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Subject: White Paper: Sims as a Game-based Training Tool

Gaming Industry Overview

This paper discusses the gaming industry landscape and the continued rise in popularity of video games.

Industry Profile

As the world becomes more and more connected digitally, people take on video games as a way to connect with others. The advantage of using video games as a device to stay in touch with friends and family is the convenience of playing cooperatively even when the other party is on the other side of the globe.

Industry Description

The gaming industry has many different subsections, including mobile, PC, and console games. Within these three scopes, there is an expanse of different mediums, specifically online versus local gaming. Big players in the industry are always seeking new ways to innovate immersive gameplay, and at the same time, creating demand for more easily accessible games [1].

Industry Performance: Current and Historical

Over the past twenty years, companies have ridden on the technological boom, creating a diverse gaming landscape in which virtual reality, **massively multiplayer online role-playing game (MMORPG)**, and **local co-op** games become increasingly available. With the trend of innovating both portable and stationary gaming devices, gaming companies are now using different monetization strategies to increase revenue and diversify customer demographics. Gaming companies are entering a variety of markets in order to maintain user relevancy, and as a result, also creating new platforms [1]. E-sports is a team- or individual-based competitive platform that millions pay to watch globally, much like the traditional physical-based sports that people watch on television [2].

The industry will continue to grow as underscored by the fact that even during COVID-19, numerous gaming companies are still able to sustain game development and see a dramatic leap in revenue. This phenomenon is due to the shelter-in-place mandate in many parts of the world, coercing people to take up at-home entertainment [3].

Currently, the gaming industry is valued at \$162.32 billion (USD) in 2020 and projected to be at a value of \$295.63 (USD) billion in 2021 [1]. From 2015 to 2020, the industry's **compound annual growth rate (CAGR)** was 4.8% [4]. *Figure 1* displays the revenue over time from 2015 to 2020.

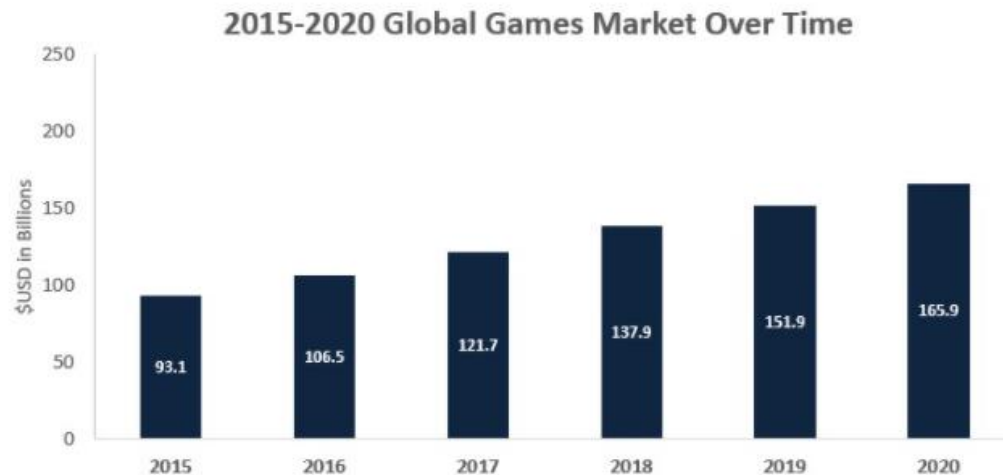


Figure 1: Continued growth from 2015 (\$93.1 Billion USD) to 2020 (\$169.5 Billion USD) [4]

The growth of the industry can be explained by the increase of awareness due to the rise of social media, such as YouTube and Twitch, where many influencers and professional gamers began to stream their games as content. In addition, video game companies are finding new ways to acquire users. No longer do people have to buy physical copies of the games and wait for their companions to gather in one physical space to enter a game. Nowadays, people can find online distribution sites for purchasing digital copies and join cooperative games via the internet any time of day [5].

Industry Outlook and Forecast

Seeing rapid growth over the years, the industry has registered a CAGR of 10.5% over the forecast window between 2021 to 2026. There are several factors that can be attributed to the bright future that the industry is seeing [1].

- **Easy access to games with cloud servers.** Cloud technology drives the new approach to gaming. Advanced cloud technology allows games to be stored and does all the computation work which includes rendering backgrounds, logic processing, and video streaming. This has prompted major game companies like Sega, Ubisoft, and Epic Games to push their products through cloud gaming libraries. This is also known as gaming-as-a-service or gaming on demand.
- **Adoption of gaming platforms as entertainment.** E-sports is becoming one of the most substantial platforms in the professional gaming world and takes in a billion dollars (USD) a year. South Korea is named as the origin of e-sports though USA is now leading the e-sports market. Hosting tournaments for e-sport games is another marketing strategy that boasts sales,

attracting continued loyalty with old players and enticing new players with its thrill of arena-based competition.

- **Rise in gaming startups.** The number of indie studios and startups are growing in this industry with many hoping to enter the e-sports space. The main strategy of these smaller companies relies on publishing free-to-play games with a bombardment of in-game monetization methods, such as options to buy skins for characters, gameplay items, and in-game currency. In 2020, 85% of the total digital games revenue came from free-to-play games [6].

Industry Segmentation

The industry can be segmented by region. Asia Pacific holds the majority share of the revenue in the industry (approximately 48% of the revenue in 2020), North America holds a much lower share (19%), Middle East & Africa (3.4%), and Latin America (3.8%) take up the rest of the share [6]. *Figure 2* further breaks down the regions by country against their revenue gains in 2020.

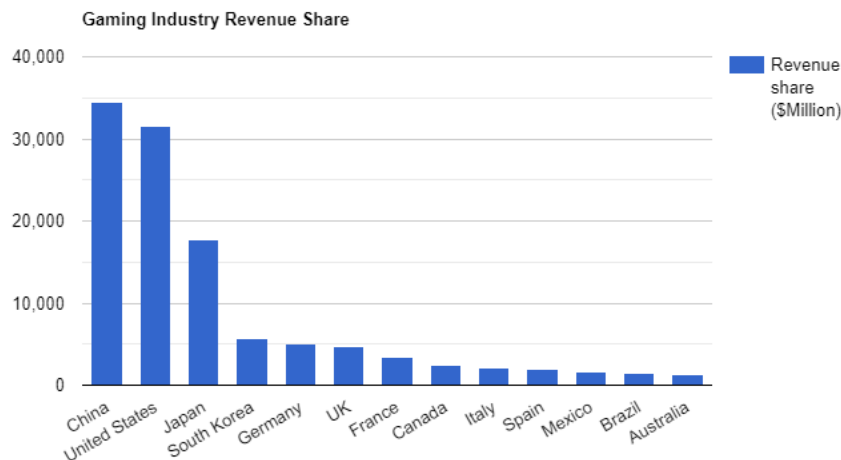


Figure 2: 2020 revenue shares by country [6]

As smartphones become more and more of a household staple, trends in game development have shifted towards mobile apps. *Figure 3* shows the industry broken down by gameplay mediums. Mobile games have increased significantly from 2012.

2012-2021 GLOBAL GAMES MARKET

REVENUES PER SEGMENT 2012-2021 WITH COMPOUND ANNUAL GROWTH RATES



Figure 3: global games market segmented by medium [4]

Target Market Analysis: E-learning Tools

E-learning is the delivery of web-based teaching for both formal and informal topics. E-learning is becoming the norm as people enjoy the convenience of taking courses when they want and where they want. **MOOCs**, massive open online courses, are an example [7].

Market Description

The e-learning market is expected to grow largely due to the growth of online and mobile devices as seen over the years. Both academic and non-academic institutions are adopting e-learning as a tool to engage and acquire users. Especially with the popularity of video-streaming websites and other online accessible mediums, people are preferring e-learning over the traditional in-person delivery. E-learning tools come in many ways, including video-, game-, and text-based learning. The main factors that they have in common are that users can choose where, when, and how they want to complete the lessons. In this sense, the learners have more control of the circumstances that affect the lessons being carried out [7].

Market Performance: Current and Historical

The e-learning market had a CAGR of 8% from 2015 to 2020. There were a number of factors attributed to this growth, such as the rise of digital textbooks, micro-learning, blended teaching methods, webinars, and gamification of training programs. The market had a value of \$165 billion (USD) and was projected to grow to \$240 billion (USD) by 2030 [8]. Figure 4 documents the trend.

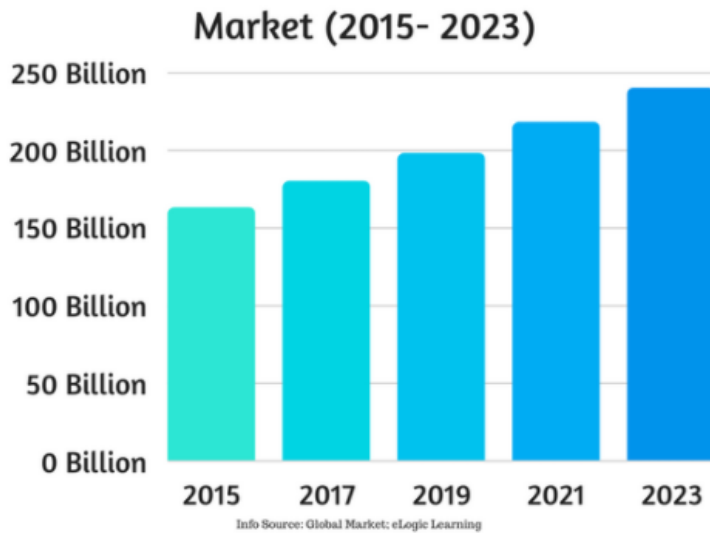


Figure 4: the e-learning market's expected growth from 2015 [8]

Market Outlook and Forecast

Following past expected growth, the CAGR for the global e-learning market is now estimated to be 14.6%, estimated at \$144 billion (USD) in 2019 to \$374.3 billion (USD) by 2026 [9].

The adoption of telecommunication and continued development of multimedia sources play a pivotal role in the popularity of e-learning. E-learning services are also much more affordable than the in-person counterpart which is another reason for its rise in the market. Digital devices are also more budget friendly, creating a diverse environment for e-learning opportunities whether on mobile, tablet, or desktop [9].

Market Segmentation

According to Ambient Insight, North America accounts for more than 50% of the total e-learning market. USA alone reached \$2.1 billion (USD) in revenue in 2019. Ranking second place for most market share is Asia, followed by Western Europe. People are more conscious about effective and continuous learning, and this focus has erected a change in the e-learning market [7].

Market Characteristics

The e-learning market is predominantly composed of corporate and academic e-learning markets. Service providers are constantly racing to push innovative tools through the newest technologies to users with visually engaging designs and multimedia-driven campaigns. A few major features include:

- **Delivery mode.** The packaged content delivery mode is the most preferred method in the e-learning market. Packaged content has no limitation in time and setting and is the easiest to integrate for users as this mode is most cost-effective. Learning management systems (LMS) is a software application for administering, documenting, tracking, and delivering courses. Because of the everyday use of smartphones, development of LMS is now also pivoting to interactive and gamified learning [10].
- **Learning mode.** Self-paced learning is increasing in popularity though instructor-led e-learning is following close behind. Self-paced e-learning is scaling in the global market because many people find that it helps with career growth as well as career change to different industries. USA takes up a big part of the market and is predicted to influence the prospects of global e-learning in the future. In contrast, China is the dominant player in the instructor-led e-learning segment and most of the courses in China are for English language learners [10].
- **Topic and function.** Examination training for TOEFL, IELTS, GMAT, and SAT is the most available topic in e-learning though now the emergence of programming and computer science topics are rising. Corporate learning and employee training is expanding across all regions though still lagging behind the higher education segment which provides more traction amongst consumers [10].

Market Trends

Strong demand in the e-learning market can be attributed to the following trends:

- **Game-based learning.** 74% of the people under age 50 in the workforce plays video games as a hobby. Because of the rising evidence of education games and training games as learning material, buyers are now moving away from legacy products and replacing them with new ones, particularly game-based e-learning tools that are high in demand. Gamification is seen as a more engaging and fun way to learn. Game-based tools can also provide realistic settings in virtual worlds [7].
- **Wearable devices.** Consumers are currently adopting devices that can be worn as accessories or as part of clothing. E-learning tools are seeking to penetrate the wearable devices technology market in order to gather information about student or employee well-being to improve customer service. The disadvantage of these devices is that people are worried of data-breach and stolen data that could be analyzed by companies without their permission [7].
- **Microlearning.** Many corporations are jumping into the e-learning trend by providing courses made from their own set of instructors. For example, Google has created a university, delivering personalized and job-relevant topics in their courses. Their short tutorials aim to acquire consumers while Google uses their well-known brand as a way to capture audience [7].

Market Catalysts

With the ever-growing need to adapt in the current competitive job market, consumers are integrating e-learning courses and tools to improve their job prospects. The e-learning market is striving to fill this gap. Market catalysts that drive the growing demand include:

- **E-learning as a solution to corporate budget and productivity-related issues.** Instead of using traditional teaching methods, corporations are taking advantage of using social, mobile,

analytics, and cloud (**SMAC**) technologies for e-learning solutions. This is a fraction of the cost of instructor-led classroom teaching methods and offers employees the convenience of training whenever and wherever they want. This fits into the notions of lifelong learning and career advancement opportunities. Corporations are also constantly finding new tools to switch to, replacing old LMS to improve user and administrative experience [7].

- **Social learning pushes consumers to learn at their own pace.** MOOCs provide virtual classrooms, video discussions, and online forum discussions that allow consumers to interact with people all over the world. This method drives integrity and holds consumers accountable for their own learning. MOOCs are also convenient, similar to many other e-learning tools, in that learning materials are self-paced and short. Results are measurable and pulls personal interests at the apex of learning [7].
- **Personalized learning is the new-world method of learning.** Search engines provide consumers with easy access to thousands of different courses, all with areas that fit the needs of the user. There is no one-size-fits-all policy in e-learning as there are a variety of mediums that e-learning material is delivered through, instructors that teach with tools that meet users' needs, and activities that suit unique user experience [7].

Competitive Landscape

The major contributors in the market are also big players in other markets such as enterprise, data, or general PC software.

Key Players

The major companies in the e-learning market are Adobe, Microsoft, Oracle, and SAP. Electronic Arts is currently not in the market, but it has been included in the table below to show its potential once it joins the e-learning scope with the technology it already has. *Table 1* gives a summary of the comparison.

Table 1: Comparison of the key players in the e-learning tool market [12, 13, 14, 15, 16, 17, 18]. Electronic Arts has been added to highlight its potential if they were to enter the market.

Company	Areas of Expertise	Strengths	Weaknesses	Annual Revenue for 2020 (Billions USD)
Adobe	<ul style="list-style-type: none"> • Creative software • Multimedia software • Paper-to-Digital software 	<ul style="list-style-type: none"> • Creative product specialist • Major developments worldwide • Culture of retaining customers 	<ul style="list-style-type: none"> • Creative suite packages are increasing in price • Parent company has no expertise in Linux OS so no products that can work in that operating system • Feature updates in software are not customer oriented 	12.87
Microsoft	<ul style="list-style-type: none"> • Operating systems • Software development tools • Computer hardware and software 	<ul style="list-style-type: none"> • World's largest company with dominant market share in tech • Global reach • Diverse products • Excellent brand reputation 	<ul style="list-style-type: none"> • Lagging in innovation compared to the Apple, Google, and Amazon • Fewer and fewer acquisitions 	44.28
Oracle	<ul style="list-style-type: none"> • Database management systems • Database software 	<ul style="list-style-type: none"> • Strong distribution network • High level of customer satisfaction • Successful M&A of other tech companies • Global reach 	<ul style="list-style-type: none"> • Investment in Research and Development is below fastest growing companies in the tech world • Limited product range 	39.10
SAP	<ul style="list-style-type: none"> • Data processing software • Enterprise software 	<ul style="list-style-type: none"> • Expanding globally • Growing brand • Successful M&A of other tech companies • Highly skilled workforce through successful in-house training 	<ul style="list-style-type: none"> • Not enough products to choose from • High attrition rate of employees • Lack of investment in new technology 	31.22

Company	Areas of Expertise	Strengths	Weaknesses	Annual Revenue for 2020 (Billions USD)
Electronic Arts (EA)	<ul style="list-style-type: none"> Video games 	<ul style="list-style-type: none"> Strong brand name Acquiring many smaller studios for diversified operations Automation of work allows for consistent high-quality products Scaling products efficiently based on demand Constant production of new products to attract different groups of players 	<ul style="list-style-type: none"> Need to invest more in new technology Innovation of new products needs to increase High attrition rate of workers 	5.5

Electronic Arts Competitive Advantage

EA has the following competitive advantages in the e-learning tool market:

Existing game development infrastructure, including proprietary engine and studios. EA has been in business since 1982, and along the years, the mature company has established and expanded its game technology infrastructure. With their skilled workforce and EA's own proprietary engine, Frostbite, the company could easily enter the e-learning market without spending large amount of capital in building a development kit for game-based e-learning software from the ground up.

Strong customer and player network globally. EA has a great brand name reputation in the technology industry and has acquired many studios to scale up their operations. The strong customer base that EA has worldwide will prove to be useful when they market their game-based e-learning software as people already know what EA is capable of, enticing customers to try EA's newer products.

Access to significant resources. With the company's resilience and steady revenue stream, EA can tap into their capital and already-established resources to branch out their portfolio into the e-learning market. EA already spends more than the average amount of money on their research and development sector compared to their competitors so they could expand into a different type of software product with ease [16].

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