### 2.1.2 PRIMARY DATA

An extensive primary research has been conducted after understanding and analyzing the serious game market scenario through secondary research. Several primary interviews with market experts from both the demand- and supply-side vendors have been conducted across four major regions, namely, North America, Europe, Asia-Pacific, and Rest of the World (Latin America, the Middle East, and Africa). Approximately XX% of the primary interviews were conducted with the demand side and XX% with the supply side. This primary data was collected through questionnaires, mails, and telephonic interviews.

#### 2.1.2.1 Key data from primary sources

<table>
<thead>
<tr>
<th>TYPES</th>
<th>PARAMETERS</th>
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<td>Geographic Split</td>
<td>▪ Overall market and sub-segments in 2014</td>
<td>▪ The global serious game market, segmented on the basis of geography - North America, Europe, Asia-Pacific, and the RoW</td>
</tr>
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<td>▪ CAGR of each region in the forecast period (2015–2020)</td>
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<tr>
<td>Global Market Size</td>
<td>▪ The global market size for 2014</td>
<td>▪ The global serious game market</td>
</tr>
<tr>
<td></td>
<td>▪ CAGR for the forecast period (2015–2020)</td>
<td>▪ The serious game market by sub-segments such as vertical, function, platform, end user, and region</td>
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<tr>
<td>Market Split</td>
<td>▪ Consumer-based serious game</td>
<td>▪ Consumer-based serious game, segmented according to regions</td>
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<tr>
<td></td>
<td>▪ Enterprise-based serious game</td>
<td>▪ Enterprise-based serious game, segmented according to regions</td>
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</table>
Key industry insights

- **Education and corporate segments** are expected to account for the major share of the serious game market.
- **China and the U.S.** hold great opportunities for the development of serious games.
- **The average growth for the serious game market** is likely to be between XX%-XX%.
- **Increasing need for user engagement and improved learning outcomes** are some of the driving factors of the serious game market.
- **Serious games are used majorly for training purposes in various fields** as they help reduce the costs related to training.

Source: Expert Interviews, Press Releases, and MarketsandMarkets Analysis

Breakdown of primaries

- **NUMBER OF PRIMARIES: BY COMPANY**
- **NUMBER OF PRIMARIES: BY DESIGNATION**
- **NUMBER OF PRIMARIES: BY REGION**

Note: *Others include sales managers, marketing managers, and product managers*

*The three tiers of the companies are defined on the basis of their total revenue as of 2013; Tier 1 = > $XX Billion, Tier 2 = $XX Million to $XX Billion, and Tier 3 = < $XX Million*
2.2 DEMAND-SIDE ANALYSIS

2.2.1 INTRODUCTION

The description and analysis of a market in this deliverable define the structure of the potential market through demand side factors. The analysis of the studied market and the estimation of the market size and its growth pattern depend on factors such as the political environment and the overall economic and market conditions that include, but are not limited to, historical trends, seasonal effects, or business cycles. Statistical techniques have been used primarily to understand the correlation of the demand variables with the studied market and assign weightages to these variables to develop a model for forecasting the market size. Wherever such analyses were not feasible, due to the lack of availability of data and other statistical/quantitative constraints, inferences have been made using judgmental forecasting techniques.

Economic-specific macro indicators and exogenous variables are considered for the demand-side analysis. Common demand-side variables that drive the market at the aggregate level are economic growth (GDP) of a country/region, seasonal trends in the foreign exchange market, nature of the corresponding economic sector, parent/industry market growth, demographic/political factors, and others.

The key demand-side variables that have been considered in the study of this market include the following:

**Demand-side indicators**

- The implementation of serious games would greatly help in reducing costs
- Death due to medical errors
- Increasing proliferation of mobile devices and social media

The estimations, however, assume that the regions studied will remain stable in terms of economic conditions and do not factor in any significant aberrance from the projected economic growth of the studied regions/countries.

2.2.1.1 The implementation of serious games would greatly help in reducing costs

The implementation of serious games could lead to cost savings. Several resources are required to impart training; for instance, in the automotive industry, training is required for a person to drive a vehicle and also to learn the various steps of production processes. Thus, training a person on one machine reduces the productivity of that machine as it can’t be used for other purposes. The implementation of serious games enables the operator to be better-trained and prepared for operating the machine in the real world. This would, in turn, reduce the requirement for maintenance and downtime of the machinery. Furthermore, the operating cost also gets reduced as the fuel cost is eliminated. The implementation of serious games, especially in automobiles, is expected to increase the confidence and productivity of new operators.

2.2.1.2 Death due to medical errors

Deaths due to medical errors were first recorded in 1999, in a report published by the Institute of Medicine (U.S.). It was estimated that approximately 98,000 people die each year because of human errors. In another journal for patient safety published during 2013, it was estimated that the number may be much higher than previously expected, that is nearly between 210,000 and 440,000 patients each year. This makes human error the third leading cause of death, following heart disease and cancer. These numbers pertain only to the U.S., and would be much higher if the other regions are taken into consideration. These types of human errors can be minimized through practice and adequate training. Serious game based
medical training is considered to be the best option to provide training to medical professionals. This would help in reducing the number of deaths due to human error.

### 2.2.1.3 Increasing proliferation of mobile devices and social media

Increasing usage of mobile devices and social media helps in enhancing the game based learning experience. Most of the people use mobile devices and social media, which makes it easier for them to have access to these serious games. Industries such as aerospace and defence, automotive, corporate, education, energy, government, healthcare, and retail can provide serious games in mobile devices and social media which can be easily accessed by their employees as well as customers. This would help them train employees even when the latter are not at their work place. Furthermore, the use of serious games in mobile devices helps users to enhance their learning and develop their skills.

### 2.3 MARKET SIZE ESTIMATION

Top-down and bottom-up approaches have been used to estimate and validate the size of the serious game market as well as that of the various other dependent submarkets in the overall serious game market. Key players in the market have been identified through secondary research, and their market shares in the respective regions have been determined through primary and secondary research. This entire research methodology includes the study of annual and financial reports of top market players, as well as interviews with industry experts (such as CEOs, VPs, directors, and marketing executives) for key insights (both quantitative and qualitative). All percentage shares, splits, and breakdowns have been determined using secondary sources and verified through primary sources. All the possible parameters that affect the markets covered in this research study have been accounted for, viewed in detail, verified through primary research, and analyzed to get the final quantitative and qualitative data. This data has been consolidated and supplemented with detailed inputs and analysis from MarketsandMarkets, and presented in this report. The figures given below show the overall market size estimation process employed for the purpose of this study.
2.3.1 BOTTOM-UP APPROACH

The bottom-up approach has been used to arrive at the overall size of the serious game market from the revenues of key players and their shares in the market. Calculations based on the revenues of the key players identified in the market were used to arrive at the overall market size.

**FIGURE 2  BOTTOM-UP APPROACH**

Global serious game market size in terms of value

Market size, on the basis of segments

Percentage split for segments

Total Market Size ($Billion) = North America (Product) + Europe (Product) + APAC (Product) + RoW (Product)

**PRIMARY SOURCES:** Demand & Supply Side Experts

**SECONDARY SOURCES:** Annual Reports, Presentations, Press Releases, Journals, Paid Databases, and MarketsandMarkets Repository

Source: MarketsandMarkets Analysis
### 2.3.2 TOP-DOWN APPROACH

In the top-down approach, the overall market size has been used to estimate the size of individual markets (mentioned in the market segmentation) through percentage splits from secondary and primary research.

For the calculation of specific market segments, the most appropriate immediate parent market size has been used to implement the top-down approach. The bottom-up approach has also been implemented for data extracted from secondary research to validate the market size obtained.

The market share for each company has been estimated to verify the revenue share used earlier in the bottom-up approach. The overall parent market size and individual market sizes have been determined and confirmed in this study by the data triangulation procedure and the validation of data through primaries. The data triangulation procedure used for this study is explained in the next section.

**FIGURE 3   TOP-DOWN APPROACH**

- **Total global serious game market ($Billion)**
- **Percentage split for the market segments of the serious game market**
- **Geographic split**
- **Regional and country-wise market for each sub-segment**

The global market size is validated through primaries (Demand and Supply Side Experts).

**PRIMARY SOURCES:**
Demand and Supply Side Experts

**SECONDARY SOURCES:**
Annual Reports, Presentations, Press Releases, Journals, Paid Databases, and MarketsandMarkets Repository
Company Websites, and News Articles

*Source: MarketsandMarkets Analysis*
2.4 MARKET BREAKDOWN & DATA TRIANGULATION

After arriving at the overall market size through the process explained above, the total market has been split into several segments. In order to complete the overall market engineering process and arrive at the exact statistics for all segments, the data triangulation and market breakdown procedure has been employed wherever applicable. The data has been triangulated by studying various factors and trends from both demand and supply sides. Along with this, the market has been validated using both top-down and bottom-up approaches.

FIGURE 4 DATA TRIANGULATION

MnM KNOW* stands for MarketsandMarkets’ Knowledge Asset Management framework. In this context, it stands for existing market research knowledge repository of over 5,000 granular markets, our flagship competitive intelligence and market research platform “RT”, subject matter experts, and independent consultants. MnM KNOW acts as an independent source that helps us validate information gathered from primary and secondary sources.
### 2.5 RESEARCH ASSUMPTIONS

The following assumptions have been taken into consideration to complete the overall market engineering of the serious game market:

#### 2.5.1 ASSUMPTIONS OF THE RESEARCH STUDY

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>ASSUMPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authenticity of Data</td>
<td>Company revenues and segment-specific information have been obtained from the annual report of the respective companies. The information provided in the annual reports has been assumed to be authentic.</td>
</tr>
<tr>
<td>Global Economic Downturns</td>
<td>The global economy has a direct impact on any market. The global economy has been assumed to remain stable while forecasting the market in this research study.</td>
</tr>
<tr>
<td>Market size</td>
<td>The market size of each segment has been estimated based on the market understanding and insights gained from the interviews with experts.</td>
</tr>
<tr>
<td>Political Outlook</td>
<td>For the serious game market size, the global political environment has been assumed to remain stable during the forecast period.</td>
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</tbody>
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